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ORIGINAL ARTICLES.

PELVIC SUPPURATIONS: THEIR TREATMENT BY VAGINAL INCISION AND DRAINAGE.*

By William E. Ground, M. D.

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It seems to be the failing of civilized man to make a complicated out of a very simple matter, to seek intricate solutions for easy problems, a far away revelation for immediate conditions. The spirit of mystification has been so long a part of our social and intellectual fabric, that it is hard of expurgation. It seems almost necessary to our development that we find truth by remote byways, that we seek and delve and suffer and die, that one faggot of truth might burn. I think no difficulty will be experienced in seeing this principle personified in the development of surgery. To let the mind run back over the ages that were evolving the present perfected state of our science is enough to fill us with amazement. How many martyrs it took to discover the circulation of the blood; how much agony to develop anæsthesia; how many lives to prevent suppuration. I do not mean by this to point the finger of scorn at our grand profession, for its shortcomings and failures pale into insignificance when compared with the history and development of religion and politics and natural sciences. I simply recognize it as a means by which our present advanced state of civilization was attained. Whether necessary or not I will not presume to say; I can only say it is to be deplored. The history of gynæcology has not been one unblotted sheet. It has taken as much to develop gynæcology as it has her parent surgery, for without the principles of modern surgery, gynæcology would never have gotten out of its swaddling clothes. I will not take up your time reiterating the various crazes of the faddists; these you know too well now; for whatever may have been the mistakes or delays in true progress, it is at least pleasant to know that the age of mere speculation and ignorant mysticism is passing; that the accurate knowledge and fuller certainties of the present day have been achieved by anatomical and pathological research together with patient clinical studies in the sickroom and operating theatre. The groundwork, then, of all true progress in medicine and surgery is founded upon exact anatomical and pathological detail. Outside of this is mere groping empiricism.

Though abscess of the womb had been mentioned by Ætius and Paul of Ægina, yet no systematic attempt of study of pelvic pathology was made until 1840. About this time Bourdon described "Fluctuating Tumors of the True Pelvis," and a year or so later Doherty called attention to inflammations of the uterine appendages, and in 1844 Calvi wrote on "Intrapelvic Phlegmonous Abscesses," while in the same year Churchill and Lever contributed to our knowledge of this subject. Any one who reads the literature of gynæcology at this time, and even at a much later date, will be impressed with the fact that these writers considered all pelvic inflammations, exudations and abscesses as due solely to inflammation and suppuration in the cellular tissue of the true pelvis. Hence such terms as pelvic abscess, periuterine phlegmon, parametritis and pelvic cellulitis were applied to the same thing, viz: inflammation of the pelvic cellular tissue. In 1857, Bernutz, while making a post mortem on a woman who had died of so called periuterine phlegmon, observed that the tumor, instead of being formed by inflammation of the pelvic cellular tissue, was really composed of the uterus, broad ligament, bladder and sigmoid flexure all matted together, the cellular tissue of the uterus and broad ligament not being involved. In 1862 Bernutz and Goupil set forth their ideas regarding pelvic inflammations as primarily affecting the tubes, ovaries and pelvic peritoneum. After much discussion on both sides, it is now conceded that the vast majority of pelvic suppurative disease is the result of infection through the uterus and Fallopian tubes, that outside of the introduction of sepsis into the lymph circulation by way of rents and tears after operation, abortions and deliveries at term, pelvic cellulitis is a very rare disease. The recognition of the fact that a large majority of the septic conditions requiring operative interference were located in the Fallopian tubes and immediate vicinity gave an impetus to the abdominal route as a means for relief. While I contend that the suprapubic opening of the abdomen has been resorted to too freely in the past, I am free to admit that it has been a necessary part of the evolution of intrapelvic surgery. For without the opportunity for minute inspection afforded an unobstructed view from above, many pathological details would have remained conjectural that are now clearly defined.

The idea of removing the products of extrauterine pelvic suppuration by vaginal incision and drainage has been a practical matter only a comparatively short time. To Landau, in Europe, and Henrotin, in this country, is due the credit of bringing this operation to the profession as a regular surgical procedure, although Emmett, 30 years ago, made a practice of puncturing pelvic phlegmons. It will be well to bear in mind in this connection the difference in the effectiveness

*Read before the Inter-County Medical Society, November 9, 1897.

of the work in vaginal incision and vaginal puncture. In vaginal incision the pus sac is freely opened and drained, while puncture, as the name suggests, is only accomplished by a careful thrust of a needle, from which only a small portion of the septic matter could escape. Not only this, but the probability of reinfecting the pus cavity was very great. Practically, then, these two operations are distinct, and should not be referred to in the same connection. There are many apparent reasons why vaginal incision soon became a popular operation. We are all aware of the great tendency to remove tubes and ovaries about ten years ago, for the most trivial causes, real or imaginary. The results were not satisfactory. True, the patients recovered from the operation, but not 50 per cent. were cured. They would return complaining of the same or worse pains and the same nervousness. They felt no better, in fact worse, because they realized they had been subjected to an operation with no results justifying it, and had in addition their mutilation. The more thoughtful operators began to see the uselessness of trying to cure every woman with pain and hysteria by salpingo-oöphorectomy. The paucity of the literature on this subject forbids further allusion to it here.

Learning by experience that removal of the tubes alone would not cure these cases, and that the removal of the ovaries and tubes precipitated the menopause in those women who had not passed that period, that sexual changes resulted, that melancholia often developed, conscientious men turned their attention toward conserving these organs. They began to operate only when well defined lesions were recognizable, and if, when the abdomen was opened, they found one ovary, or even part of an ovary, healthy, it was spared. This method of procedure soon gave evidence of better results, for those symptoms depending upon gross pathological changes were relieved and the symptoms resulting from total mutilation did not present themselves, or if they did they assumed a mild form as compared with the original symptoms. Under these circumstances the patients were either cured or much benefited, so that the operation was satisfactory. The reason for this was not the same in all cases. Although the pus was removed and the abscess cavity obliterated and the whole operation radically and successfully completed, some patients would not rally, others developed peritonitis and died, and occasionally intestinal paralysis or intestinal obstruction would terminate an otherwise promising case. In some of those that recovered from the operation adhesions would form between the viscera, or the pedicle ligature would develop trouble commensurate with the original condition, or consequences the result of imperfect drainage would confront the surgeon, and lastly there is the liability to the formation of a ventral hernia. As you can readily see, some of these bad results are due to the manner of operating, and others to the peculiarity of the disease itself. The greater stress was placed on one or the other according to the judgment of the operator. Some surgeons thought that their operations were not radical enough, that some portion of the disease remained, or that the uterus itself was the ultimate source of mischief,and they therefore recommended the total extirpation of that organ in all cases of bilateral suppurative disease. This technique was particularly advocated by American surgeons, while the French surgeons practised hysterectomy simply to get at the suppurative disease above and to provide a drainage. As to the advisability of removing the uterus when it becomes necessary to remove the tubes and ovaries I will not discuss, but will endeavor to adhere strictly to my subject, however hard that is to do, as often allied subjects so closely interlock that the temptation to digress and explain is almost irresistible.

Now, what are the indications for vaginal section and drainage in cases of suppurative disease of the pelvic viscera? Here I propose to adhere to the principles of general surgery that have been so efficient and successful in other regions of the body. It is a well known fact that pus when forming travels in the direction of least resistance, and unless its progress is interfered with by adhesions, normal anatomical arrangements or limiting membranes, that direction will be downward into the most dependent part. Should we pour a liquid into the normal pelvis it would go into the hollow of the sacrum, into the post-uterine peritoneal pouch. This, then, would be the natural route to drain the pelvis of objectionable fluids: the suprapubic, the unnatural. In cases of empyema we do not open the apex of the thorax, but the most dependent part is opened and there drainage established. Many surgeons, recognizing the value of vaginal drainage after abdominal section, often open Douglas' fossa for that purpose.

Shock is much less after vaginal than after ventral cœliotomy. My cases have, with but an exception or two, suffered from no more shock than from a curettement, and the convalescence has been as prompt. The operation by the vagina is generally accomplished extraperitoneally. Occasionally the peritoneal cavity is opened, but in this case only a small area is exposed as compared with what happens in this respect when the abdominal cavity is approached above the pubes. I prefer to select my cases for operation *per vaginam*, by the physical condition and topographical location of the tumor, rather than by any stage or type of the disease. Pelvic pus accumulations naturally become walled off from the general peritoneal cavity by the inflammatory exudate, which often binds all the organs into one hard, doughey mass. The mass felt on bimanual examination may consist of effused lymph, pus or other septic

fluids, an ovarian abscess, a pyosalpinx, an encysted peritonitis in Douglas' pouch or a true phlegmon in the pelvic cellular tissue. When, however, the tumor appears high in the pelvis, and out of reach of the finger through the vagina, and the chances are very great of its being an unruptured ovarian or tubal abscess, or perhaps an appendicitis, or when the mass is freely movable, the anterior abdominal route should be preferred. Dr. Abbott, of Minneapolis, believes that all abscesses below a line drawn from one anterior superior spinous process of the ilium to the other can be successfully treated through the vaginal incision. It is certainly surprising to what extent the finger can reach. I have explored and broken up abscesses well around to the sides and even in front of the uterus. Although I have not done so, I would not hesitate to practise anterior colpotomy when the location of the pus seemed anterior.

Many objections have been urged by different surgeons to vaginal incision as a regular surgical procedure in the management of pelvic pus disease. They claim that it is resorted to only by timid operators. The truth of the matter is that as much, if not more, skill and surgical judgment is necessary to suscessfully operate by the vaginal than by the suprapubic route. By the vaginal route almost all of the work is done by the sense of touch, and the area of operation is much restricted. It is claimed by those opposed to the vaginal operation that much diseased tissue remains, and that, even if the pus is removed, the cicatrices that resulted would complicate any future operative interference that might be necessary. That occasionally, even when the cases for vaginal incision are judiciously selected, we may be called upon to open the abdomen to more radically remove pathological conditions, I do not deny; but I do deny that the fact of opening and draining through the vagina complicates matters one iota. Any abdominal surgeon, it seems to me, would much prefer to deal with cicatricial tissue and adhesions in a sterile condition than with pus complications. In a series of twenty-three cases where I resorted to vaginal drainage for pelvic abscess two have later required ventral cœliotomy to complete the cure. These two cases were drained of extensive abscesses of the tubes and ovaries, but subsequently the uterine symptoms continued in the form of pain, metro endometritis or profound disturbances of the pelvic circulation. Upon opening the abdomen extensive adhesions between the intestines, omentum and the uterus and the tubes were found. In one case the ovaries were cystic. Neither case contained pus. Both ovaries were removed in one case; in the other only one ovary was removed, the remaining ovary and tube, being apparently healthy, was allowed to remain. This woman became pregnant about four months after the operation but miscarried at about the third month. In both cases the adhesions were carefully broken up and the parts put in as natural a condition as possible. Both women made excellent recoveries.

Another of my vaginal section cases is of more than usual interest. Mrs. A. J., aged 28, mother of one child, no miscarriages, always well. Two years ago she took suddenly with abdominal pain, which was accompanied by symptoms of an inflammatory condition in the lower abdomen. She was treated for typhoid fever and slowly partially recovered in about three months. Since then she has had more or less pain and tenderness in the right side low down. Last April I saw her for the first time. She was then complaining of great pain in the pelvic region, was tympanitic, and had two or three degrees of fever. Physical examination revealed a tumor low in right pelvis and extending two inches above the horizontal ramus of the pubis. My diagnosis was an old ectopic pregnancy which had ruptured two years ago when she had her acute attack of abdominal inflammation. I advised operative interference, which was soon agreed to, but before she could get to the hospital a bloody discharge appeared from the rectum. A digital examination of the rectum revealed an opening in its anterior wall, through which the finger could pe passed into the cavity. The patient ready, I made the posterior incision for vaginal hysterectomy, to which I added Henrotin's cut. As soon as the cellular tissue was reached, I burrowed up behind the uterus until I penetrated a cavity, a suppurating hæmatocele. This sac contained blood clots, decidual and fœtal tissue and pus. The opening into the rectum was easily demonstrated. The abscess was emptied, packed with sterilized gauze and a glass drain inserted. This packing was removed on the second day and the cavity irrigated. Fæcal matter passed out through the vaginal incision, and continued to do so for about two weeks. The cavity was irrigated daily with sterilized water until, at the end of the third week, the sinus had entirely closed. This woman has remained entirely well and has gained thirty pounds. The uterus is freely movable and menstruation normal. Now here is a case in which ventral cœliotomy would have been hazardous, to say the least. She had been suffering from the consequences of a suppurating ectopic gestation for two years. Had had repeated attacks of peritonitis and accompanying fever and sepsis. Just how this gestation sac became infected I do not know, but I should suggest its close proximity to the rectum as the most likely source. A suprapubic cœliotomy would have necessitated breaking up a great quantity of dense adhesions to get at and remove the product of conception, and further complications would have arisen owing to the communication with the rectum, from which it would have been almost impossible to prevent infection of the peritoneum.

For the operation the patient must be prepared as carefully and as thoroughly as for a hysterectomy. The utmost attention must be paid to asepsis. Unless there exists some clear indication to the contrary, the interior of the uterus should be curetted and packed with plain sterilized gauze until the main operation is completed. The idea of this is to prevent infection from the endometrium. The cervix should be firmly seized with a stout volsellum and pulled well forward. A few pulls and releases of the volsellum will locate the fold that marks the junction of the vaginal wall to the uterine cervix, and at this point the posterior incision for vaginal hysterectomy is to be made. The mucous membrane may be severed, either with a knife or a sharp pointed scissors, laterally to the extent of the width of the cervix, taking care to keep up well against the posterior surface of the uterus. As soon as the cellular tissue is reached the finger must be used to burrow into the infiltrated mass. I discard all retractors and pass my left hand into the vagina, with the index finger in the incision (the nail of which I leave long), and with the right hand on the abdomen to make counter pressure, I am able to explore the entire pelvic cavity behind, above and to the sides of the uterus and to open all pus sacs within that territory. Now, the technique which we should execute just at this point varies a little according to circumstances. If we are dealing with a pelvic phlegmon, or an unruptured tubal or ovarian abscess situated well down in Douglas' fossa, we can most likely evacuate and drain without entering the peritoneal cavity. On the other hand, if the abscess is located higher, or if the adhesions have not walled off the peritoneal cavity, it will probably be necessary to pass over healthy peritoneum to reach the trouble. When such is the case it is best to elevate the patient's hips about four inches and enlarge the opening by adding an extra incision extending from the middle of the original cut directly backwards along the median line of the posterior vaginal wall to the extent of an inch, carefully avoiding the rectum. The whole T-shaped incision is then carried into Douglas' fossa. The exploring finger is then passed into the peritoneal cavity and the abscess located. A piece of sterilized gauze with a string attached is then passed through the incision, pushing the intestines back from the field of operation and walling off the peritoneum. The abscess may now be opened either with the finger or, if it can be brought down into view, a sharp-pointed scissors may be thrust into the sac, extending the blades and withdrawing, thus tearing a wide opening.

If the lesion is difficult to bring into view, this desirable advantage may be much facilitated by pulling the cervix well forward with a volsellum, at the same time a long perineal retractor presses back the posterior wall of the field of operation. In this way often the place of puncture can be directly under the eye. In those cases where I have been compelled to operate intraperitoneally I have seen no bad results follow. Unless there are adhesions the general peritoneal cavity can be kept out of the field of operation by carefully placed gauze pads. The abscess opened, I irrigate with a normal salt solution and pack with plain sterilized gauze. I use no iodoform gauze for drainage in non-tubercular cases nor clean wounds. Iodoform interferes with drainage, and may lead to toxic symptoms and is a useless incumbrance, except when indicated in specific conditions.

MOLLUSCUM FIBROSUM.*

By E. D. Keyes, M. D.

Winona, Minn.

Having had a very interesting and characteristic case of molluscum fibrosum, I thought it might interest you to see photographs and listen to the history of the case and a few points on the disease in general.

First, molluscum fibrosum is described as a chronic hypertrophic affection of the skin, characterized by cutaneous or subcutaneous neoplastic tumors, projecting in different degrees from the surface, of varying degrees of density, single or multiple, and covered either by a sound and attached, or rarely by an ulcerated integument. The affection has been called M. simplex, M. pendulum, M. albuminosum and fibroma M.

There are two general forms of the disease: one in which the surface of the body is covered with numerous small tumors, the other in which there is a single large tumor, or at the most two or three of them. These two forms run into each other, and it is often found that one or more large tumors occur with the generalized form, and a few small tumors occur with the circumscribed one.

These cutaneous tumors occur in any number from one up into the thousands. They are situated, when small, within or beneath the skin, where they can be distinguished as distinctly circumscribed, indolent nodules, usually small, soft and rounded, often projecting. When more fully developed they become sessile, pedunculated, or largely pendulous tumors, hanging from the part to which they are attached in folds. This form of molluscum fibrosum, like the other, is very indolent; and it is only the large size of the tumors that renders them so inconvenient and troublesome that surgical relief is in most cases sooner or later demanded. Occasionally, under the influence of some mechanical irritation, as of constant rubbing, the tumor may become ulcerated and a sore produced. Sometimes free hemorrhages occur.

*Read before the Southern Minnesota Medical Society, August 5, 1897.

These lesions are found on all parts of the surface, including the palms, soles and scalp. In some cases, where post mortem examinations have been made, some of the internal organs have displayed these tumors, and in several cases they have been found upon the nerves.

The seat of these lesions is in the derma, and they move with it. Their color is that of the normal skin or slightly pinkish, or, in the older larger growths, brownish, from varying degrees of pigmentation. The tumors are of variable consistence, but are always more or less soft and flaccid, except that in many of the pea or cherry sized tumors, they appear distended and firm as if œdematous. They hang from their point of attachment in loose baggy masses, and feel like flaccid, fleshy bags full of fibrous cords. In the more extensive cases the affection appears stationary. When, however, the number of lesions is small, one or two of them may be observed to develop, slowly at first, but with increasing rapidity, until in time they acquire an enormous size.

This disease is rare. Of 112,775 cases of skin diseases reported to the American Dermatological Association, only 85 were cases of molluscum fibrosum. It is more common in women than men. While observed in adults, it is commonly first developed in childhood.

Hebra has asserted that the disease occurs in persons of stunted mental and physical growth, and this is the experience of many observers, while it is combated by others. The precise cause of the disease is unknown. Von Recklinghausen concludes, from careful researches, that the disease is originally a neuro-fibroma, the nerve at first being present, and afterwards disappearing as the tumor grows and the connective tissue becomes predominant. Hyde says: "It is, however, reasonable to believe that it is a vice of local development under the influence of constitutional predisposition."

There is some question as to whether these growths originate in the deep interspaces of the corium, or in the connective tissue about the hair follicles or fat globules. The fibrous bundles pass downwards and unite with those of the derma or subcutaneous tissues, forming thus a firm attachment for the pedicle of all pedunculated tumors.

The diagnosis rarely presents any difficulty. The number and wide distribution of the lesions, the unchanged character of the skin covering the tumors, the variety in size and shape of the latter, and the pendulous character of the larger tumors, are all characteristic.

The prognosis of molluscum fibrosum is generally favorable. Occasionally, however, degenera-

tive changes may take place in one or more of the tumors with a tendency to malignancy.

The only treatment available for the relief of molluscum fibrosum is the surgical removal of such of the tumors as are unsightly or which interfere with the movements of the body.

CASE I.

Miss ——, aged 43, unmarried. When 7 years of age, while picking flowers in the garden with her mother, suddenly gave a shrill cry of pain, and clutching her right arm at about the insertion of the deltoid, ran to her mother, who removed her sleeve as quickly as possible, and found what seemed to have been a hornet sting, as a long, yellow fly flew out. It swelled rapidly to the size of a walnut, and was very painful, requiring the service of a doctor. It was treated under his direction with lotions, etc., and finally quieted down into a caked mass, which remained, becoming softer and more flaccid. The doctor injected this tumor with some substance which he stated would cause it to go away; but, on the contrary, the bunch seemed to grow slowly, until, in the course of five years, it attained the size of a hen's egg. Four months after the sting she was knocked down in the street by a horse and carriage, her nose was broken and she was bruised severely about the head and body, so that she was unconscious for several hours, and dazed and peculiar for some time longer. The lump left by the sting seemed to have been bruised, as it was red and angry.

Four years after the sting a second tumor appeared in the right gluteal region, and grew steadily for about ten years, when she hit it against a projecting corner, and it immediately swelled to the size of a fœtal head, and the doctor turned out large clots of blood, after two weeks, through an incision. It grew more rapidly after this and hung down, a long pendulous tumor, as shown in the photograph. It ceased growing actively ten years ago, or about twenty years after the first appearance. The large tumor on the left hip is the latest of the large growths, and was probably still growing at the time of removal, but had attained nearly its present size ten years ago. You will see by the photograph that the whole body is completely covered with these tumors, of small size, from that of a pinhead to a large cherry size or larger. They appeared little by little all through the early half of the history of this case, but the last ten years there has been very little change or growth in any part, except that the large tumors on the hips have dragged down so as to be more pendulous. These tumors are on every part of the body, and there are a few, at least, embedded in the tissues. The palms of the hands have several small tumors, and many occur on the feet. The patient consulted me for relief from weight and sweaty odors in connection with two large tumors on the hips. In summer the surfaces perspire and produce a very offensive odor, and the weight was so great that she was obliged to slip a sack or pocket over the longest one and pin it to her belt, so as to sustain its weight. These tumors have caused no pain or trouble except as above described, together with their unsightly and cumberous presence.

The one on the right hip with a comparatively small pedicle, and the original tumor on the arm, were removed April 15, 1896, and the larger, broader one on the left hip was removed June 15, 1897. The wounds after operation healed without difficulty.

MEDICAL ADVANCEMENT IN THE PAST TWENTY YEARS.*

By R. J. Hill, M. D.

Minneapolis.

The past twenty years has witnessed greater progress in all departments of science than any similar period in the world's history. The improvements in labor saving machinery of all kinds has reached such a state of perfection that it is seriously considered by some as the cause of the great lack of employment. The telephone, through which we can recognize the voice of a friend in Chicago or New York; the megaphone, which reproduces the air of the latest opera; the electric light, of our streets and houses; the swift moving electric car, that has superseded the slow moving horse car; the marvelous X-ray, that enables us to locate bullets in any part of the body and prevents our mistaking a dislocation for a fracture, not to mention the other manifold uses of electricity which now seem to us a matter of course—all are discoveries of this time. The improvements in implements of war; the long range rifle; the mammoth guns; the smokeless powder and the deadly dynamite have made war so dangerous that arbitration has become a recognized means of settling the disputes of nations.

During this time medicine has kept pace with the other sciences, and from being one of the most inexact, is fast becoming one of the most definite. The chief aim seems to have been to discover the cause of disease and to devise means to prevent it—hence the greatest progress has been made in pathology, bacteriology and prophylactic medicine. Previous to the discovery of the bacillus of tuberculosis, by Koch, in 1882, no definite cause for the disease was known, though pathology had offered many theories, but the physician had to content himself with diathesis, predisposition and heredity, as explanations. With this discovery many things were made clear that had been previously surmised. The infectious character of the disease and the source of the infection in the expectoration of the patient, showed the necessity for isolation

*Read before the Minnesota Academy of Medicine, December 1, 1897.

and the destruction of the expectoration. This investigation soon led to the discovery of other sources of infection. The examination of cattle showed that aside from tubercular patients themselves, this was one of the most dangerous sources of infection, the poison being conveyed through the milk, butter and cheese. The possibility of infection from this cause is so clearly proven that most civilized countries have taken steps to discover and destroy infected cattle. As to the treating of tuberculosis as other infectious diseases are treated, by quarantine, isolation, etc., there is yet a difference of opinion, but it seems that medical opinion is fast tending in that direction as the only hope of successfully preventing the spread of the disease. Some form of modified isolation will doubtless be instituted that will not prove too great a burden to friends and relatives, and not a source of injustice to the patient suffering from a disease so fatal and at the same time of such a long duration. The tuberculin of Koch and its numerous modifications and improvements by himself and others have not as yet fulfilled the expectations of the medical world, but yet much good has been done and the investigations are still being vigorously pushed by scientific men throughout the world, and it is not too much to expect that greater results will be attained in the near future.

Following the discovery by Koch, investigations have been made as to the specific cause of other infectious diseases, and in many of them the cause has been found to be due to a specific germ—diphtheria, malaria, anthrax, gonorrhœa and probably pneumonia. Also following the tuberculin brought forward by Koch for the cure of tuberculosis, experiments have been made with the inoculation of bacteria of different diseases, and a system of serum therapy evolved which in some diseases, notably diphtheria, has proven of the greatest value in the treatment of these diseases. There is now no question as to the efficacy of the antitoxin treatment of diphtheria, for it has been sufficiently long in use and has been subjected to critical tests in all parts of the world, with practical uniformity in the reports of its benefit. It is claimed to be almost a specific when given sufficiently early and in proper dose. It is applicable to all forms of the disease and at all stages, though as has been clearly proven, the earlier it is given the better the result. The immunization of those exposed, by the use of the same remedy in smaller dose, is beyond question a fact, and it is now generally so used. The investigation into the use of organic fluids has yielded good results in many instances, notably the use of the thyroid extract in myxœdema. The study of diseases of the heart and kidneys and the resulting more accurate differential diagnosis, together with more rational methods of treatment, has added years to the lives of those so afflicted, and in many cases years of comfort to themselves and benefit to the world.

The whole subject of dyspepsia so-called has been critically studied with the result that we no longer try by various combinations of pepsin, pancreatin, hydrochloric acid and other digestive agents, experimentally to remedy the deficiencies of digestion. But by stomach washing and the feeding of test meals, afterward examined, we try to determine accurately just what the fault may be. These methods have resulted in an accuracy of diagnosis and treatment gratifying alike to patient and physician. The advance in this line is one of the most important, for there is no class of diseases more common, and none that while not rapidly fatal, renders the subject more miserable or more trying to his friends.

During the past few years a great amount of study has been devoted to the blood, its changes in composition, in disease, and valuable aids in diagnosis have resulted from this line of investigation; the most striking examples are the accuracy of diagnosis in malarial diseases by the discovery of the plasmodium malariæ, the presence or absence of which makes the diagnosis absolute, thus making it possible for us to know at once the disease we have to treat, instead of, as not infrequently happens, the treating of a typhoid case for the first week with large doses of quinine, under the impression that it was a case of malaria. The positive diagnosis obtained between typhoid fever and suppurative appendicitis by the presence or absence of leucocytosis.

The investigations of the neurologist have been productive of much good in the advancement of that specialty, the improvement in the treatment of the insane, the discovery of nervous prostration and the rest cure for its alleviation and the localization of brain tumors which furnish a guide to the surgeon for operation; thus according to H. C. Wood affording early post mortems in cases which might otherwise have drifted away from medical watching. But while a great advance has been made in the investigation of the causes of infectious diseases, little or no advance has been made in the elucidation of the causes of those diseases primarily originating in the nerve centers. The stereotyped treatment of all forms of nervous diseases as practiced for the past twenty years by means of electrical appliances of imposing dimensions, is being recognized by the profession as vastly overestimated in its curative qualities. The field of neurology is as yet a comparatively unexplored one, and much more must be known of the physiology of the nervous system before we can attempt to define its pathology. The serum test of Widal was till recently supposed to be accurate in 95 to 98 per cent. of cases, and is still

so claimed by many, and among them those who have had most experience in its use, but there are reports of the discovery of the reaction in other diseases than typhoid or in those that have had the disease within a few years. The test is being so generally used by experimenters throughout the world that in a short time its limitations will be definitely settled; in any case its value as a diagnostic aid in conjunction with clinical symptoms is assured in this disease which is so difficult of diagnosis in its incipiency, and it is sincerely hoped that the early claims for its accuracy may be confirmed.

There have been great improvements in the preparation and character of remedies and the manner of their administration. Medicines have been given more for their definite physiological effect, which has resulted in the administering of single remedies in place of the complex prescriptions formerly employed. It is rare to see a prescription of more than two active ingredients, and four and six were not an uncommon number. The use of the alkaloids in place of crude drugs, infusions and decoctions has been made possible by the advance in chemistry and pharmacy. This has caused a marked improvement in the palatability of the medicines and much attention has been given to this feature. We do not believe that the efficacy of a dose is increased by its nauseous taste, but that where possible, medicines should be made palatable. The introduction of the tablet triturates has furnished us with a convenient method of dispensing our own medicines in accurate dosage, and has been an efficient weapon against our friends the homœopathists. The administration of small and frequently repeated doses has largely superseded the large dose at longer intervals. It would be impossible to enumerate the new remedies brought forward by investigators, but more often by enterprising manufacturing pharmacists, all offered with high claims of merit and certificates of hospitals and clinicians, many of them soon forgotten even by name, but others proving of real merit and gaining for themselves a permanent place in our materia medica. The coal tar derivatives are among the latter and are among the most useful and generally used in our armamentarium. Formaldehyde bids fair to obtain the first rank as an antiseptic and disinfectant, from its harmless character and germicidal properties, displacing a long list of remedies none of which have stood the test of time.

Perhaps the greatest advance has been in the line of prophylactic medicine—the antiseptic treatment in surgery, the prevention of infection in wounds and after operations; the recognition of the cause and contagious character of erysipelas, puerperal fever, hospital gangrene, the plague, yellow fever and other diseases, has led to a system of quarantine and disinfection, the establishing of boards of health and the increased power given to them. The education of the people by the public press and the precept of the physician as to the character of diseases and the necessity of reporting those of an infectious natur to the proper authorities, all have been decided advances. When we have a medical representative in the cabinet, as surely we shall have if the earnest efforts of the physicians of the whole country can avail, then we may expect far greater improvements in this direction, with all boards of health governed by uniform laws and under the supervision of one responsible head. This is not too much to expect in view of the great advance made in public hygiene in the past ten years. With the increasing discoveries as to the cause of disease, made by bacteriologists, and the increase of the efficacy of the means for the prevention of disease, the time may come when the greater part of the physician's efforts shall be devoted to these aims instead of endeavoring to cure disease as at present. If this should come about it may be found that the Chinaman is not so far wrong in agreeing to pay his physician only while he is well and that all remuneration shall cease as soon as he becomes ill. Preventive medicine shows most clearly the disinterested character of the physician's work. The fact of the united effort of the physicians of the country, opposed by the people to be benefited, to have laws enacted that militate directly against their own financial interests, can not be parallel in any other profession or calling.

ERYSIPELAS.*

By L. H. Munger, M. D.

Winona, Minn.

Erysipelas has been called the rose, wildfire, St. Anthony's fire, and more recently, infective capillary lymphangitis.

It was known as a disease, described in their writings, and treated in their practice, by our ancient brethren.

Hippocrates relates that cases occurred during a certain cold spring, which involved the throat, which were malignant in type, and generally fatal. He also recounts cases complicating injuries, which, if neglected, or in old or debilitated people, were prone to result in extensive inflammation, often in abscess, or in a slough involving muscle, tendon and bone. He particularized that the discharge was more of a sanious, ichorous result of putrefaction, than

*Read before the Southern Minnesota Medical Association, August 5, 1897.

real pus; that when the scalp was affected, the hair would fall out; that sometimes the slough would be so extensive that part of the skull would exfoliate, or an entire arm fall off, or part or all of a lower extremity be denuded of flesh; but that of all cases the most serious were those involving the pubes and genital organs.

Celsus describes the disease, and says it is very dangerous when it affects the neck and head; also that it may complicate a wound, or may occur idiopthically.

From the time of Galen, much speculation as to the real nature of the disease was indulged in, and it was pretty well agreed that it came from a bilious humor, which, in escaping through the skin, occasioned the phenomena of erysipelas.

Under all their theorizing we can discover the prevalent idea that the disease is not merely a local affliction.

In accordance with the bilious humor theory, they prescribed in the beginning of an attack emetics and cholagogue cathartics.

Topically they used cooling (i. e. narcotic) herbs, vinegar, clay, lead preparations, verdigris, sulphur, alum, etc. And if these failed, and the affected part became livid, they made incisions in the skin, and put on poultices and hot fomentations.

When the disease seemed to them to involve the brain, some favored venesection from the ranine arteries, and cooling applications to the scalp.

Certain conditions favor the development of erysipelas, such as cold, damp weather. Cold alone can scarcely be considered a predisposing cause, unless it be cold wind. Some cachexias seem to act as predisposing factors, presumably by lessening the normal resistance of the body to the specific cause. Bright's disease is said by some to be a predisposing cause.

On the other hand, the body seems sometimes to acquire a tolerance of the specific poison, as shown in those instances recorded of persons being attacked with erysipelas immediately on moving into an infected house, while those who preceded them as tenants had lived indefinite periods in the midst of the infection without harm.

In all times a certain specific cause or poison has been deemed the only satisfactory origin of this disease. But it is only very recently that it has been demonstrated that one particular microscopic form of vegetation is the only cause of erysipelas.

Bacteria were discovered over 200 years ago, and were found in this and other diseases, but as late as 1881 Dr. Stille wrote: "Even if it were true, which it is not, that one and the same bacterium is uniformly found in connection with the same disease, the manner in which it occasions the specific phenomena of that disease would thereby become no clearer."

After a series of twenty-five experiments in 1879, Tillmanns concluded that the presence of bacteria either in the secretions, or in the tissues, is not constant in erysipelas.

About the same time Orth stated among the conclusions to which his elaborate experiments had led him, that "bacteria stand intimately related to the septic cause of erysipelas, but are only an indirect cause of the disease, and it is probable that in different forms of the disease different microörganisms occur, but thus far no proof of this proposition exists."

Koch published the doctrine in 1880, that "the distinctive microörganism of erysipelas is a bacillus."

But after careful consideration of all known facts, and also the theories deduced, it was allowed to be an unsolved question whether the hypothetical specific contagium acted primarily on the tissues where it entered the body, or on the general circulatory and nervous systems. Also whether the said hypothetical specific contagium entered the system through some lesion of integument or of mucous membrane, or through the normal respiratory mucous membrane, as do the viruses of smallpox, measles and scarlatina.

Since that time it has been demonstrated to a certainty that the specific cause of erysipelas is the streptococcus erysipelatis, which very closely resembles the streptococcus pyogenes.

In fact, for a time they were thought to be identical, but there are slight differences in size and in their manner of grouping, and further, inoculation with streptococcus erysipelatis will cause erysipelas, but not suppuration. And on the other hand, inoculation with the streptococcus pyogenes will always cause suppuration but not erysipelas.

The usual prominent lesion is an exudative inflammation of the skin, sometimes confined to the derma, and sometimes extending to the subcutaneous connective tissue. The exudate contains a large number of white corpuscles, which are said, at least in some cases, to be increased in proportionate number according to the rise in temperature. In severe cases the red corpuscles run together, adhering in masses instead of in rolls. The lymphatic vessels and glands, and sometimes the veins are inflamed. Occasionally the blood coagulates in the veins, forming a thrombus. The coagulum may be washed on and become an embolus, and thus determine a slough. Such accidents are most frequent among those of impaired constitution.

The microörganism which is the cause of the disease, the streptococcus erysipelatis is found mostly in the capillary lymphatics of the skin, probably but very seldom in the capillary blood-vessels. They are abundant in the spreading

edge of erysipelas, but are few in the centre where the inflammation has subsided.

It is probable that the microörganisms gain access always by means of a lesion of the cutaneous or mucous surface. The lesion may be minute, and by the time the disease is manifest, it may not be demonstrable, even if it was at first.

It has long been believed that there was a close relationship between erysipelas and puerperal fever. It is now demonstrated that they are etiologically identical.

It is considered dangerous for a person in attendance on erysipelas to attend cases of labor. The contagiousness of this disease was thoroughly proven and generally recognized long before the nature of the cause was discovered. It has been conveyed by humanized vacine virus, and has been conveyed long distances by fomites. This is too familiar to bear enlarging upon. The stage of incubation varies from two to seven days. It is ushered in by a chill, fever, often nausea, sometimes vomiting, and a rapid pulse. The temperature usually soon rises to from 103° to 105° F., and I have seen it mount to 106¼° in the first 24 hours.

At the site of invasion there soon appears redness, swelling and an itching or burning sensation. The parts acquire a doughy feel. The part affected is quite clearly defined, but its margin is often irregular. Frequently blebs form during the height of the inflammation, which may become quite large. After the inflammation subsides, the cuticle desquamates. The temperature is irregular in course. Each extension of the inflammation causes new rise of temperature. There are frequent remissions, but seldom an intermission until the dermatitis has subsided. The full strong initial pulse is apt to become weak as the case progresses. The tongue is coated. Lymphatic tenderness and swelling may precede the evident skin inflammation by several hours or even days. In the idiopathic cases, the most common place of beginning of the skin inflammation is at the root of the nose, then next in frequency on the cheek and on an ear. The more vascular the part affected the greater will be the degree of swelling, as when it affects the face or the genitals.

Its extension is very often not constant and continuous, but intermittent. Erysipelas quite frequently attacks the lower limbs of old people who have varices. In its extension from the initial point, it is usually from face toward scalp, or from extremity toward trunk. It has been noted as a curious fact that erysipelas rarely involves the chin.

The fever commonly leaves by crisis. With the dissipation of the swelling, the skin desquamates in large flakes. The new skin has a very red color which is slow in fading away.

The so-called phlegmonous erysipelas affects both the skin and the connective tissue beneath it, and is more or less diffuse in character. The phenomena differ owing to change of place and surroundings. The sthenic form is generally limited in extent. The asthenic form more diffused.

In the sthenic cases the lymphatic system is able to establish a barrier to the spread of the infection, while in the asthenic type the infection is widely disseminated. Consequently we often see small sloughs form in the sthenic form, and in the asthenic much more extensive gangrene or diffused suppuration. It is probably true that a purely erysipelatous infection causes sloughing and gangrene, but that when suppuration occurs, there is a mixed infection. Sooner or later if no incision is made, the skin is eroded, and thin fœtid pus and shreds of dead connective tissue are discharged, so that the skin is undermined, muscles burroughed out extensively, and large cavities formed. With this local course there will be high fever, delirium, and the usual symtoms of sepsis, hectic, sweats, wasting, diarrhœa, and sometimes metastatic abscesses.

In less active cases of this type of erysipelas, there may be only smooth, shiny swelling, not so red, more dull brown, and on incision there exudes only bloody serum.

Old and feeble patients, and those of broken constitution, as from intemperance, and cachectic, scrofulous and syphilitic children, are more liable than others to the gangrenous form of disease. When gangrene is imminent, the skin of the affected part assumes a dusky red color, which pressure does not dissipate. The heat and pain become less severe. The swelling is circumscribed and doughy. Vesicles form and break, leaving a denuded spot which exudes an offensive, watery fluid, and the part dies.

In other cases of high fever and other grave symptoms there appear from the fifth to the tenth day, or even later, one or more dark spots in the affected area, which are cold, moist and insensible. The cuticle separates with or without vesicles having formed. The fever increases in intensity, strength fails, tongue dries, and the patient sinks and dies. Of these forms, one depends more especially upon the lack of resisting power in the affected tissues, the other upon the relative intensity of the infective inflammation.

When malaria prevails erysipelas is sometimes complicated with a bilious vomiting, pain and tenderness of stomach, constipation or bilious diarrhœa, scanty yellow urine and jaundice.

Other cases are called metastatic, from the fact that the inflammation subsides in one place and appears in some other part of the body.

In new born children it is commonly fatal. Usually the infection takes place at the umbilicus. The inflammation first appears either at

the umbilicus or on the pubes, and spreads both up and down.

Erysipelas of the peritoneum runs a rapid course. The vital powers are overwhelmed; collapse and death usually speedily follow.

The diagnosis may at times be made before the eruption appears, on the evidence of the swelling and tenderness of the lymphatic glands of the part, especially if there is any known probable source of infection.

The eruption is a uniform pink or rose color. In the throat it may be of a dusky hue. With the advent of the eruption the skin rapidly swells and there is a sense of burning. There is a marked ridge at the edge of the inflamed area. The temperature quickly rises quite high. It is distinguished from simple lymphangitis by the redness being uniform and not in streaks corresponding to the lymph vessels. From erythema, which is more superficial, less elevated, and not so distinctly limited.

The common idiopathic form is rarely fatal. The epidemic and puerperal varieties most generally fatal. There are cases of all intermediate degrees of severity and fatality.

The subject of prophylaxis is very important, yet I shall say but little on that head. As a proper measure of precaution, persons having to handle a case of erysipelas should refrain from attending cases of obstetrics, or from ordinary surgical operations, until they can cleanse themselves from all infection.

Each case of erysipelas should be isolated, and cared for in a well ventilated apartment, and cleanliness, surgical cleanliness, be observed in the care of the case.

Hippocrates used cold water as a local dressing, if there was no ulceration.

Paul of Ægina used blood-letting (if the strength of the patient would permit), cholagogue medicines, ointments and cooling lotions. Also in some cases emollient poultices, with or without anodynes, and later, astringent lotions. He recommended incisions when mortification threatened to occur. In the chronic stage, which is observed in some cases, he used hot and salt water.

There was quite a general agreement of opinion in those times against general or routine depletion by blood-letting, but in favor of cholagogue cathartics

As one follows the history of the treatment of erysipelas it is found to be founded on the rational indications as they were then interpreted. We endeavor to work on the same general principles today.

Some cases need only local protectives and palliatives. In some depletion may be tolerated or really indicated, and in a middle and much larger class of cases, a general supporting and tonic treatment is necessary. Again, a certain portion of cases need really only to be let alone. Others are almost necessarily fatal. A middle class is open for the judgment and skill of the physician to show its benefit. Ordinarily, having isolated the case in a well ventilated room, secure from drafts of air and dampness, having such persons only as are needed in attendance, the inflamed part should be protected from strong light and from the air. Of local applications for protection, cooling and palliative effect, there are many in use, all more or less useful in the estimation of different practitioners. The part may be dusted with lycopodium, starch, flour, zinc oxide, etc., and then covered with a layer of cotton. Vaseline alone, or as the base with various medicaments, may be used, as zinc oxide, lead preparations, belladonna, etc. The white of egg, with or without alum, has been used. Mucilages and mucilaginous poultices have been used, but do more harm than good.

The weight of testimony has always been against blood-letting as routine treatment. At present it is seldom, if ever, used.

Dr. Stilè says that "apart from the surgical treatment of phlegmonous erysipelas, local applications have not the slightest influence upon the course or issue of the disease beyond that which they exert as protectives and palliatives." He goes on to say that as palliatives, various astringent and stimulant applications are useful by protecting the inflamed part from the irritation of the air, by repressing vascular action, or overcoming stagnation. Of the astringent applications he mentions lime water liniment, alum, cream, lead, zinc, iron in solution or powder. In other cases collodion, solutions of gutta percha, and of sodium salicylate. Bandages have been found to be dangerous, as they are so liable to cause ulceration and gangrene. As stimulants he mentions blisters applied over the entire inflamed part, or on the sound skin in a ring around the infected spot, to prevent the spread of the inflammation.

Nitrate of silver has been used instead of the blister. Iodine, of which the compound tincture is painted on the affected skin. Turpentine liniment has been thought by some to have a specific virtue in being destructive to the virus of the disease. A great many remedies might be yet mentioned, all of which have been used and thought to be of value, as applications, such as calcium iodide, camphor, mercurial ointments, bromine solution, etc., etc.

I have before mentioned the use of cathartics and emetics. These were and are good remedies to begin with in many cases, especially the cathartics, removing putrescible material from the alimentary canal, and quickening the emuctories. In the typhoid state to which many cases tend, alcoholics, turpentine and carbonate of ammonia are of use, as in the same

general condition occurring in the course of other diseases. At one time quinine was lauded as a specific—some explaining such property on the ground of its control of migration of white blood corpuscles; others that it was an antipyretic, and yet others that it was a germicide. Equal benefit is claimed by different observers from small and large doses. Probably if the large doses are ever of value, it is in the sthenic type, and the small tonic doses in other cases. Tincture of iron has been regarded as of specific value, and has been so used by many, in large, frequently repeated doses. Others have prescribed it with apparently equally good results in very small doses, such as would amount to thirty drops in twenty-four hours. Some attribute whatever virtue it possesses in this disease to its tonic and astringent properties.

At the two extremes of life treatment of any kind is very apt to be of little or no avail.

When the typhoid condition is marked, the indications may be met by the use of alcoholics and opium or coffee and quinine. Stimulating nutrients, serpentaria, ammonia, camphor, etc., may be valuable adjuvants.

In the ordinary sporadic cases such as we generally see now, I have come to think that indications are for protection, antisepsis and support.

Local treatment may be simply protection, or may also be somewhat antiseptic. Internal treatment antiseptic and supporting. The disease being essentially septic, I believe the antiseptic and supporting measures to be the most important in really severe cases.

For protective I like an ointment or lotion.

I have used acetate of lead and belladonna in ointment with considerable satisfaction, but for several years have largely used ichthyol in five to ten per cent ointment, smearing the inflamed part well, and covering it over with cotton or ichthyol collodion. I believe that the ichthyol has some virtue under the second indication, that of antisepsis.

I very often give minute doses of a mercurial, generally the bichloride. I believe it to be in such cases tonic and antiseptic. Sometimes have used it as lotion instead of internally. Usually at the outset I give a cathartic (unless the bowels are already acting freely) to clear out the alimentary tract and stimulate the secretory organs. I give internally small doses of tincture of the chloride of iron, quinine, perhaps some alcohol, more usually strychnia sulphate and concentrated nutrients.

Other than this I try to meet any special indication as it arises.

I occasionally give an opiate to quiet delirium and restlessness. I have seen a full, strong pulse with a rapidly advancing inflammation yield promptly to tincture of aconite after other treatment had proved futile. But the rare idiosyncracies make no rule and establish no principle.

THE CATARACT OPERATION.*

By H. McI. Morton, M. S., M. D.

Ophthalmologist and Otologist to the St. Barnabas Hospital, Minneapolis.

It is not my purpose to discuss with you today the ætiology, pathology or diagnosis of cataract to any greater extent than is essential to a lucid understanding of its treatment alone. The catract operation is one that affords much interest, as well as the most brilliant results, and is one of the most ancient operations known to the history of surgery. As early as thirty-five hundred years before the Christian era the Egyptian oculists performed an operation to relieve sufferers with this condition. Not with the methods or technique of today, of course, yet presumably with occasional success. During the middle ages this operation was unfortunately relegated to the quack who infested those dark times, and was executed in the most barbaric manner, with the result that the victim lost all chance of ever regaining his vision. It is, however, to this century that we owe the perfect technique and brilliant results of the present operation for the extraction of cataract.

With this exceeding brief rèsumè, we will proceed at once to consider the treatment of cataract under the following headings:

First, Uncomplicated senile cataract.
Second, Congenital and juvenile cataract.
Third, Posterior polar cataract.
Fourth, Traumatic cataract.

It is proper before speaking of the surgical treatment, to digress briefly to refer to the so-called medicinal treatment, and it is but to emphatically emphasize the fact that there is absolutely no proper treatment for opacaties of the lens but timely surgical interference. At the present we know of no drug which, administered locally or internally, will absorb the opaque lens. When we have involvement of the nucleus alone mydriasis commonly improves vision. It is not uncommon for patients to be deceived by charlatans in this manner, and wonderful cures reported, without surgical intervention. As the cataract develops the deception is discovered.

We will now consider, first

UNCOMPLICATED SENILE CATARACT.

In these cases we have usually to deal with patients fifty years of age or thereabouts, al-

*Read before the South Dakota State Medical Society at Mitchell, June 10, 1897.

though it may occur in much younger people. The patient has noticed a gradual diminution in the visual acuity, and oftimes observes many images of one object (polyopia). I am able to recall a patient who insisted that she saw thirteen distinct moons. As any disturbance in the vision is alarming we usually have these cases present themselves for examination before the opacity has completely involved the lens. If the patient is over fifty years of age, and we find considerable lenticular involvement, although not complete, it is not imperative or necessary to have the patient wait, oftimes for several years, until this is complete, as the results attending the removal of immature cataract are very satisfactory. Boettman, of Chicago, performs what is known as "artificial maturation" by stroking the anterior portion of the lens through a corneal incision with a spatula. After this has been done the lens becomes completely opaque in a short time, from one to three weeks, and is removed as a mature cataract.

Many operators deem this unnecessary, since, in their judgment, should the cataract be so far progressed as to attract the attention of the patient, it can easily be removed without the ripening operation.

The operation should be performed under cocaine anæthesia, as the assistance of the patient is of great aid and one avoids the retching attending anæthesia, which may interfere with the steps of the operation, or result in a loss of vitreous humor. My method of operation is as follows:

The patient receives a hot bath at the hospital and is then put to bed. The side of the face is thoroughly cleaned with green soap, rubbed with alcohol, and then douched with 1-5000 bichloride of mercury solution. The cul-de-sac is irrigated with a 1-10,000 solution, and a dry gauze bichloride pad is placed over the eyelids and cheeks, and is held in position by a light gauze bandage. Preceding the operation one-tenth of a grain of calomel is administered hourly until one grain is taken, and then one ounce of the sulphate of magnesia is administered.

The instruments and cocaine solution are sterilized. After the eye is cocainized, it is douched thoroughly with warm sterilized water. No antiseptic solutions are used after the eye is unbandaged just previous to the operation, as I think such solutions retard the healing by irritating the delicate flaps. After introduction of the speculum the eyeball is steadied by gentle pressure of the thumb and forefinger, and with the knife held gently in the other hand an incision is made at the corneal margin, or slightly to the inside, and involving the upper third of the cornea. I prefer to avoid the use of fixation forceps by the use of the thumb and forefinger as described. The iris is grasped with delicate forceps, drawn well out of the incision, and a good broad iridectomy made with the scissors. An opening is then made into the capsule of the lens by several crossed incisions with the cystotome. With a rather long and narrow cataract spoon or scoop, the upper edge of the lower flap is depressed, while with a somewhat broader scoop gentle pressure is made on the globe just below the end of the vertical meridian of the cornea. The cataract will slide out of the wound and fall into the lower spoon. With the spatula the edges of the iris are replaced, and dèbris, as bits of iris, small blood clots or other foreign matter removed from the wound. By gentle rubbing of the cornea upwards small particles of lens matter may be floated from the anterior chamber and out of the wound and a clear pupil obtained.

Ordinarily these steps follow one another without interruption, yet it is proper to speak of some of the possible accidents that may occur.

In the first place it is possible to introduce the knife with the cutting edge turned the wrong way, a thoroughly inexcusable error. The knife must be withdrawn and the operation delayed until the anterior chamber refills. It is unfortunate to make the corneal incision too small, as difficulty may be experienced in expelling the lens, and we may have loss of vitreous, or injury to the flap, in the endeavor to do so. If this mistake has been made it is best to enlarge the incision with probe pointed scissors. It sometimes occurs that the iris falls in front of the knife during the making of the section, in which event it is best to continue the section and make the pillars of the coloboma as regular as possible by trimming with the iris scissors. If, during the operation, the cataract should be dislocated into the vitreous we may use the wire scoop of Levis to remove it.

It is not uncommon in old patients to have collapse of the cornea, due to a relaxation of the corneal tissue. The cornea may be made to assume its proper curve by gentle pressure below the vertical meridian.

The most unfortunate and most serious accident that may occur during the extraction is interocular hemorrhage. In cases where from the age of the patient and condition of the vessel walls, I am led to suspect weakening of the arterial coats, I always make my incision as far away from the corneal limbus as possible. In case of prolapse of the iris, if discovered within a few hours, we may attempt to replace it, or failing to do so, may cut off as much as possible. If not discovered until the removal of the bandage—I allow it to remain on before the first dressing for three or four days—it is preferable not to interfere.

THE TREATMENT OF CONGENITAL AND JUVENILE CATARACT.

Congenital cataract is probably due to a fœtal iritis, and may pass unnoticed for many weeks. The lens being very soft the proper treatment consists in tearing the lens capsule with discission needles, thus admitting the aqueous humor which absorbs the soft lens matter. The point I desire to lay stress upon is that these cases should be operated upon at the earliest possible time, since the child cannot learn to coördinate the movement of the eyes until operated upon, and nystagmus, or amblyopia, or both, may develop. Two weeks is not too early to attend to these cases. The child's head may be held firmly, and, after a drop of cocaine has been placed in each eye, the capsule may be lacterated, the eye being held firm by fixation forceps.

In considering juvenile cataracts we have largely to deal with children suffering from malnutrition or rickets. In these cases we find certain layers of the lens opaque, the nucleus not being involved. These cases are treated best by discission, as done in congenital cataract. When the layers lying nearest the nucleus of the lens are involved, and the more peripheral layers remain clear an iridectomy oftimes gives us satisfactory results. If after dilatation of the pupil by a mydriatic vision is markedly improved, it is proper to perform an iridectomy in place of tearing the capsule by the discission needle.

THE TREATMENT OF POSTERIOR POLAR CATARACT.

In this form of cataract the posterior capsule and adjacent lens fibres only are involved. In this class of cases we find usually serious disease of the eyeground, as choroiditis or opacity of the vitreous humor, which are in truth the cause of the opacity in many cases. Persistent hyaloid artery may also be a factor in causation as well. The treatment is of no avail as a rule. The globes are not uncommonly, abnormally small and nystagmus present in cases of posterior polar cataract.

I will now, finally, discuss with you, fourth,

THE TREATMENT OF TRAUMATIC CATARACT.

Probably no other ocular cases require more judgment on the part of the oculist than injuries to the anterior ocular segment and lens. There are those who, in cases of severe laceration of the globe of the eye, advise hasty removal, while many prefer less haste.

I think no greater mistake can be made than the too hasty removel of an injured eyeball.

It is surprising what happy results may follow what may appear on first sight a hopelessly injured eye. If the iris is prolapsed through a corneal wound, I cut it off if it cannot be replaced. If the wound is central the iris is drawn away by atropine, if peripheral we use eserine.

If we are dealing with a punctured wound due to a needle or piece of steel, in which there is much swelling of the lens, I do a broad iridectomy and by cold compresses hasten recession of the inflammation. Where the lens capsule is badly torn and a great deal of lens matter protrudes into the anterior chamber, after doing the iridectomy, I proceed to remove the lens. By gently irrigating the anterior chamber with warm sterilized water, the small particles of lens matter may be washed away and we may obtain a good clear pupil.

The reasons given by those who remove the globe in severe cases of this nature is the danger of sympathetic ophthalmitis. While this is a grave disease, I do not think the immediate danger is such as to warrant us in removing the globe until we have exhausted all plans to save the injured eye.

315 New York Life Building.

Creasote in Chronic Constipation.—One of the most difficult conditions to treat is that of chronic constipation. The objection to massage of the abdomen and electricity is that they are expensive and require much more time than many patients can give to them. Drugs are usually too powerful, and, once their action is exhausted, are apt to leave the patient more constipated than before. A physician residing in Paris, Dr. Vladimir de Holstein, claims that a satisfactory result may be obtained by administering creasote. This drug should be given pure, and not, as usually is done, in alcoholic solutions or in pills. Seven or eight drops should be given twice daily, after a meal, in a glass of water or any other liquid. If the dose is found not to act, it should be increased. Inasmuch as the patient may complain at first of the burning caused by the creasote, it is often well to begin by a smaller dose—say, one drop daily—increasing daily by one drop until the desired result is obtained. Not only is constipation done away with, but the appetite increases and the general condition is imroved.

This treatment should be continued for several months. Dr. Vladimir de Holstein thinks that creasote does not act as a purgative, but neutralizes some intestinal toxin which causes paresis of the intestinal tube.—Paris Letter to Therapeutic Gazette.

Mondeville, writing in the fourteenth century, said: The surgeon must ask without measure from the rich and get out of them as much as he can; provided, however, that he spend all the surplus in dressing the poor.

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MUSHROOM POISONING.

A taste for the edible fungi is increasing in this community as people become aware of the fact that Minnesota produces in the wild state a great variety of mushrooms, many of them of fine flavor. Already the shops are doing quite a little business in the sale of mushrooms gathered in the vicinity and find an increased demand for the cultivated variety. The indications are that the use of this food will spread widely when once people get hold of the idea of eating it. At the present time it is probable that only a small percentage of the population of this state ever tasted a mushroom. A few years ago the same thing could have been said of the olive; country stores would have been searched in vain for one, while now they abound every where in the northwest and are imported directly into the state by the cargo. Mushrooms and olives belong to the luxuries of the table and a knowledge of and a taste for them is not to be expected in a newly settled community.

With the free use of the mushroom will undoubtedly come cases of poisoning, such as have been noted in other places, although there is as yet perhaps no record of serious poisoning by mushrooms that have grown in Minnesota. It will be well then for the medical men of the state to be on the lookout for this accident and to be prepared not only to make the diagnosis, but also to administer the proper treatment. If the doctor shall also happen to have a knowledge of good and evil as related to mushrooms and can tell the safe from the dangerous it will make his management of the case much more successful, and his advice profitable to his patients in a prophylactic as well as a curative way.

There is only one rule to be followed in avoiding poisonous mushrooms and that is to know that the particular variety is safe because it has been eaten with impunity. That is the one who picks mushrooms should be able to say that he knows a kind to be good, not because it has this or that characteristic, but because he recognizes it as one that he has tried. He should know it in the same way that he knows he is picking blueberries or whortleberries and not the berries of the deadly nightshade. Those who go by any rule of thumb such as the color of the gills or the presence of rings on the stem, or still more by such crude tests as the discoloration of a silver fork cooked with the mushrooms will be likely to come to grief sooner or later.

It is to be remembered first of all in dealing with the subject of mushroom poisoning that these fungi are easily decomposed, and being largely nitrogenous may readily become the cause of ptomaine poisoning. Murrell warns particularly against this and urges that great care should always be taken that mushrooms are fresh when cooked; to warm them over he considers a dangerous practice. Ptomaine poisoning from mushrooms would be like that from the development of tyrotoxicon in milk products and would take the form of an acute gastro-enteritis beginning within a few hours after the ingestion of the poison.

Quite different from this is the typical mushroom poisoning, whose cause as far as is known

is muscarine, first described by Schmiedeberg, a colorless, syrupy mass, without odor or taste and easily soluble in water or alcohol. An account of six cases of this form of poisoning was given last summer by Dr. Caglieri, of San Francisco; it illustrated well the peculiar delay in the action of the poison. The six cases all occurred in one family and three were fatal. The mushrooms were eaten at about six in the evening. The first symptoms appeared in all the cases during the forenoon of the following day, and took the form of vomiting and diarrhœa. In most of the cases these symptoms were slight. All felt dull and stupid on awakening, and there was a feeling of dyspnœa which led them to seek the fresh air. One patient, a child, died during the evening of this day with convulsions. The two others who died (also children) showed no serious symptoms until the morning of the second day. At this time there was mental dullness, increasing to stupor, rapid, empty pulse, contracted pupils, irresponsive to light, rapid respiration, suppression of urine and free perspiration. One died on the second, one on the third and one on the fourth day after the poisonous meal. The fatal dose in all of these cases was but a small one, in two cases but one-half of a medium sized mushroom, and in the third case but one-sixth. The members of the family who escaped ate as much or more of the mushrooms, and it is supposed that there were but one or two poisonous fungi in the dish; that those who died ate these, while the others ate good mushrooms that were rendered somewhat poisonous by being cooked together with the bad. Muscarine is present in the dry fungus of the commonest poisonous variety (the amanita) in the proportion of only one-fifth of one per cent., so that the fatal dose, which has never been accurately determined, must, in the light of these cases, be a small one.

The physiological antidote of muscarine is atropine, which should be given in full dose, say one-sixtieth of a grain, and repeated if the pupils are not dilated by the first dose. With this should be given strychnine and such other stimulants and heart tonics as are usual in the treatment of poisoning by depressants.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated Meeting, December 1, 1897, at the West Hotel, Minneapolis, the President, Dr. J. W. Chamberlain, in the Chair.

Dr. J. Warren Little, of Minneapolis, presented a specimen from a case of extrauterine pregnancy. The patient had never before been pregnant. She menstruated last on October 5; Dr. Little was called November 27; she was then suffering severe pain on the left side; her temperature was 97° F., pulse 160, respiration 41; the surface of the body was cold; she was in a profuse perspiration; the abdomen was distended. The diagnosis was clear; operation was performed immediately; the abdomen was found filled with clotted blood, some three pints being removed; the tube was tied off and removed. The next morning, the patient's pulse, temperature and respiration had markedly improved and she had since done well.

Dr. A. W. Abbott, of Minneapolis, presented a specimen of a double cyst and gave the following history of the case:

Miss S., æt. 38, nullipara: a generally strong woman; had been a hard worker up to two years ago. She had always suffered with severe dysmennorhœa; the pains lasting through the four days of menstruation. They were of an intense colicky nature and were accompanied by severe sacral and anterior crural pains. In addition, she had had pains of a severe griping character in the region of the umbilicus and radiating thence to the left. These occurred daily and sometimes several times each day. They were most severe at night. Physical examination showed the uterus antiflexed and retroverted; the ovaries and tubes were normal. In the right groin, just below Poupart's ligament, was a tumor of the size of a pigeon's egg, quite movable, excepting at its narrow base which could be located at about one inch from the pubic spine. It received some impulse on coughing. It was not tender to the touch and the patient had never vomited or shown any signs of intestinal obstruction. The diagnosis was uncertain. A cyst of an inguinal gland or possibly a cyst arising in the canal of Nuck was suspected.

An incision was made from the pubic spine, parallel to Poupart's ligament; the intention being to shorten the round ligament and remove the tumor through the same incison. The tumor was reached in the plane of Poupart's ligament. It was then seen that it protruded from beneath the ligament through an opening one-fourth of an inch in diameter. Through this opening the second portion of the double cyst was drawn and following it the peritoneum. This was cut off and the peritoneum closed, the margins of the opening being sutured with catgut; as the tumor was constricted between Poupart's ligament and the pubic bone, the reason of the impulse on coughing was apparent. The fluid contents were forced from the smaller portion into the larger. There has been no umbilical pain during the five days since the operation. The sac of the tumor was in direct continuity with the peritoneum, although on the larger por-

tion it could not be demonstrated. The specimen, a double cyst, contained a thin fluid. It has not been opened in order that it might be presented as it looked when it was removed.

Dr. R. J. Hill, of Minneapolis, presented his inaugural thesis, entitled

MEDICAL ADVANCEMENT IN THE PAST TWENTY YEARS.

See page 5.

Dr. H. M. Bracken, of Minneapolis, presented a paper, entitled

SUGGESTIONS DRAWN FROM THE SERUM REACTION IN TYPHOID FEVER.

The discussion upon the paper was led by Dr. F. F. Wesbrook, of the State Board of Health. He stated that the early results of the Widal test had led the State Board to adopt it as a routine part of its work. Although not satisfied of its entire accuracy, he regarded it as, at present, the most accurate means of diagnosis. In his first communication upon the subject he had presented results in 1800 cases. All of these examinations were made by the ordinary dried blood method; the blood being prepared on paper and dissolved in salt solutions, to which the bacilli were added. It had been found that, under certain circumstances, the reaction could be obtained from normal blood with high dilution, but in the series of examinations referred to, the cases had been carefully subjected to control tests.

Dr. L. B. Wilson, of the State Board Laboratory, had since devised a method, by which the dried blood is collected upon strips of aluminum foil; the blood being then weighed and diluted up to one part in fifty, an equivalence of one in two hundred of undried blood. A time limit of reaction had been set at two hours. The later examinations, made under this method, had not discredited the previous report. They had established the advantage and accuracy of a method which was, at first, met with incredulity.

Postmortem observations of cases of typhoid infection had led to the abandonment of the idea that classical lesions are always to be found in typhoid. It had been shown that a typhoid reaction might occur and typhoid bacilli be present when typical symptoms are absent. The cases referred to by Dr. Bracken illustrated the possibility of the association of typhoid infection with other diseases, such as tuberculosis, appendicitis, etc.

As a factor in determining the accuracy of the test, he would call attention to the frequent failure of the Board to secure from physicians a report of general symptoms upon the detail blanks provided for this purpose. In all but 2 per cent of those cases, in which such subsequent report had been made, the typhoid diagnosis had been established by the later history. He would encourage the members to furnish these details to the Board for the corroboration or dispute of the test.

Dr. H. B. Sweetser, of Minneapolis, said that he was particularly interested in the clinical side of the diagnosis of typhoid fever. He thought that Dr. Bracken's paper begged the question of diagnosis by the serum reaction. It argued, as he understood it, that if the serum reaction was found typhoid fever was present. Yet the child of two days, in whose blood the test was discovered, was not sick at all, and he did not understand why this should be called a case of typhoid fever. He did not think that the serum reaction necessarily established a diagnosis. In several cases he had seen the reaction when typhoid symptoms were not present. Again he had seen cases react, which yielded to treatment with large doses of quinine and recovered in a few days. He thought it unwise to claim the positive reliability of the test.

Dr. J. W. Bell, of Minneapolis, reported that, during the month of September last, a patient was referred to him for examination in whom typhoid fever was suspected. A specimen of blood was sent to the laboratory and the serum reaction was reported as prompt. The patient speedily developed a slight pleuritic effusion, which ran its course toward recovery. A second examination of the blood was made upon the third day and again the report of a prompt reaction was received. At the same time, he had a patient with tuberculosis, who had been sent in to the hospital on account of a pulmonary hemorrhage. The blood was taken and sent to the State Board. Reaction was reported. In a third case of advanced phthisis the blood was sent in and again the reaction was found. He was anxious to hear what the essayist had to say upon this side of the subject. It was most important to differentiate between typhoid fever and tuberculosis and here the test should be of the greatest importance.

Dr. A. W. Abbott, of Minneapolis, said that he would like to have the laboratory people help us out of another dilemma, similar to that which Dr. Bell had suggested. Patients in whom the presence of accumulations of pus was suspected would show morning and evening variations of temperature, diarrhœa and other simulative typhoid symptoms. It was often necessary to determine between typhoid and septic infection in these cases.

Dr. Sweetser asked Dr. Wesbrook whether a distinction should not be made between the mere presence of disease germs and actual infection.

Dr. Wesbrook replied that the State Board of Health, in its work, was naturally looking for sources of infection rather than for diagnoses of disease. It could not claim, therefore, an opinion altogether free from prejudice. If he found the Klebs-Lœffler bacillus, therefore, he should diagnose diphtheria. So, if he could readily find the typhoid bacilli, or if, failing that, he should get the serum reaction, he should suspect typhoid fever, even in the absence of symptoms. He was inclined to doubt whether either the diphtheria or the tphoid bacillus could exist upon the mucous membrane without giving rise to products of their metabolism liable to absorption, even though certain persons should be able to resist these toxic agents.

Dr. T. Bates Block, of the State University, was invited to join in the discussion. He had been much interested, he said, in the paper and its discussion. In the case of the two-days-old child, reported by Dr. Bracken, he was especially interested. Widal had shown that in certain young animals, particularly in the mouse, the serum reaction had been transmitted through the milk from the immune mother. In other animals such a reaction did not appear. He referred to immunized goats, whose blood gave the Widal reaction in dilutions of from one in two hundred to one in three hundred, but whose milk was fed to man without any results. Obstetricians had clinically demonstrated, on the other hand, that some abortions were due to the death of the fœtus caused by the high temperature due to typhoid fever in the mother. In some cases, the gravid uterus becomes much congested and under this condition bacilli might pass across the placental barrier which, otherwise, would bar their passage. The reactions shown by new-born infants of infected mothers had been conflicting. Autopsies had shown that typhoid infection might be superposed upon a tuberculous condition. The evidence was strongly in favor, not only of general, but of local infection with the typhoid bacillus. He cited a case of a fluctuating tumor, containing pus, in which the typhoid bacilli were found. In cases of osteomyelitis, the Widal reaction had occurred. In some instances a history of previous typhoid, occurring years before, had been learned. A case had been reported from Johns Hopkins Hospital, in which typhoid bacilli were found in the gall-bladder and in which repeated Widal reactions had been observed. Reaction had been found in one case thirty years after a known typhoid infection.

Dr. J. P. Barber, of Minneapolis, was invited to the privileges of the floor. He thought that a great many cases start out, clinically, as typhoid fever and apparently abort. In all cases giving serum reaction, he had observed a rise of temperature, sometimes slight, for several days. He had not yet found a case showing the test which did not present some clinical symptoms of typhoid, although these, perhaps, were insufficient to establish a diagnosis.

Dr. Bell asked Dr. Wesbrook what his experience had been in cases of tuberculosis with reference to a possible pseudo-reaction.

Dr. Westbrook replied that statistics of this question might be arranged in so many ways that it was difficult to cover all sides at once. The last word had not yet been said on this subject. He thought it probable that a typhoid infection might be superposed upon a tuberculous condition. It was not true that most healthy persons gave the reaction. He did not. Dr. Wilson and others in his laboratory did not. Several hundred cases had been noted which did not. He thought that the Widal test might prove either the reaction of immunity or the reaction of infection.

Dr. Sweetser suggested that it was a question between positive diagnosis or pseudo-reaction.

Dr. R. O. Beard, of Minneapolis, thought that Dr. Bracken was well able to respond for himself, but in defense of the paper he would say that he did not understand the author to claim that typhoid infection and typhoid fever are identical. He suggested that a too slavish adherence to terms descriptive of supposably classical conditions was responsible for much of the misunderstanding. The terms typhoid infection and typhoid fever were not interchangeable. If the serum reaction occurring in healthy persons, was one of immunity, it might be either immediate or remote. If, on the other hand, disease is present and a reaction is had, it should be taken as good evidence of typhoid infection, but not necessarily, even then, of the existence of, so-called, typhoid fever. Cases developing high temperature and running a short course might be reasonably looked upon as rapidly forming an antitoxine and thus rapidly establishing their own immunity. Reasoning from what had been said of local typhoid infection, especially in the gall-bladder, and from the cases cited in which intestinal typhoid lesions were absent, we may yet determine that typhoid infection leads up to other forms of disease than those which we call typhoid fever—forms which, under our too fixed terminology, we recognize by other and foreign terms. Catarrhal jaundice, with morning and evening variations of temperature, might constitute a suggestive illustration.

Dr. Bracken closed the discussion: He had endeavored, he said, by his paper, to establish certain propositions. These were, (1) that the serum reaction was useful; (2) that it was not always dependable; (3) that it was a means of determining typhoid infection; and (4) that such infection is not always typhoid fever. Infection does not predicate fever, while fever presupposes

infection and is diagnosed by the reaction. This was the circle he had worked around. It was not claimed that the serum reaction had value as a prognostic feature. The child of two days was an illustration, he thought, of infection without fever. As to those cases in which tuberculosis was present, it was quite probable that a typhoid infection was superposed upon the existing disease.

MISCELLANY.

In discussing the surgical treatment of puerperal septicæmia, Mundé said that some years ago he saw in consultation many cases of puerperal septicæmia, and he had always felt that there was nothing to do but to keep the patient alive while the disease ran its course. If this were possible, she recovered; if not, then she died. He believes that much is to be expected of the new antitoxin treatment, which he has used in two cases with the most satisfactory results. The speaker was glad to hear the use of the curette advocated only in cases where placental tissue and débris are retained in the uterine cavity. Removal of the uterus in puerperal infection is not, as a rule, a good operation and generally results fatally. Cases of septic purulent peritonitis, whether puerperal or not, should be opened and drained.

In the first thousand ovariotomies, on the basis of the annuity tables of life insurance companies, after deducting the years lost by the fatal cases, it was estimated that Sir Spencer Wells alone had added twenty thousand years of happy, useful life.

NOTES.

THE ASSIMILATION OF IRON.

The following combination, successfully and scientifically put in pill form, produces, when taken into the stomach, carbonate of protoxide of iron (ferrous carbonate) in a quickly assimilable condition:

Ferri Sulph. $Fe\,SO_4$=Ferri Carb. $Fe\,Co_3$.
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"Iron," says Le Progres Medical, "is one of the most important principles of the organism, and the only metal the presence of which is indispensable to the maintenance of life. It exists in all parts of the system, but nowhere does it acquire such importance as in the blood. The blood of a person in good condition contains about forty-five grains of iron; when this amount is diminished a decline takes place, the appetite fails, the strength is enfeebled, and the blood loses its fine natural color and qualities. In a great number of diseases, such as anemia, chlorosis, hemorrhages, debility, etc., it sometimes happens that the blood has lost half its iron; and, to cure these diseases, it is absolutely necessary to restore to the blood the iron which it lacks, and great care should be exercised that the most assimilable form of iron be used, one that penetrates into the organism without unduly taxing the digestive tract or interfering with the essential qualities of the gastric juice."

In chloro-anemia Warner's Pil. Chalybeate Comp. regenerates the diseased red globules of the blood with a rapidity not before observed under the use of other ferruginous preparations; it adds to their physiological power, and makes them richer in coloring matter. Moreover, being neither styptic nor caustic, and having no coagulating or astringent action on the gastro-intestinal mucous membrane, this preparation of iron causes neither constipation nor diarrhea; as it does not need to be digested in order to be absorbed, it gives rise to no sensation of weight in the stomach, or the gastric pain and indigestion occasioned by other preparations. In women who have not menstruated for many months, the amenorrhea disappears; in others suffering from an anemic state of long duration, give Warner's Pil. Chalybeate Comp., one or two after each meal which will soon restore the blood to its normal state.

The small quantity of nux vomica is added to increase the tonic effect, give tone to the stomach and nerves, and increase the appetite.—Therapeutic Gazette, Nov. 1896.

AN ARGUMENT.

It is the opinion of eminent gynecologists that the surgical treatment of the diseases of women has been largely overdone, and that much useless mutilation has been inflicted in cases which could have been treated more safely and effectively by local applications.

Conservatism is again becoming the watchword, and the medical profession is recognizing the fact that the knife should be resorted to only when medicinal treatment has failed. When it is considered that congestion and inflammation constitute the chief element in many genital diseases, it is easy to understand why Micajah's Medicated Uterine Wafers have effected so many radical cures, and have proved so often an efficient substitute for surgical measures. These wafers exert a specific influence in relieving congestion, reducing inflammation and re-establishing normal conditions of the affected

mucous membranes. Under their influence pain and other discomforts are alleviated, discharge caused to disappear, and exudates absorbed. They act safely, efficiently and agreeably in all cases where an antiseptic, astringent and general tonic and alterative action upon the genital organs is indicated.

Their particular sphere of usefulness is in Vaginites, Leucorrhœa, Endometritis, Prolapse of the Uterus, and Menstrual Disorders, especially those incidental to the menopause.

CONFIDENCE WELL PLACED.

December 6, 1897.

John Carle & Sons,
New York City.

Gentlemen: You can be assured that I will prescribe the Imperial Granum whenever there is an indication for a prepared food, because I had sufficient confidence in it to give it to my own child, and it agreed with him perfectly, and he has increased in size and weight to an astonishing degree. ——, M. D.

Physicians can obtain samples of this celebrated prepared food free, charges prepaid, on application.

I have given your Bromidia with success as a remedy for insomnia, especially where produced by excessive study or mental work.

Dr. Luigi Salucci,
Physician to the Holy Apostolic Palaces, the Vatican, Rome,

OPHTHALMIA NEONATORUM.

The laws of many states require the obstetrician to use prophylactic measures to save the sight of newly-born infants. A safe, harmless and positive procedure is the thorough cleansing of the conjunctiva with a 25 per cent. solution of "Palpebrine" and the application of a few drops full strength into the eye shortly after birth. Many physicians make it a routine rule to use "Palpebrine" even if there is no evidence of liability to infection. "Palpebrine" is an antiseptic germicide and slightly astringent solution. The Dios Chemical Co., St. Louis, will mail sample and formula on application.

FOOD FOR NERVOUS PEOPLE.

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Gentlemen: I procured some of your "Gluten Flour" and used it in our Medical Institute, and am fully satisfied that it is the best and healthiest food for invalids and children of a nervous temperament that I have had. I have for thirty years been testing the coarser products of grain in my practice, and I think this "Gluten Flour" is the best that I have tried. Our patients like it, and I shall use it freely. Every family ought to have it. Yours truly,

R. Hamilton, M. D.,
Medical Institute, Saratoga Springs, N. Y.

CONTINUED GOOD RESULTS.

The January, 1894, number of The Quarterly Journal of Inebriety, published under the auspices of The American Association for the Study and Cure of Inebriates, Hartford, Conn., U. S. A., says through its able editor, T. D. Crothers, A. M., M. D.: "Antikamnia is one of the best remedies in influenza, and in many instances is very valuable as a mild narcotic in neuralgias from alcohol and opium excesses. We have used it with best results." In a letter of more recent date to the Antikamnia Chemical Company, Dr. Crothers writes: "Antikamnia continues to improve in value and usefulness, and we are using it freely." The Edinburgh Medical Journal, Scotland, says, regarding antikamnia "In doses of three to ten grains it appears to act as a speedy and effective antipyretic and analgesic." The Medical Annual, London, Eng., says: "Our attention was first called to this analgesic by an American physician whom we saw in consultation regarding one of his patients who suffered from locomotor ataxia. He told us that nothing had relieved the lightning pains so well as antikamnia, which at that time was practically unknown in England. We have since used it repeatedly for the purpose of removing pain, with most satisfactory results. The average dose is only five grains, which may be repeated without fear of unpleasant symptoms."

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ORIGINAL ARTICLES.

THE CLINICAL SIGNIFICANCE OF THE DISEASES OF CHILDREN.*

By H. W. Davis, M. D.,

St. Paul.

On a physician's ability to manage children oftentimes depends not only his pecuniary success, but also the health and life of the children. How comparatively easy to diagnosticate a simple ailment in an adult, but oftentimes how difficut in a restless, frightened, crying child. In speaking of a child I mean those under seven or eight years of age. Those older than that are as able to give as lucid a description of their feelings as many older ones, but before the age of seven the symptoms are nearly all objective, and it is only by close observation that we arrive at a correct diagnosis.

The physician must be one who is endowed with a large share of the milk of human kindness. One who is impatient or in a hurry will seldom arrive at an intelligent idea of the trouble. Who cannot recall visiting a child which immediately began to cry when the doctor was ushered in, and kept on crying until in disgust a prescription was written and an exit hastily made, only to find in the morning a very ill little patient, docile enough now in a semi-comatose condition, the prescription having done no good, and possibly harm, because enough forbearance was not practised, and the confidence of the child was not gained, nor a correct diagnosis made. Therefore, plenty of time should be taken to get acquainted, during which time the hands, if cold, should be warmed thoroughly, as nothing startles a child more than the contact of cold hands.

A complete history of the illness should be gotten. This is often impossible, for so little attention is paid to the daily care of most children that, unless they are infants in arms, no knowledge is gained of their diet or alvine dejections. The first stage of meningitis is often only recognized by the completeness of the history, the existing irritability of the stomach being only a result of that disease. So also in the exanthemata. A few days of indisposition may be the prodromal symptoms of these diseases, and are considered of so little importance by the mother or nurse that the information is only elicited by careful questioning. If the disease is of the respiratory organs, the character of the cough should be sought; if of the digestive organs, the minutest details of feeding should be inquired into. The soiled napkins should be inspected, for the word of the attendant will often lead us into error. To illustrate: A child was persistently passing a great many curds in spite of a carefully selected diet, or thought to be so. The food was modified and changed several times. No soiled napkins had been available when the physician called, until finally, the trouble persisting, he insisted upon examining a napkin, and found that comparatively rare condition, a fatty diarrhœa; the curds instead of being casein were fat. This is a personal experience.

The growth and development of the child are important. Also its weight, process of dentition, when it first walked, exposure to contagious diseases; also the character of the labor, whether easy or difficult. Heredity is important in chronic disease, and should be carefully examined. I think I am safe in saying that nine-tenths of the diseases of children are of the respiratory and digestive organs. So special attention is always directed to these affections, not overlooking the existence of a prevailing epidemic.

Children also, on account of the susceptibility of their nervous systems, show grave symptoms from slight functional causes, and when apparently desperately ill recover in a few hours or days. Or the symptoms may be so obscure that a diagnosis is not made during life, and even an autopsy fails to clear the atmosphere of doubt. As Holt says in his excellent book on children, "What is gained by inspection depends almost entirely upon the powers of observation of the physician." One who has no difficulty in arriving at a diagnosis in adults by a system of questions and answers is at a loss in children, but with patience and observation it becomes almost as easy.

When visiting a child with an acute disease several points are to be noted. If the child is asleep, the posture: if it lies on the side, back or face, if the legs are drawn up or the head retracted, if the sleep is quiet, or does it cry out while sleeping? Does it keep involuntarily swallowing, indicating a sore throat? Do the eyelids twitch, which may be the warning of an approaching convulsion? Do the features contract from time to time, indicating pain? The respiration will be especially noted. Is it rapid and shallow and irregular, or quiet and even and slow? Is there that peculiar little catch to it, which indicates pain, as in pleurisy or pneumonia? Is there any cyanosis, as if some obstruction existed? Is it noisy, as in croup? Does the child breathe through the mouth, as when adenoids, tonsillitis or pharyngitis exists? Is

*Read before the Ramsey County Medical Society, November 29, 1897.

there any recession of the supraclavicular or suprasternal regions?

The pulse, its volume and rhythm, its rapidity is not of so much importance. A slow, irregular pulse is almost always indicative of meningitis; a rapid, irregular one is not necessarily of serious import.

The condition of the skin is noted. Is it moist or dry? Are the extremities cold or warm? Is there any cyanosis? Are the fingers clubbed, as in tubercular tendencies? Are there any eruptions? And for this purpose the clothing should be removed, as it should be in all careful examinations. The diaper can usually remain on. Oftentimes the only eruption of scarlet fever will be noted on some part of the body covered by the clothing. The degree of emaciation or plumpness can now be noted.

As the cry of the child is its only means of expression, due attention and study should be given to it, as its character is of undoubted assistance as an aid to diagnosis. The cry is strung to a great many different tunes, and each one is significant. The cry of hunger is a short, heart-rending one, which is relieved when anything is inserted into the mouth, and ceases when hunger is appeased. When crying from hunger there will be intervals in which the fingers are loudly sucked. The cry of indigestion resembles that of hunger, but is renewed soon after the hunger has been apparently relieved. The cry of intestinal pain is sharp and piercing, and ends gradually in sobbing, and the child goes to sleep, only to start up suddenly and repeat it, the legs being sharply flexed. In earache, the common disorder of infants, the cry is of the same character, and can only be differentiated by the existence of other symptoms. Then there is the suppressed cry of pleurisy or pneumonia, accompanied by the catchy respiration. I have noticed another peculiarity in children in pneumonia, or in pleurisy, that the pain is often referred to the abdomen; if on the right side it resembles that of appendicitis, and is quite puzzling in the absence of a cough. The cry of weakness is a continuous whine which lasts during most of the waking hours. There is the cry of temper and habit. The former seldom occurs before the sixth or seventh month. It is accompanied by extension of the extremities and retention of the breath, and often frightens the young mother on account of the cyanosis that occurs. The cry of habit is the hardest to estimate. It comes from over-indulgence. The child cries to be held, to be carried, when it is wet to be put down, and from every imaginable cause. The babies in the Babies' Home invariably cry for several days after their admission, but if they receive attention at stated intervals they soon cease crying, but, on the other hand, if they are taken up every time they cry, they keep it up indefinitely. So the only way to do is to let them cry until they are exhausted for several times, and then it ceases.

The condition of the pupils and lids is important. If there is intolerance to light without elevation of temperature, or variation of pulse, a simple headache exists. If with these symptoms and added to them a dilatation of the pupils, the meninges are affected. In all febrile conditions of children the pupils are usually dilated. It should be noted if the pupils react to light. Also the presence of corneal ulcers and interstial keratitis, as is so common in hereditary syphilis. The glands at the side of the neck are factors to the diagnosis. They may indicate diphtheria, scarlet fever or simple adenitis, or, if several are inflamed and the others enlarged, probably they are tubercular. In diphtheria and scarlet fever usually the deep cervial are affected. In simple adenitis the superficial, cervical or submaxillary are the ones.

The presence of nasal discharge indicates either influenza, diphtheria or scarlet fever, or if it is chronic, syphilis; bloody mucus or pus from the nose is usually from diphtheria. In a large proportion of cases of diseases of children the history of the illness and intelligent observation by the physician will lead him to form a correct diagnosis, but a physical examination should not be omitted.

In regard to the temperature, I do not depend upon the sense of touch, but use a thermometer in the rectum to the age of five years, when they can hold it safely in the mouth. The heat regulation center in childhood acts so imperfectly that the temperature is affected by trivial causes. By personal observation in most children the daily range is from 98 degrees to 99.5 degrees, so unless the temperature is continuously elevated for a considerable time, it does not indicate anything. A simply rise occurs and in a few hours it is normal. In an illness lasting several days, or a wasting disease, when possibly the temperature is subnormal, the daily use of the thermometer is needful.

The experimenter has succeded in raising infants temperature one to five degrees by the use of artificial heat, hot bottles applied, and I have seen the hot air from a register raise the rectal temperature two degrees. These phenomena are hard to understand.

The examination of the urine should not be neglected. Diabetes is a rare disease in children, but it should not be forgotten that it may occur. I have never seen but two cases occuring in children under ten years of age, but in both it accompanied tubercular meningitis. I think a urinalysis should be made after all exanthemata and diphtheria. Many of those cases that are

so long in convalescing are due to albuminuria, and when I speak of the exanthemata, I mean not only scarletina but varicella, rubella and rubeola, and especially the latter. Measles should receive more careful consideration than is usually accorded it. The sequelæ are nearly as numerous and as severe as those that follow scarlet fever. In New York City last year more children under two years of age died of measles than from any other disease except intestinal troubles. I believe the disease should be quarantined.

Under the head of albumen in the urine I desire to relate a peculiar condition that came under my notice. A child four years old was recovering from an exhausting disease, and owing to some transient stomach trouble, nutrient enemas were given. These were composed of milk, egg and beef peptonoids. After the first enema I had cause to examine the urine and found an abundance of albumen, much to my surprise, as none had existed before. This was in the afternoon, the injection having been given at noon. The next morning, no albumen existed. Gave another nutrient enema and the albumen reappeared four hours afterward, tried it the following day with the same result. No more injections were given and there has been no more albuminuria. I do not pretend to explain why the albumen should so quickly appear in the urine after being injected into the bowels, but that it did so is unmistakable, evidently no nephritis existed.

By examination of the napkin one may determine if crystalline uric acid is deposited, or if the urine is highly concentrated. In male infants the urine may be gathered by a condom, and in females by a small dish placed under the diaper and the further elucidation of urinalysis may throw more light on children's diseases, especially the gastro-intestinal variety.

The examination of the thorax will call forth all one's ingenuity, but with a little patience can be accomplished. Of course the clothing should be removed and the atmosphere of the room should be at least 72 degrees. The condition of the chest is noted, whether there are any deformities, as from rickets. If the expansion is symmetrical, or any bulging of the intercostal spaces. The chest wall is thinner than in an adult, owing to a lack of muscular developement, and more elastic on account of the cartilagenous condition of the framework. For these reasons all pulmonary sounds are puerile or exaggerated. Also the bronchi are relatively larger. A slight bronchial râle may be felt by palpation.

Percussion should be practised with warm hands, and done lightly. The percussion note is usually exaggerated, almost tympanitic, and in the infraclavicular region and between the scapulæ there may be the cracked pot sound. Ausculation by the use of the ear applied to the chest is preferable to the use of the stethescope, as it does not frighten the child as much, and if one is used to that method it is as efficient. The posterior part of the chest should be examined first, as usually the first signs of diseases are found there. Owing to the loud, almost bronchial respiration of children it will be necessary to compare that of both sides to avoid error. It should also be remembered that a child's breathing is often irregular, several long breaths, and then a few shallow, faint, quick ones. It is better that ausculation should be practised before percussion, as it is very difficult to do when the child is crying, and upon it usually depends the diagnosis.

In differentiating a bronchial râle from a pleuritic friction sound, it is sometimes necessary to cause the child to cry and cough and expel the mucus. Areas of consolidation may exist without affecting the percussion note on account of the surrounding emphysematous condition. Flatness always indicates fluid, but when there is fluid usually you also get bronchial breathing, somewhat different from that of consolidation, not quite so distinct.

The apex beat of the heart is usually in the mammary line, or just outside. Heart murmurs are rarely heard before the age of two years unless they are congenital. If the spleen can be felt below the ribs, it is enlarged, unless it is pushed down by a deformity of the chest. In acute diseases enlargement of the spleen means typhoid fever or tuberculosis. In chornic diseases, malaria, anæmia or syphilis. The liver is usually detected a finger's breadth below the ribs.

The condition of the abdomen should be noted; if it is retracted, as in meningitis, or if tympany exists, as in acute intestinal diseases or in rickets. Also determine if phimosis or balanitis is present. I have left the examination of the throat, as it seldom can be done without crying, and, therefore, should be deferred until the last in the examination, and then requires a good light and a quick glance, and often it is necessary to do it forcibly. Often the first signs of the eruption of measles or varicella are seen on the hard palate.

Redness of the fauces indicates either a simple pharyngitis or scarlet fever, although diphtheria may exist without a membrane.

Another important item in an examination is the rectum. It is very common for an ulcer or a fissure to exist. With a history of constipation, and especially if the child is restless and in pain after defæcation, the rectum should be examined. It often escapes the mother's notice, and she is surprised when it is pointed out. The

insertion of the finger and scraping the ulcer with your finger nail is usually all that is needed to effect a cure.

In the examination of children, trifles should be considered. The relative age, weight, size of cranium, mentality, etc. No harsh measures should be used if they can be avoided, and by tact as satisfactory a diagnosis can be made as in adults.

I feel as though I ought to offer an apology for this rambling talk. Some of it I have read, and most of it I have jotted down from observation, but it is only by telling such clinical experiences that they are of any benefit to others, so I may be pardoned.

PRESENT STATUS OF HEREDITY AND ITS RELATION TO TUBERCULOSIS.*

By W. A. Jones, M. D.,

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By heredity is meant the tendency manifested by an organism to develop in the likeness of its progenitor, demonstrating the transmission of physical and mental characteristics from parent to offspring, regarded as the conservative factor in evolution, opposing the tendency to variation under conditions of environment.

Wilson says: "In its physiological aspect, therefore, inheritance is the recurrence in successive generations of like forms of metabolism, and this is effected through the transmission from generation to generation of a specific substance or idioplasm which we have seen reason to identify with cromotin."

The study of heredity involves study of cell growth and development, and the original germ is a single cell similar in its essential nature to any of the tissue cells composing the body.

Huxley says: "It is certain that the germ is not merely a body in which life is dormant or potential, but that it is itself simply a detached portion of the substance of a preëxisting living body."

That such a cell can carry with it properties or power to develop into a man or a mollusk, is one of the unexplained wonders of biological science.

Various theories have been advanced to clear up the mystery, and yet it is now but speculative.

The early theory of preformation, in which it was believed that the egg contained an embryo fully formed in miniature, was too absurd to last, and it was not until 1839 that Schwann demonstrated the fact that the egg is a cell having the same essential structure as the other cells of the body.

The preformation theory, however, was not entirely discarded, but simply changed to a predetermined idea, or to what is now called germinal localization, in which His believed that every point in the embryonic region of the blastoderm must represent a later organ or part of an organ, and, on the other hand, that every organ developed from the blastoderm has a preformed germ in a definitely located region of the flat germ-disc or cytoplasm, with a definite molecular organism directly handed down from the parent.

Roux, in 1888, believed that he had demonstrated by his experiments that if one-half of a blastomere were destroyed, the uninjured half in some cases developed into a perfectly formed half larva. Later Roux, together with other writers, including De Vries, Hertwig and Weismann, sought for a final explanation of germinal localization, and narrowed the cytoplasmic theory down to the nucleus, and from this developed the

IDIOPLASM THEORY.

Nägeli considered inheritance as effected by the transmission, not of a cell, considered as a whole, but of a particular substance, the idioplasm contained within a cell and forming the basis of heredity. The idioplasm is supposed to have definite, peculiar, selective and dynamic properties, causing reaction on the part of surrounding structures, leading to definite chemical and plastic changes, i. e., to differentiation and development. This idioplasm is conceived to be a net-work which extends through the entire cell and from cell to cell throughout the body, and is identified with chromotin. It is also claimed that the idioplasm has its origin in the nucleus of a cell, and this is derived from both sexes, while the cytoplasm is derived from the female.

These two theories, germinal localization and idioplasm, can be traced back to Darwin's idea of pangenesis, in which he maintained that the germ-cell contained innumerable gemmules, each of which predetermined one of the adult cells; that they accumulated in reservoirs, and he thus explained the transmission of acquired characteristics.

The Roux-Weismann theory contends that the idioplasm or chromotin is a highly complex mixture of different substances beyond microscopic demonstration, representing different qualities and quantities, with a fixed architecture, which is transmitted from generation to generation and determines the development of the embryo in a definite and specific manner. This means that the original germ plasm is carried on unchanged in its final delivery to the nucleus.

*Read before the Hennepin County Medical Society, December 6, 1897.

This theory leaves out the possibility of regeneration. Repeated experiments have shown that if the power of regeneration is proven, the germ cell has not the qualitative properties claimed by these investigators.

Driesch, Hertwig and Wilson now agree that the initial cytoplasmic localization of the formative conditions is of limited extent, and determines only the earlier stages of development. With each forward step, new conditions, chemical differentiations and the like are established, which form the basis for the ensuing change, and so on in ever increasing complexity.

During this initial period various conditions may modify the nutrition or positon of the cell or its contents, thus accounting for stability and defect. The primary determining cause lies in the nucleus, the secondary in the metabolic changes in the cytoplasm, and the regularity or irregularity in its subsequent operations.

Various theories have been advanced as to the changes in the nucleus. Driesch has suggested that the nucleus is a storehouse of ferments which pass out into the rest of the cell, and perhaps set up or incite activity, growth and differentiation. It is also supposed that the nucleus loses in volume, or at least a portion of its chromotin, while the germ nucleus itself retains the ancestral heritage. At all events, the nucleus primarily incites changes in the cytoplasm, beginning in the youngest ovarian egg and proceeding continuously until the cycle of adult life has run its course.

"Every living organism at every stage of its existence reacts to its environment by physiological and morphological changes. The developing embryo, like the adult, is a moving equilibrium, a product of the response of the inherited organism to the external stimuli working upon it. If these stimuli be altered, development is altered." (Wilson.)

For the development to proceed in a normal and regular manner, the organism must be surrounded by normal conditions, and yet the external conditions are not always the cause of specific forms of development, and in some instances we are forced to conclude that an unusual stimulus will not change the fixed and apparently preformed and predestined character of the organism. The cell has two roles to perform, one morphological and inherent, the other constructive, and yet both are different phases of one process. If Nägeli's hypothesis is correct, that the nucleus is a complex, molecular substance made up of crystaline, doubly reflecting particles, each consisting of numerous atoms and impermeable by water, it would not be unreasonable to suppose that one cell or class of cells was destined to form the structure or framework of the body, while another set was to preside over the various functions. It has been supposed also, that if this latter class predominated, the individual so endowed would have less resistance, and thus be more apt to acquire tuberculosis. We might then explain some of the inherent qualities or characteristics which are the groundwork for latent possibilities. Although the entire cell body is essential in development, the nucleus alone suffices for the inheritance of specific possibilities.

When the question is asked as to the nature or structure of the cell and how it has been acquired, it is impossible to get away from some of the old ideas of heredity. To the first part of the question, all the hypotheses, or any of them, may seem to fit an individual case—the pangen theories of Darwin, Huxley, De Vries and Weisman, all of which are at bottom the theory of predetermination.

Driesch says: "What lies beyond our reach at present is to explain the ordinary rhythm of development, the coördinating power that guides development to its predestined end." But whatever theory we advance, Weismann believes that we are simply substituting for one difficulty, another of the same kind.

"The truth is, that an explanation of development and inheritance is at present beyond our reach. What we know is, that a specific kind of living substance derived from the parent, tends to run through a specific cycle of changes, during which it transforms itself into a body like that of which it formed a part. * * The second question, regarding the historical origin of the idioplasm, brings us to the side of the evolutionists. The idioplasm of every species has been derived, as we must believe, by the modification of a preëxisting idioplasm through variation and the survival of the fittest. * * * We are utterly ignorant of the manner in which the idioplasm of the germ cell can so respond to the play of physical forces upon it as to call forth an adaptive variation, and the study of the cell has, on the whole, seemed to widen, rather than to narrow, the enormous gap that separates even the lowest forms of life from the inorganic world."

However ignorant we are of the cell processes, we must admit that certain characteristics and defects are transmitted from one generation to another. The transmission may skip one generation and appear in the second or third, and this, we know, is the atavistic theory; but we cannot explain, nor is it necessary, perhaps, to know, how a cell can be transmitted through one generation without the development of its latent possibilities.

It seems hardly necessary here to call attention to the heredity of instincts, sense qualities, memory, imagination, intellect or passions, to-

gether with a host of subordinate characteristics, or to dilate upon the indirect or collateral laws of heredity. There are a sufficient number of cases, familiar to us all, that illustrate this special line of heredity; but when it comes to the transmission of disease, there should be nothing strange or unexpected. Perhaps the difference is only in degree as to disease being, strictly speaking, hereditary or transmissible, and this brings us to the theory of predisposition. This cannot be strictly defined, neither is it of equal importance for all diseases. The fact that some individuals are attacked, and others equally exposed to danger escape, is not due to any special predisposition on the part of the former. Predisposition to disease, and particularly infectious disease, may mean that the germ has in some cases hit, and in others missed; but for diseases other than infectious, the supposition is that there is an inherent structural foundation, influenced only by succeeding environment. The assumption is clear that children born of psycho-neurotic parents may entirely escape mental or nervous diseases, if the early environment is changed or altered. In its broad sense, predisposition may be defined as a defect in the constitution which lessens resistance and is more liable to invasion of disease. Whether or not this predisposition is peculiar or applicable to tuberculosis, is still an unsettled question. Various authors with voluminous statistics have attempted to show that tuberculosis is inherited, and Goldsmith argues that "as the world was created, so is tuberculosis inherited."

Baumgarten advocates vigorously the doctrine that heredity as a casual faculty in tuberculosis is mainly inheritance of the bacilli, and not, as usually believed, inheritance of the soil or predisposition. Rare instances tend to prove this assumption, but the author cited fails to say definitely whether the disease was transmitted by the mother or from the father.

Gärtner has published some very extensive investigations, and he believes that there is inheritance of the specific germ of the disease; and, second, inheritance of a peculiar predisposition which favors the acquisition of the disease in after life, and that the predisposition is increased by all causes which produce a general or local weakness. It may depend upon mechanical causes, or upon chemical constituents of the cells and fluid and body. In opposition to Baumgarten, he maintains that there is a possibility only of fœtal infection in which the bacillus is transmitted from the mother to the fœtus; but he furthermore concludes that tuberculosis is not transmitted directly from the father to the child, although it has been claimed by other authorities that the bacilli have been found in the spermatozoa, and may thus directly affect the ovum.

Ribbert concludes that we must admit that a large number of interesting statistics may be utilized as points of support of the possibility of congenital transmission of bacilli, but that strict proof has been brought only for placental infection to account for congenital human tuberculosis. Infection in this way, however, is only a possibility, and that it does not occur as a rule, is proved by the fact that the offspring of tuberculous mothers are commonly born sound and free.

Klebs has shown that the intraüterine transmission of tuberculosis from an infected mother is one of the rarest occurrences, and as to transmission from the father, which alone can constitute demonstrable heredity, there is no proof at all. Gärtner showed in his inoculation experiments only one bacillus to be present in fourteen million spermatozoids, so that the chances for infection in this way are reduced to a minimum. It could not further be shown that spermatozoids ever incorporate bacilli. When it is considered that, on the one hand, the tubercle bacilli are so rarely found in the semen, and, on the other hand, that primary congenital tuberculosis is itself so rare, it may be concluded that tuberculosis is never conveyed to the fœtus by the spermatozoids. Thus, practically, tuberculosis is not an inherited disease. I am aware that there are many opponents to this theory, and there are some claims which are apparently incontestable, that go to show that the spermatozoid may convey the bacillus, and that the tuberculous process may remain latent in the body a long time. This is the essential part of the hypothesis, that tuberculosis is often due to bacillar heritage; but, notwithstanding the increasing plausibility of this theory, there is a vast array of facts which tend to disprove it.

Solly, American Journal Medical Sciences for August, 1895, in his studies of two hundred and fifty cases, shows that there is a family history in one hundred and thirty-nine cases (parental seventy-two, grandparental nineteen, and collateral forty-eight), one hundred and eleven of acquired. He maintained that the connection between phthisis in an individual and phthisis in the family may be derived in one of three ways: First, inheritance of the bacilli; second, by way of susceptibility, and, third, by contagion.

If we look at inheritance from Nägeli's standpoint, that the nucleus is a complex substance, and that each part of the cytoplasm has a destiny to perform, how do we know that this substance may not contain the latent tubercular germ? or at least if it does not contain the germ, it is reasonably certain that the nucleus which

originates from poor stock transmits a diathesis and develops types of tissue that pre-dispose to disease.

The burden of proof seems to show that tuberculosis is transmitted in rare instances from the mother through the area vasculosa or the placenta to the child; that in rarer instances it is conveyed from the father through the spermatozoids, and that, in the vast majority of cases, it is due to direct infection and not to inheritance.

In this paper I have attempted to give facts as closely as possible, and I must leave you to draw your own conclusions. The question of heredity in either aspect, through predisposition or disease, has not been settled by the eminent scientists quoted in this article, and I fear that it is beyond the province of the Hennepin County Medical Society to arrive at any safe conclusions.

WHAT IS A TRUE TUBERCULAR TYPE, OR HOW CAN WE DETERMINE A PREDISPOSITION TO ACQUIRE THE CONTAGION OF TUBERCULOSIS.*

By C. A. McCollom, M. D.,

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For years we have labored under the notion that every case of tuberculosis was an heirloom, which could not, under any circumstances, be avoided; that this condition was entailed and must be endured.

The "white plague" walked through the world wherever cultured man resided, and followed his wake into barbaric lands, to the cost of these poor people of their lives.

The movement of this curse is highly instructive, and its study has lead to the immortal discovery by Koch of its cause, the bacillus tuberculosis. This etiological factor in the spread of this infectious disease has proven that a culture ground is required for its propagation. While vast numbers are subjects of its inroads, nevertheless it is one of the most preventive of diseases, but practically and clinically it is like John Brown of old, it is "still marching on."

During the past few years it has been my privilege to supervise the selection of a large number of selected lives, and this question, what is a tubercular type? from a medico-insurance point of view is a vital one, for it is presumed and accepted as a fact that where there are subjective or objective conditions or symptoms this class can be eliminated, but where one finds that one in seven die of tuberculosis which entered with a clear bill of health, one can not but believe that there is a condition outside of the pure heredity. Having examined death proof after death proof with this in view, one can not but help arriving at this conclusion—there is a predisposition to contract this contagion, which is pronounced in a certain class.

It is the province of nature to repeat herself in form and individual peculiarities, but the vital resistance of that individual is his own, which can be moulded and kneaded by circumstances into an ideal creation or a weakling. The "survival of the fittest" is true. Man's environments change constantly. Today he is in the height of felicity, tomorrow in the depths of despair. This constant change tells upon his cellular makeup. Food, drink, occupation, habitation and social life are prime factors in determining this condition. Immunity alone means health. It is a hard fact to own, when the A No. 1 risk dies within three years from tuberculosis whose personal, moral and family history was clear, that there is something wrong in the methods of examination, something has escaped us, some factor has not been brought out.

All men are exposed to this contagion. The germ is omnipotent. All health records of our cities show this. Over 20,000 have been reported in the city of New York alone, and this does not cover the cases; where one is reported, scores escape record. The animal man is peculiar; he is always willing some stranger should walk the plank, but objects to being marooned himself. Public health can accomplish much when public thought acts as a willing helper; until then we must confront the question: will the case in point contract tuberculosis?

Post-mortem records tell us that all cases which contract this contagion do not proceed to a final and fatal result, but that the condition is stopped, burned out, as it were, thus emphasizing the statement that some are immune, that this soil is not the kind upon which this germ will grow; the culture medium is not proper.

We can ascertain an individual's make up, note his cellular tissue, whether lean as Cassius or fat as Falstaff, swarthy as an Indian or blond as Mund of old; they remind us only of family or race peculiarities, and nothing of his health or

*Annual Address of the Vice President of the Hennepin County Medical Society, December 6, 1897.

vital resistance, unless we can bring something else with it. This something else is a combination of all these factors, complexion and temperament, stature and idiosyncrasys,—his diathesis.

Heredity in itself is not the only cause of this predisposition. It is an important one, but is often defeated. Exposure to contagion, by this class, is almost certain, sooner or later, to end in the contraction of the disease, but another type is required, where heredity is clean, and direct exposure results in contraction, while others similarly exposed escape. The same might be said of exposure to all contagion, but the percentage of "takes" is smaller in the tubercular exposure than in any other infection. It there was no difference in this respect we could not reasonably argue that a certain class was immune and a certain class susceptible, but experience forces us to this conclusion.

While as said before, certain factors combined make the diathesis, this does not make the tubercular type alone. Still other conditions are required. With only these we could not yet bring in a verdict of guilty, but we must still search for more.

Tone is a condition much overlooked in making a prognosis. It is a certain state or quality of the nervous system which determines the vital resistance. It is part of the business of the nervous system to somewhat control the function of nutrition. Should this be low with deficient nutrition, the diathesis would be intensified, while any condition, circumstance, occupation or environment, which depresses this tone, correspondingly reduces the vital resistence and intensifies the predisposition, and if there is no inherited taint, causes an artificial condition which, should the party be exposed, will find a culture ground in which the germ will thrive and reproduce its kind, thus fulfilling its mission.

Predisposition is often inherited in this particular, that the offspring has a different stature and cellular composition which are not sturdy and vigorous.

This is often acquired by certain environments. Where there is an inherited predisposition, improper food will render the same pronounced, so will occupation. But this class give us due notice, either by family history, or subjective or objective evidence, but the acquired predisposition, often the result of some other condition, accidental in itself, is the type we wish to determine, and the one who seemingly is sturdy and has a reserve store of vitality, but who contracts this contagion. By what factors can we discover his predisposition? This question is a vital one, and has not been fully solved.

Habits of life, active or sedentary; mode of living, particularly excess in eating and drinking and use of narcotics; exposure to extremes of heat and cold, owing to the occupation whose environments tend to deteriorate; history of frequent, slight catarrh; recent pneumonia, pleurisy or bronchitis; tendency to light weight, and where we find a tendency to continual slight rise in temperature. In fact every condition which will, in itself, interfere with proper nutrition will predispose to this condition. The number of persons who will acquire this predisposition is then only limited by their being within the lines of normal physiological health. A continual deflection toward an enfeebled state of nutrition already predisposed, and this condition is the true tubercular type. The loosely built, coarse skinned individual whose connective tissue is not finely knit, is void of vital resistance, and is quite prone to be culture ground, giving good foothold for the bacillus tuberculosis. Recent pleurisies, that is, within three years, have proved a favorite culture ground, and the sequence of the cases is too often tubercular. Pneumonia, especially if recurrent, predisposes.

Referring again to heredity. It is presumed that direct lines are observed, and not side issues. Father, mother, brother, sister, grandparent, if we take in the aunts, uncles and even going back to great-grandparents, heredity would prove all conditions and none would be exempt. Taking, then, the direct line, the inherited want of vital resistance is seen in the children; this, combined with unsanitary surroundings is an element of predisposition to any predisposing cause, and particularly prone to the various manifestations of tuberculosis, disclosing in a large number of cases tubercle history. As the child grows this natural element of selection gradually weeds out the weakling until we reach man's estate, when the young man or woman is thrown on his or her own resources, and the tendency to defeat heredity, which has been gradually increasing, is now, by this change of condition, checked, and the predisposition exerts itself. This tendency to defeat heredity can be fostered, and is proof positive of the benefit of preventive and therapeutic measures. It is in the adult who has no family or personal history of tubercle or depressing cause that we wish to find some sign post whose finger will guide us to determine this hidden flaw in an otherwise splendid expectancy. The life work of the physician is to discover some marked degeneration which has, by its subjective condition, required the victim, from personal discomfort to consult us. He opens his very soul to our vision, and we have a ready and persistent helper in our effort to diagnose his

condition, which has now become pathognomonic.

But when we pass upon the individual who is sans ailment and wants a policy or benefit for his dependents, the conditions are reversed. We have no helper; minor subjective conditions are denied, and unless there are marked objective conditions, we too often miss the game. As a result rigid laws, governing selection are in force, built upon heredity. Late experiments tell us that this condition is at fault. While this governs one class, the other still escapes. The trained observer is always impressed with the case. Outside of his mere physical examination, the personel, so to speak, of the party, impressed one with a particular notion of his vital resistance. This faculty should be cultivated, as this lack of vital resistance is the predisposition which renders contagion liable.

In the light of modern pathological investigation we must admit that tuberculosis is an infectious disease. This has been proved beyond a shadow of a doubt, and that it is endemic, we might say epidemic, and possibly pandemic, as its mortality is of the pandemic character..

With this condition universal we must admit that there is a certain immunity. Now this is natural to all, as before stated. Natural immunity is a condition of physiological health, but this condition can end at any time. Heredity predisposes, but the most robust, if exposed to intense infection, will become tubercular.

The doctrine of immunity teaches us that the serum of the nutrient fluids of the body carry constituents which are antidotal to the materies morbi of infection. While this, in the prime condition, is pronounced, this may, by reason of constitutional weakness, be lessened, so that this inherited tendency will determine upon slight infection. When the parents are nonphthisical, among the adults the males particularly being exposed by reason of occupation or wedlock, become consumptive. Among the children the females, by reason of constant exposure at home, show the larger mortality, the outdoor life of boys prolonging their lives, as their natural immunity is not destroyed by the intense infection of home exposure. While in the case of the female by reason of being constitutionally without normal vital resistance and constant home exposure, they contract the specific infection, which, in this case, is tuberculosis.

In the report of the Brompton Consumption Hospital, we find the following: One thousand cases of tuberculosis. One or both of the parents were tubercular in 272 cases. This was from the poor class. One thousand cases of those whose environments were better gave 120 whose parents were tubercular, or one-half the ratio found in the poorer class.

Squire vide "Heredity in Phthisis," American Journal of the Medical Sciences, November, 1897, gives as the result of 1,000 families the following table:

Per cent. of children of tubercular parents who became tubercular	33.16
Per cent. of children of non-tubercular parents who became tubercular	23.65
Per cent. of heredity	9.51

Or that heredity affects less than ten per cent of the offspring. These figures are those of children.

During the past two years I have noted in nearly 1,600 deaths, 254 from tuberculosis, 65 of them gave a tubercular history outside of parents, 42 gave a history of some depressing cause: 157 under standard weight, 19 were passed as first-class, while the infected condition was overlooked by the local examiner; 123 were perfect in all respects. Nearly one-half contracting their contagion who gave no sign, and less than one-quarter gave a tubercular history.

The moral: What is a tubercular type? We are upon the footstool of an unknown quantity. Let X represent the same.

408 Masonic Temple.

THE EARLY DIAGNOSIS OF PULMONARY TUBERCULOSIS.*

By Geo. Douglas Head, B. S., M. D.,

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The post-mortem records of Heitler, Osler, Harris and other observers, prove beyond doubt that nature unaided cures many cases of pulmonary tuberculosis.

If the disease could be recognized in its earliest beginnings, when only a lymph node, or an alveolus of the lung was involved, the cellular forces of the body, stimulated to increased activity by a generous supply of pure air and nutritious food could probably effect a cure in a large per cent of cases.

Knowing as we do that medicine possesses no drug which can stay the progress of this disease, and recognizing the curative value of nature's forces in dealing with its initial stages, it behooves us to concentrate our energy in a search for the most adequate means of detecting the very beginnings of the infection.

*Read before the Hennepin County Medical Society, December 6, 1897.

In order that we may stand upon common ground in the consideration of this subject, we must agree as to what shall constitute an early diagnosis of pulmonary tuberculosis. In other words, how soon after the infection takes place would it be necessary to recognize the disease in order to say that we had made a diagnosis in the early stage of pulmonary tuberculosis.

The answer to this question must depend upon knowledge furnished by the pathologist, not the clinician. All clinicians would agree that the examiner who detected a tubercular area 2 c. c. square in a patient's lung would have early located the tuberculous process, and have made an early diagnosis. And yet the pathologist might say that such a lesion was in fact a late manifestation of the disease. To make an early diagnosis we must detect early lesions, and only by outlining the initial pathological lesions of the infection are we able to say what is and what is not an early diagnosis.

Tubercle bacilli carried in the inspired air may fall upon any part of the mucous membrane of the respiratory tract from which an entrance into the body may be effected. If the locality selected be the tonsils, pharynx, larynx or upper trachea, the bacilli rarely reach the lung, and the consideration of such lesions falls without the scope of this paper. More commonly the epithelia covering the bronchi or the bifurcation of the trachea serve as gateways of infection, and the bacilli carried through the mucous membrane of these structures fall into the lymph stream and are floated away to the bronchial lymph nodes, ten or twelve of which drain this region. In the interstices of these glands they lodge, multiply and create an area of tubercular tissue, or kept in abeyance by the developing cells around them, postpone an active invasion until the stagnant or retrograde cellular changes of mature years offer a more favorable period for their development and the manufacture of the toxine.

It is here in these bronchial lymph nodes that one of the earliest lesions of pulmonary tuberculosis is to be found. They are the primary sources from which a secondary infection of the lung proper may arise. If we are prepared to make an early diagnosis of pulmonary tuberculosis, we should be able to detect a tubercular lesion in these glands.

Most often the bacilli gain entrance to the deeper portions of the lung and fall upon the epithelial lining of the terminal bronchioles or the alveoli themselves. Here they multiply, establish an inflammatory center, and produce the tubercular nodule or the tubercle.

The formation of these small tubercles in the terminal bronchioles and alveoli of the lungs is an early lesion of pulmonary tuberculosis, and the diagnosis of the disease at this stage would be an early diagnosis.

Any tuberculous lesion which has passed on to the process of caseation is not pathologically an early lesion, nor would the diagnosis of the disease at such a stage be an early diagnosis.

In the history of the tubercle we recognize the inflammatory or formative stage, the stage of caseation and the stage of excavation or sclerosis.

Only when the disease has been detected in the first or formative stage, can it be said that an early diagnosis has been made. But the objection might be raised: A diagnosis in this stage of the disease would be many times impossible with our present diagnostic methods. This is just the point I wish to make, that from a pathological standpoint, with our present well recognized means of diagnosis, medical men are rarely able to make a diagnosis in the initial stage of pulmonary tuberculosis.

Let us turn to a consideration of the agencies at our command for the detection of an infection of the lung by tubercle bacilli..

In ascertaining whether a patient has or has not pulmonary tuberculosis, we depend upon: First, a study of the clinical symptoms; second, a study of the physical signs; third, the examination of the sputum for bacilli; fourth, the use of tuberculin injections. The last mentioned method is not generally well recognized and does not at present have the sanction of the profession.

When the bronchial lymph nodes are involved the clinical symptoms are ill defined and inconstant. Among those described by the various authors are pain of an aching character referred to the root of the neck, fever, cough dry obstructive and excited or deep inspiration; dyspnœa of a spasmodic character; dysphagia and change in the sounds of the voice. None of these symptoms are, however, diagnostic, for the glands may grow to large masses in the mediastinum without a single one of the above symptoms being complained of.

Of the physical signs, dullness cannot with certainty be detected on account of the intervening sternum. Râles and feeble or obstructed breath sounds over the compressed bronchus may be heard. But these are likewise inconstant, and do not with certainty determine a tubercular process. In the main, the physical signs are as uncertain as the clinical symptoms, and the knowledge obtained from a study of both may be suggestive but is never absolutely diagnostic.

Neither are we aided by an examination of the sputum, since the bacilli appear in the exudate only when the infected tissue ulcerates through into a bronchus, which is late in the

history of the disease. With these the only well recognized means for detecting tuberculosis of the bronchial lymph glands considered, we must admit that we are unable to diagnose with certainty a tubercular infection of these structures, the existence of which is a source of secondary infection for the lungs proper, or the means by which a general tuberculosis may be disseminated. The only possible means by which such a lesion could be early detected would be by the injection into the body of some substance, which, acting upon this tubercular tissue would manifest some symptom of diagnostic value. This I believe we have in tuberculin. The rise in temperature following its injection into the body is pathognomic for tuberculosis, and is the most valuable means at our command for determining the presence of such a lesion.

Turning to tuberculosis of the terminal bronchioles and alveoli of the lung, of what value are the present diagnostic methods for early detecting the presence of the tubercles?

Of the clinical symptoms cough and a constant temperature are the most often manifested, yet these only suggest the possibility of the disease, and we examine the lungs and search the sputum to confirm or deny our suspicion.

Ziegler, the pathologist, speaking from the standpoint of experimental tuberculosis, says:

"The onset of a tuberculous infection can not be determined in human beings, since the symptoms of the disease only show themselves after the process is extended to some degree."

The physical signs produced by freshly deposited tubercles are negative; a full sized mature tubercle is the size of a millet seed. Such bodies are too small to cause appreciable dullness, and too minute to appreciably obstruct breath sounds, or delay the onflow of mucus.

An interesting question here arises: How large an area of infected lung can exist before its presence can be detected by physical signs?

Pepper, in his "Textbook of Medicine," recites a case in point:

He diagnosed a tuberculous lesion in the right infraclavicular region in a young man who presented himself for examination. Increased vocal resonance, abnormal broncho-vesicular breathing and increased bronchial whispering were the physical signs detected. The patient was killed soon after in an accident, and a tuberculous area the size of a filbert was found post mortem. The area Pepper detected was large enough to include one hundred alveoli of the lung. Fresh formed tubercles are not larger than one alveolus of the lung. When we consider the skill of Pepper in physical diagnosis, we can readily see that even the most proficient diagnostician is not in a position to detect the earliest lesion of a tubercular lung infection, and in the great majority of cases the disease has been sometime in existence before the most careful examiner is able to detect physical signs in the lungs.

The detection of tubercle bacilli in the sputum is the most certain means at our command for establishing the presence of pulmonary tuberculosis. Many times bacilli are present before any pronounced physical signs can be detected, and yet bacilli are not given off in the sputum until the cellular disorganization has begun, and then we are dealing with a later stage of the disease, when the body rarely overcomes the infection.

It is in the formative stage of tuberculosis, when the clinical symptoms are uncertain, the physical signs negative and bacilli absent from the sputum, the bronchitis of the clinician, that some means more delicate than any at present employed would be of greatest value in arriving at a correct diagnosis. Such a diagnostic aid is tuberculin. Injected into the body of tuberculous individuals it causes a temperature reaction so characteristic and constant as to be of the greatest value in establishing the character of the pathological lesion.

The profession in general will not accept this means of detecting pulmonary tuberculosis, because it is believed that its use tends to either augment the process already existing or open new channels for a farther infection of the patient.

To the consideration of these objections I wish to call your attention.

Tuberculin injected into tuberculous individuals causes a definite and characteristic rise of temperature. Injected into the non-tuberculous person it causes no rise in temperature, nor other abnormal symptoms.

The reason why a rise in temperature results from its injection into the tubercular individual is, that the tuberculin acting upon the tissue in the involved area causes an inflammation in the surrounding tissues. In this inflammatory process an increased flow of blood is supplied to the tubercular area. This additional blood supply sweeps out from the tissue an increased quantity of tuberculin, and this, with the tuberculin injected, causes a rise in temperature.

Three questions now arise for consideration: First, does this inflammation in the tissue around and about the tubercle augment the tubercular process? Second, does it offer new avenues for bacilli to gain an entrance to other parts of the body? Third, does it cause a necrosis, or breaking down of the tissues of the tubercle?

The histological researches of Riehl, Jacobi, Rindfleisch, Schimmelbusch and Kromayer agree in demonstrating that tuberculin does not

cause any direct necrotic action on tubercular tissue, or on the cells surrounding the tubercle. It rather causes an increased production of connective tissue and other inflammatory cell products at the periphery of the tubercle, which tends to wall off the infected area from the surrounding structures. It acts to produce an inflammation in the peripheral region of the tubercle, with the production of connective tissue elements.

Does the production of such an inflammation open new channels for the bacilli to gain access to other parts of the body or the surrounding structures?

It is upon this phase of the subject that the post-mortem records of Virchow were offered in evidence against tuberculin, and turned the tide of opinion against its use.

Virchow reported the results of his post-mortems upon twenty-one tuberculous subjects who had been treated with continuous tuberculin injections in the later stages of the disease. He observed:

1. A marked congestion of internal organs.

2. The linings of the old tubercular cavities showed intense congestion.

3. In one case of tubercular arachnitis the congestion of the pia was greater than he had ever seen it before.

4. Some of the cases showed a recent caseous pneumonia which he regarded as tuberculous.

5. Fresh formed miliary and submiliary tubercles were observed upon the serous membranes. These he ascribed to the use of the tuberculin, though he admits that they are found in the non-injected cases as well.

It was upon this evidence that the dangerous character of tuberculin was considered as established. What greater error could have been committed than to endeavor to prove the harmful character of tuberculin upon the post-mortem records of a series of cases far advanced in the history of the disease, when the range of lesions might be multitudinous, and the conclusions to be drawn of necessity conjectural?

Why not give tuberculosis to a series of animals, then when the infection had begun inject tuberculin at various intervals, and ascertain by post-mortem and microscopical study whether the progress of the disease was hastened or the bacilli disseminated?

This is just what the experiments of Koch prove. He took a number of healthy guinea pigs and inoculated them from pure cultures of tubercle bacilli. In ten to fourteen days a hard tubercle formed at the site of injection, which later degenerated and continued to ulcerate till the death of the animal.

A second series of guinea pigs were then taken and inoculated as before, and after a few days tuberculin was injected into the animals. The tubercular nodule formed as before went on to ulceration, but later diminished in size and finally completely healed over, a result which never happened in non-injected guinea pigs. The use of tuberculin caused not only no augmentation of the disease, no widespread infection into surrounding tissues or distant organs, but absolute healing of the lesion, and, in many cases, recovery of the animal.

These experiments prove beyond doubt that tuberculin does not cause what its opponents declare it does produce, an augmentation of the disease on the opening of new channels for reinfection. No one denies but that it causes an inflammatory process in the region of the tubercle, but such a process is identical with that produced by the natural cell forces of the body when the bacilli fall for the first time upon the mucous membrane of the bronchioles or alveoli. The moment the bacillus secures a foothold and begins its multiplication, an inflammation is started in the surrounding tissue. Connective tissue cells form, leucocytes emigrate, epithelioid and giant cells appear, until finally there forms in the region of the bacilli a wall of inflammatory tissue, which, in a sense, serves to protect the organism from further invasion by the bacilli.

Identically the same result follows an injection of tuberculin. Two processes identical in character cannot be one destructive and the other preservative.

If any harm could ever come from the use of tuberculin, it could be only in the advanced stages of the disease, when the tuberculous process had progressed so far that the slight inflammatory action of the tuberculin could not stem the onward march of the infection.

My experience with the use of this means of diagnosis has extended over two years. I have made thirty-four injections. The solution used was bureau tuberculin and has been given in one dose of .24 of a c. c. Of the number injected 44 per cent have reacted and 56 per cent have not reacted. Of the number which have reacted, tubercle bacilli have been found in the sputum of all but five cases. Two of the five cases, were tuberculous glands of the neck and showed caseous areas when excised. They were not examined for bacilli.

Of the number which reacted, the tuberculin diagnosed the disease in four cases before bacilli were found in the sputum.

No individual who was injected and did not react has up to this time developed any tubercular symptoms, although some of the cases have been lost track of. No individual who re-

acted to the injection has so far as I have been able to ascertain been worse for such injection; neither has the disease progressed more rapidly in such patients.

Four of the cases have returned claiming to have been much benefited, and asking for re-injections.

The writer believes that Bureau Tuberculin used in .24 c. c. dose is one of the most valuable means at our command for diagnosing the early stages of pulmonary tuberculosis, and that with its aid an early tubercular infection can be detected when the clinical symptoms, physical signs and examination of the sputum are of little diagnostic value.

HYSTERECTOMY FOR CARCINOMA OF THE UTERUS FROM A CLINICAL STANDPOINT.

By John H. Rishmiller, M. D.,

Minneapolis.

I enter this subject with reluctance and hesitancy, because it is one which deserves the best thought and keenest insight of an experienced and matured operator.

It is a very difficult problem in gynæcology to come to a conclusion whether to operate or not in a case of carcinoma of the uterus, which has in the first place neglected to consult a physician, and in the second place has progressed so far that it is almost impossible to determine precisely to what degree the lymphatic structures are involved. In looking over the numerous reported cases where the surgeon goes so far in making an honest confession as to state that "the patient did well for several months, but then a recurrence presented itself," such as in the broad ligaments, vagina, rectum, bladder, etc., it appears to one that there has been a lack of skill in diagnosis. It is due mainly to our mistaken pathological diagnosis that we fail in our prognosis in arriving at an exact conclusion how far the carcinomatous disease has progressed, and whether the involved structures may be removed by a clean sweeping operation.

Should we be unable to perform total ablation of the malignant structures, unnecessary suffering is caused by the well meant although too frequently inexcusably medical advice. Attempting to perform hysterectomy and remove a uterus from a carcinomatous focus is exhibiting indiscretion and surgical fanaticism. This unwise procedure, if it does not kill the patient directly, which is frequently the case, is far less palliative than simple curettage, followed by cauterization.

In determining the practicability of performing hysterectomy it is important to differentiate between cancerous extension from the uterus to either the utero-sacral or broad ligaments and simple inflammatory involvement of these ligaments. A suspicion of the foregoing condition should be created in our minds when the mobility of the uterus is lessened and discloses a tumefaction and puffiness at its sides. We find the inflammatory adhesions higher in the pelvis, mainly posterior to the uterus and not continuous with the cervix. In carcinomatous fixation of the uterus we easily detect the involvement of the base of the broad ligaments, which is directly continuous with the hard and friable cervix, and situated on the side instead of behind the uterus. Furthermore, we must not neglect to consider that both the inflammatory and malignant disease may concomitantly involve respectively the broad ligaments and the cervix uteri. In this instance a clinical history of chronic inflammation may invariably be elicited from the patient and aid in elucidating the differentiation. Albeit, an anæsthetic examination should be insisted upon, when frequently the chronically adherent and enlarged tube and ovary may be made out. Likewise, whenever there exists a doubt as to the extent of the carcinomatous involvement, an examination under an anæsthetic, bimanually per vaginam and rectum, then with the aid of the sharp curette to see whether the disease has passed through the cervix into the adjacent cellular tissue, and lastly, to explore the bladder, if need be, with the finger per urethram after dilatation, should never be neglected for prognostic elucidation and operative precision. When the examination has detected an involvement of either the bladder or the rectum absolutely no hysterectomy should be undertaken, as it would be impossible to remove all the perirectal or perivesical glands, and an inevitable recurrence will eventually terminate life.

While it is far easier to seemingly remove all cancerous infiltration of the broad ligaments than of the bladder and rectum, nevertheless, life cannot be prolonged and a recurrence prevented after cancerous infiltration has extended beyond the uterus in such a manner as to limit its free movements. Such a good and reliable authority as Pozzi has said: "Whenever the cancer has extended beyond the limits of the uterus, there should be no attempt at total extirpation." In cases where the vagina is involved an operation including the removal of the whole vaginal fornices with the uterus and adnexa, is more liable to eradicate the malignancy than where the cervix is affected.

*Read before the Hennepin County Medical Society, Jan. 3, 1898.

Carcinoma of the cervix is the most malignant type, and recurrence is more likely because the lymphatic system is more extensive in this particular locality than at either the corpus uteri or portio vaginalis. Cancer of the body is the most amenable to radical operation, and the least number of recurrences may be expected. Carcinoma of the portio vaginalis, provided all of the disease has been removed, gives a very favorable prognosis.

It seems to be the consensus of opinion that one main cause of recurrence is attributable to permitting some of the carcinomatous material to come into contact with the wounded surfaces made during the operation. This infectiousness may be termed an "inoculation recurrence," and it seems to occur in patients in that particular state of health which made the original disease possible.

Carcinoma of the body of the uterus is a comparatively rare disease, and may be put down at about two to three per cent of all cases of uterine cancer. Through the invasion of the lymphatic system comes the involvement of the connective tissue, which finally anchors the uterus. Lymphatic infection occurs late and ultimately fixation of the uterus is an incident of an advanced state only. This long, unembarrassed movement of the uterus greatly favors radical treatment, and, therefore, very few cases of carcinoma of the corpus uteri come to the gynæcologist's observation in an inoperable condition.

Dr. W. W. Russell, of Johns Hopkins Hospital, published in the "Bulletin" of that institution, November and December, 1895, a very indefatigable and ferreting result on "The Clinical Course of Forty-seven Cases of Carcinoma of the Uterus Subsequent to Hysterectomy," which he has kindly placed at my disposal to quote. This is by far the most critical observation that has been published, or come to my notice, and it will show accurately and precisely what ultimately becomes of these carcinomatous cases where the uterus has been radically extirpated.

"Sixteen of the twenty-one cases still living had passed the limit of two years and were enjoying good health—a period of exemption amply justifying the operation."

"Vaginal hysterectomy was performed in forty cases, abdominal in four, and the combined operation in three cases.

"Grouping them together the results are as follows:

Death from primary effect of operation, 5=10 per cent.
Patients still living, 21=44 per cent.
Patients died with recurrence, 16=34 per cent.
Patients not heard from, 4= 8 per cent.
Died from heart lesion, 1=2 per cent.

"Three of the deaths immediately following the operation were due to peritonitis and two to ligation of the ureters.

"Recurrence and death took place in the sixteen cases within eighteen months. The prognosis in eight of these at the time of operation was unfavorable."

"Pathological classification:
Adeno-carcinoma, body of the uterus, 9 cases.
Carcinoma, cervix, 38 cases.

Results of hysterectomy for carcinoma of the body:
Patients still living, 7 = 77 per cent.
Patients died, recurrence, operation incomplete — = 11 per cent.
Patients died primary effect of operation, 1 = 11 per cent.
No. cases still living, 5 years elapsed..... 1
No. cases still living, 3 years elapsed..... 2
No. cases still living, 2 years elapsed..... 2
No. cases still living, 1 year elapsed..... 2

"The uterus was removed by supravaginal amputation in three cases. An ordinary vaginal hysterectomy was performed in the remaining six. Recurrence has taken place, therefore, only in the case where the operation was not completed.

"In some of the cases the growth had penetrated the walls of the uterus so that it could be seen just beneath the peritoneal covering, and yet no evidence of involvement of the lymphatics or the parametrium could be detected. The three cases in which the cervix was left have proved as satisfactory as those in which the whole uterus was removed.

"Results in hysterectomy for carcinoma of the cervix:
Patients died from primary effect of the operation, 4=10 per cent.
Patients still living, 14 = 36 per cent.
Patients died with recurrence, 15 = 38 per cent.
Patients not heard from, 4 = 10 per cent.
Operations over 4 years ago and patients still living..... 3
Operations over 3 years ago and patients still living..... 4
Operations over 2 years ago and patients still living..... 4
Operations over 1 year ago and patients still living..... 3

From the foregoing remarks I wish to deduce the following conclusions:

I. Hysterectomy is indicated in all cases where a positive diagnosis of carcinoma of any part of the uterus is made.

II. Total extirpation of the uterus is justifiable where there exists a strong clinical suspicion corroborated by microscopical evidences

(although not absolute proof) of malignant disease.

III. Contra indications for uterine extirpation are all those where the uterus is fixed and immovable in the pelvis through extensive carcinomatous infiltration into the broad ligaments.

IV. A radical operation is of no avail whenever the bladder or ureters are involved.

V. An operation for extensive rectal implication may seemingly appear feasible, but the infected, although not suspected, lymphatic perirectal glands can rarely ever be entirely removed and will soon kindle an inevitable recurrence.

VI. As a suggestive reminder, whenever we have repeated hemorrhages, maloderous discharges, paroxysmal pain and cancerous cachexia our case has passed beyond radical operation.

"The remedies thou hast and their adoption tried,
Apply them to thy case with zeal,
But do not kill thy patient with experiment
Of each new-hatched unfledged medicine."

—Hamlet.

Dayton Building.

SINGULTUS.

By E. Olonzo Giere, M. D.

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This symptom, for it is not a disease, commonly termed hiccough, has been very little written upon in our medical journals, and has received but very little attention by our medical societies. This is rather singular, considering the importance of a thorough understanding of the etiology and treatment of this morbid condition, at times so obstinate to control and then so dangerous to life.

Hiccough is a condition caused by a spasmodic contraction of the diaphragm, and, hence, the motor nerves of that muscle must be encroached upon somewhere along their course in order to produce this abnormal action of the muscle of respiration. The motor nerves of the diaphragm are the two phrenics, which arise by three heads from the third, fourth and fifth cervical nerves, descending through the neck and chest in such a way that they are secure from pressure, perforate the diaphragm to be distributed to its under surface, where gravitation prevents any pressure on them by the liver, stomach and spleen. No nerve has a more important function to perform (Hilton says our life hangs on these threads) and a comparatively slight irritation may act as sufficient stimulus to provoke them to abnormal action. Besides being the motor nerves of the diaphragm they also give off twigs to the pericardium and pleura, and supply filaments to the phrenic plexus of the sympathetic, and some of the diaphragmatic ganglia. It is also claimed by some that branches are given off from these nerves to the peritoneum. Considering their anatomical situation and their distribution it is not strange that pressure along their course, disorder of the organs they supply, or reflex troubles acting through the solar plexus, which they help to supply, may cause hiccough.

According to Ranney the causes of hiccough may be classed under three heads: First, those of direct irritation of the phrenics as occurs in cases of mediastinal tumors, aneurism of the heart, pneumonia, pleuritic inflammation, or pressure from pleutric effusion, etc. Second, those of reflex nature, as in diseases of the urinary organs, the uterus, the intestinal tract, and the liver; the irritation of biliary or renal calculi; irritation of the pharynx, œsophagus and stomach, and diseases of the peritoneum. Third, those of central origin, as occurs in hysteria, local brain or spinal diseases, blood poisoning (as in fevers, cholera, dysentery, etc), after emotional excitement and from general anæmia after hemorrhage. From this list of causes it is evident that hiccough, occurring late in connection with any form of disease, may prove to be a symptom of a most serious character, making it necessary for the physician to be familiar with its causes and treatment. The successful physician is he who practices on the theory that everything has its cause and effect, being the effect of what goes before and the cause of what follows. He will search for the cause and thus go at the root of the evil, and if that can be found and remedied, the effect, or symptom will disappear with the removal of the cause. The physician, who on the other hand, with his gunshot mixture promiscuously aims at the symptoms, regardless of any pathological conditions present, lacks medical acumen, subjects himself to annoyance and criticism, and sometimes exposes his patient to much unnecessary suffering and danger.

A most obstinate case of hiccough came under my care recently, which caused me to read up all the literature within my reach on the matter, and after I had exhausted all the therapeutical means, without success, laid down by the various authors, I was forced to do some original thinking, and as will appear from what follows, a considerable amount of experimentation.

The patient, a married man, forty-nine years of age, was taken with a chill one day and inside of two days the hiccough ensued. After three days of constant hiccough I was called in. The patient was an emaciated subject, being a sufferer from a chronic gastric catarrh. From the history obtained, and the conditions present I

concluded that the cause was located in the stomach. The patient was unable to take food, and if any was taken it would be at once ejected. As there had been a good deal of vomiting I considered it unnecessary to give an emetic, but small, frequently repeated doses of calomel were given until the characteristic stools were produced, and was followed by castor oil in aromatic syrup of rheubarb. I now administered in turn the various antispasmodics, anodynes and hypnotics recommended, giving them all a fair trial, as, spirits of ether, compound spirits of ether, spirits of chloroform, ammoniated tincture of valerian, tincture of belladonna, compound tincture of opium, tincture of capsicum, bromides, chloral, nitroglycerin and morphine, but to no effect. I gave starch water with Hoffman's anodyne (Hare); tried infusion of mustard, one drachm to four ounces of boiling water (Ringer); let him swallow pieces of ice; administered a rectal enema of powdered musk (Shoemaker) but to no avail. He had spells of retching and vomiting, which I soon controlled by cerium oxalate and bismuth subnitrate. As a digestant I placed him on pure scaled pepsin and hydrochloric acid in peppermint water. I gave morphine and atropine hypodermically, and chloroform and amyl nitrite by inhalation, but the patient continued to hiccough for every inspiration in spite of all my efforts. I tried as accessories the various positions, lying with the face and abdomen down, lithotomy, Sims, knee-chest, sitting, standing, walking. I exercised compression of the phrenic and pneumogastric nerves; gave hot mustard footbaths; had him practice forced respiration without letting the air pass; gave his stomach complete rest and fed him per rectum, but the hiccough resisted it all, and the patient was gradually growing weaker. He would get an occasional nap, but even then the hiccough stood by him, and with his mouth open while asleep, on awakening his mouth and throat would be so dry that deglutition was made very difficult. The symptom was worse on lying down, which position was impossible for him at last. Discouraged with everything I had tried the four nights in succession I had spent with him, I decided to do something for his throat, and thinking that cold applications to his throat might exercise a favorable influence on the phenic nerves, I resorted to this, and gave by inhalation creolin and vinegar in boiling water as a soothing and antiseptic astringent to the irritated membranes. These simple measures had the desired effect, and in a short time controlled the singultus, which so far had resisted all the hygienic, dietary, mechanical and therapeutical measures that I had employed. It also demonstrated to my satisfaction that the cause in this case had its seat in the throat, although there were present no symptoms to lead me to suspect it, while the history and gastric symptoms were so prominent in favor of the cause being in the stomach.

Of the medicines used, morphine one-fourth grain with atropin 1-120 grain hypodermically, had the best effect, at one time controlling the hiccough for two hours, and giving the patient a quiet sleep. Chloral, grain xx with morphine one-fourth grain by the mouth, gave him some rest, but had but very little effect on the symptom. Musk (the best), by the rectum, controlled the spasm for half an hour, during which the patient slept quietly. Amyl nitrite, by inhalation, also controlled it for half an hour. None of the other drugs had any apparent effect.

Some women during the climacteric occasionally complain of symptoms resembling appendicitis. They suffer from localized pain in the right side, gastric and intestinal disturbances, and irregular temperature. As absence of the menstrual flow often exists, some difficulty may be experienced in reaching a correct diagnosis, particularly in those cases associated with obesity. A correct diagnosis as to the condition present, however, may be established by careful inquiry into the previous history and by local examination. The latter means will demonstrate the absence of rigidity of the abdominal walls and no palpable enlargement of the appendix. The flushes, backaches and mental symptoms incident to the menopause will clear up the diagnosis. The mere mention, however, of the nervous affection, with its ubiquitous symptoms, will suffice.—American Journal of Surgery and Gynæcology, November, 1897.

Keene says that cancer of the rectum, which, until about ten years ago, was almost inoperable, has now taken its place among the formal and justifiable operations of modern surgery, so that as much as twelve inches of the rectum have been resected by Kraske's method. The mortality has been reduced 20 per cent., and permanent cure of such a formerly fatal disease has been attained in over-one-third of the cases which recovered.

A case of fatal hemorrhage after the removal of adenoids is reported by Schmeigelow. The operation was done in the usual manner, by an experienced operator. There was a gush of arterial blood, which could not be controlled by any means. Death occurred in a few minutes. It was found the internal carotid had been opened near its entrance into the carotid canal. The vessel was bursted rather than cut, presumably pushed forward by swollen glands.

Northwestern Lancet.

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OLD AND NEW INJURIES OF PARTURITION.

The question of the proper use of the obstetric forceps has been debated so many times that to go over it again seems a good deal like threshing over old straw. Nevertheless at the Montreal meeting of the British Medical Association the president of the Section of Obstetrics and Gynæcology, Dr. W. J. Sinclair thought it worth while to take as the topic of his address the injuries of partuition, the old and the new, and one of his first statements was to the effect that the modern injuries of childbirth resolved themselves almost without exception into the harm done by the use of the forceps. He said at the outset that what led him to the choice of the subject was the frequency with which he, as a gynæcologist was called upon to repair injuries produced by parturition, many, if not the majority, of which injuries, he thought, could not be considered inevitable, while not a few were clearly traceable to operative interference that was plainly unnecessary. As illustrating the method of managing midwifery cases in vogue in some quarters he cited two cases to which he had been called in consultation recently, in one of which the vaginal vault was torn, with fatal result to the mother, by the use of the forceps, an operation which the attending physician seemed to take so much as a matter of course that he did not even mention it in describing the incidents of the labor to the consultant; in the other case he was called upon to do several reparative operations upon the generative organs of a strong, well formed primapara whose labor had been terminated by the use of the forceps six hours after the beginning of the pains.

What a contrast this extreme of modern practice presents to the midwifery of the days before the introduction of the forceps, or even to the first century or more of their use! Mauriceau tells of a woman whom he saw in the year 1669 after she had been in labor eight days. He perforated the child's head, and extracted it with the crochet, the woman dying eleven days later of puerperal fever. Mauriceau thinks that if he had seen the case a couple of days earlier the mother might have been saved. He describes another case where labor had gone on for two days after the rupture of the membranes, and was, after all, terminated by the natural powers in spite of Mauriceau's treatment of the case with purgative enemas and bleeding from the arm.

The early days of the obstetric forceps are perhaps best illustrated by Smellie, whose practice with regard to the use of this instrument must be admitted to be conservative, to say the least. In one case where he is called, he makes his visit at night, gives instructions as to what shall be done and calls again in the morning. Finding the head lower down in the pelvis, he puts off interference; but that night, the pains being still weak and "the gossips uneasy," he applies the forceps and delivers twins. Again, called to a woman after the waters had escaped, no one knew how long before, and finding the pains entirely ceased, he gives directions so that the patient may rest during the night, and in the morning delivers with forceps. It seems to have been the rule at this period that the forceps should not be used as long as there was any possibility that the labor could be terminated by nature, and in cases of uncertainty nature was always given the benefit of the doubt.

A more rational use of the forceps is to be found in a book published in 1835, ten years before the introduction of anæsthesia, by Dr. Robert Collins, Master of the Rotunda Lying-in Hospital at Dublin. The book contains an account of 16,414 cases of labor, of which the forceps were used in twenty-four cases and the lever in three, making an average of one use of instruments in 608 deliveries. The death rate among the mothers during this time was one in 186; among the children one in fifty-eight and one-half, more than a third of those that died being premature births. Strong evidence this that the conservative use of the forceps is conducive to a low death rate both for mothers and children in lying-in hospitals; indeed it is a record that hardly seems possible before the days of asepsis.

In contrast with this Dr. Sinclair gives some indications of the frequency of the use of the forceps now-a-days; and a startling contrast it is. He says that the young practitioner of today sees a woman suffering the pangs of labor. He has anæsthetics at hand, and proceeds to relieve her of the pains by administering chloroform. Normal labor is slow and requires time. With an anæsthetic it is slower. The young practitioner does not care to wait and uses the forceps. He knows that he may produce injuries to the mother or child, but he considers himself justified in their use by the saving of pains to the woman and of time to himself. In Manchester and its neighborhood Dr. Sinclair has found that twenty-five per cent of midwifery cases are delivered by forceps. One practitioner reported that in his own practice the proportion was as high as seventy-five per cent, and to illustrate it stated that during the preceding week he had delivered three cases with forceps applied above the brim. Some practitioners stated that in the case of a multipara they allowed half an hour for the second stage of labor. In the Manchester Southern Hospital it is no rare thing to find among the gynæcological cases women suffering from dislocation of the uterus and lacerations of the cervix and perineum whose first labor was terminated with forceps within four to six hours from the onset of regular pains. Among the poor people of that neighborhood, on the other hand, people who are attended by midwives and physicians connected with the Manchester Maternity Hospital, the forceps are used in but 1.4 of the cases, a figure which shows the actual necessary use of the instrument, indicating that in over twenty-three per cent of cases the forceps are used solely to save the time of the attendant under the plea of saving the patient from pain.

The chief injury to the mother from the delayed labors that preceded the introduction of the forceps was vesico-vaginal fistula, but there is no doubt that this lesion was often caused by interference with perforating instruments and the crochet. It would be inexcusable in these days to allow a second stage of labor to be prolonged until the pressure of the head produced a slough of the vaginal wall, but is it not quite as reprehensible to cause rupture of the perineum, or still worse, laceration of the cervix by the premature and unnecessary use of the forceps? And these are by no means the only results of the use of instruments. Rupture of the vagina has been repeatedly reported, and who shall say how often the forceps are responsible for children brought into the world with lacerations of the face, injuries to the skull and paralysis due to the pressure of the blades upon nerve trunks? It is hard to resist the pleading of the sufferer and her friends that a normal labor be shortened by interference with instruments, but many a physician who has thus made himself responsible for a mutilated mother or a disfigured child has found that he afterwards got but cold thanks indeed from a woman relieved of pain and friends freed from anxiety.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

Regular monthly meeting at the Society's rooms, St. Paul, Monday evening, Nov. 29, 1897. Vice-President J. S. Quinn in the chair, and sixty members present.

Dr. O. W. Archibald, Dr. John Perkins and Dr. H. E. Weirick were admitted to membership.

Dr. Burnside Foster presented a case of Tuberous Leprosy, with an account of the clin-

ical history of the case and the general symptoms of the disease.

Dr. H. L. Taylor spoke of the lesions existing in the nose and throat.

Dr. Haldor Snévé discussed the differential diagnosis and the nervous symptoms of the disease.

Dr. Edouard Boeckmann discussed the ocular affections and the pathology of leprocy.

Dr. H. W. Davis read a paper entitled

THE CLINICAL SIGNIFICANCE OF DISEASES OF CHILDREN.

See page 21.

BOOK NOTICES.

An Epitome of the History of Medicine. By Roswell Park, A. M., M. D., Professor of Surgery in the Medical Department of the University of Buffalo, etc. Illustrated. Phila: The F. A. Davis Company. 1897 [Price, $2.00.]

A course of lectures on the history of medicine, delivered in the Medical Department of the University of Buffalo, gave birth to this book, in which are embodied the lectures, with many additions and careful revision. As far as can be discovered, this is the first extensive work of the kind written on this side of the water. A somewhat similar book appeared in London in 1893, and there is a history of medicine in English translated from the German. To all medical men this book must be one of deep interest. Nor does its value cease with the entertainment it affords and its instruction in the growth of medicine as a matter of history. A knowledge of the errors of former times is as a knowledge of the chart to the mariner; it teaches the physician what to avoid. Moreover, it must encourage all medical men for the future of their profession to see how slight was the degree of knowledge attained in the healing art even as late as the first part of the present century. The illustrations are numerous and many of them reproductions of quaint old drawings representing primitive instruments and early methods of operating whose roughness and barbarity are enough to make one shudder.

A Manual of Clinical Diagnosis. By Charles E. Simon, M. D., late Resident Physician Johns Hopkins Hospital, Baltimore, etc. Second edition, revised and enlarged. Illustrated. Phil: Lea Brothers & Co. 1897. [Price, $3.50.]

It is only a year since the first edition of this work appeared, and this fact illustrates two things, namely, the great popularity which the book has enjoyed and the rapidity with which methods of clinical diagnosis improve.

Simon's work does not cover the whole ground of physical diagnosis, but deals only with that part which is made by the use of the microscope and by chemical analysis. The new edition has a number of additions in the shape of new methods of chemical diagnosis, and some of the old ones have been omitted to make room for better. The advances in bacteriology have been such during the past year that the chapters devoted to that subject have required rewriting, and the work as a whole has been increased in size by about fifty pages.

A Text-Book of Practical Therapeutics. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia; etc. Sixth edition. Phila: Lea Brothers & Co. 1897.

"Hare's Therapeutics" comes pretty near being an annual publication, as this is the sixth edition in the seven years since the work was first written.

There are many additions to the text, and the work has the merit of being rewritten in those parts where there is new matter, so that the added information is blended with the general account of the topic and not merely added on as a sort of appendix. The author does not, however, include an account of remedies which are at present sub judice, particularly where there is much doubt as to the real value. Of the various forms of serum therapie that have been introduced, he describes only the diphtheria antitoxin, which has now by general consent taken a permanent place in therapeutics.

Diseases of the Eye. By Edward Nettleship, F. R. C. S., Ophthalmic Surgeon at St. Thomas Hospital, London; etc. Fifth American from sixth English edition. Illustrated. Phila: Lea Brothers & Co. 1897. [Price, $2.25.]

Nettleship is undoubtedly considered in this country to hold the foremost place among English oculists, and his work must always command attention. The present edition of it has been carefully revised by Mr. W. T. Holmes Spicer, Ophthalmic Surgeon to the Metropolitan Hospital and to the Victoria Hospital for Children in London. A chapter on the detection of color blindness has also been added by Dr. William Thompson, of the Jefferson Medical College in Philadelphia. Wherever American practice differs from that in England the reviser has made a special note, so that the book may be looked upon as a representation, in a condensed form, of American as well as English views upon the subject of ophthalmology.

MISCELLANY.

ALVARENGA PRIZE
—of the—
COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1898, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1898.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1897 has been awarded to Dr. Joseph Collins, of New York, for his essay entitled "Aphasia."

THOMAS R. NEILSON,
Secretary.

NOTES.

A HELPFUL PUBLICATION.

Among the publications which reach our editorial desk is a modest monthly of eight pages entitled "Therapeutic Progress," published by Victor Koechl & Co., 79 Murray street, New York. It is devoted to a consideration of the newer remedies imported by this firm, among which may be mentioned Argonin, Benzosol, Diphtheria Antitoxine, "Behring," Tuberculin, "Koch" and others. Antipyrine, Lanoline and Dermatol are also included among the valuable preparations for which the above firm are sole agents for the United States. One particularly desirable feature of "Therapeutic Progress" is the condensation of reports, etc., into as small a compass as possible, all useless elaboration and padding being eliminated. The publishers will be glad to mail copies regularly, free of charge, to any physician who may desire to have it. We have, from time to time, gleaned valuable and practical therapeutic hints from its perusal. Address Victor Koechl & Co., 79 Murray St., New York.

A TERRIBLE SCALD.

It gives me much pleasure to bear witness to the valuable qualities of your preparation, Unguentine, writes Dr. J. E. G. Waddington, of West Covington, Ky. The first case in which I used it was that of my wife, who accidentally overturned a kettle of hot water, severely scalding her foot, making an extremely painful injury. I used nothing but Unguentine, covering the same with cotton and a bandage. I never saw quicker or better results from the first application. The burning sensation was relieved almost immediately, and a complete cure was effected in a very short space of time without any scar whatever. I have frequently used it since, and it has always given good satisfaction.

"Robinson's Lime Juice and Pepsin" is an excellent remedy in the gastric derangements particularly prevalent at this season. It is superior as a digestive agent to many other similar goods. (See their advertisement in this issue.) See remarks on their Arom. Fluid Pepsin also.

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ORIGINAL ARTICLES.

VARICOSE VEINS OF THE LOWER EXTREMITIES.*

By K. Hoegh, M. D.,

Minneapolis.

A friend in Europe sent me, a short time ago, a little paper about Trendelenburg's operation for varicose veins of the lower extremities. I have thought that this simple operation, which ought to be the common property of all general practitioners, might have failed to attract that attention which it deserves, and concluded to contribute my share to make it popular, at the same time adding some general remarks about this disease.

While my paper, therefore, possesses no originality, it modestly claims to call attention to a simple way of overcoming conditions that are very painful, seriously interfere with the earning capacity of the patient, and so much the more strongly appeal to our sympathies, as the sufferers usually belong to the poorer classes.

Every active practitioner engaged in general work meets constantly with cases of this disease. The better situated classes usually suffer only inconvenience from this condition, while the person who is compelled to work hard for a living, and who is exposed to smaller or greater injuries, and especially those who in the fierce struggle for existence neglect their bodies, and are dirty, use rough and coarse clothing and have unwholesome food, suffer very much, and are even disabled to such a degree as to prevent them from earning their living.

Varicosity of a vein consists essentially in an hypertrophy of the connective tissue in the middle coat. The encroachment of this tissue upon the muscle fibres drives them apart, so that intervals appear between them. The muscle fibres are thus seen to form a net-work where especially the longitudinal fibres project into the lumen of the vessels as ridges parallel with their axis; a similar disposition also takes place with the circular fibres. The result of this process is finally the formation of little bags or pouches in the middle walls of the vessels that form minute herniæ. Blood and serum is apt to transude through these pouches, the whole wall becomes the seat of a kind of œdema, and the nutrition of the whole vessel suffers in consequence. To make matters worse, the vasa vasorum, even, are apt to be implicated; the vessels consequently get worse in course of time. Not only do the walls get thickened, dilated and uneven, but they also become tortuous and elongated, all of which conditions encourage diapedesis of corpuscles and transudation of serum into the perivascular space. The emigrated corpuscles die and undergo fatty metamorphosis; the coloring matter of the blood undergoes the usual changes; the hæmoglobin is changed to hæmatoidin, which is the source of the brown pigmentation found in the neighborhood of varicose veins. The serum imbibed by the tissue around the vessels yields its albumin and forms thus in advanced cases, a brawny substance in which the veins are imbedded. The outcome of the whole process is diminished vitality of the tissues. Among the commonest manifestations of this lowered condition are various skin diseases, mainly eczemas of various intensities and various kinds, sometimes very severe, so as to seriously compromise the patient's comfort and health.

In such cases ulcers form easily, starting from eczematous patches. But also in an otherwise healthy skin that is poorly nourished, owing to retarded circulation and impaired tissue metabolism, a slight abrasion, or a contusion, may be enough to destroy the life of the tissue cells; the ever present pus microbes are sure, sooner or later, to get access and cause infection, which, under these circumstances, is more than ever apt to lead to molecular necrosis, and we have the varicose ulcer.

Under proper treatment with antiseptic lotions and elevation of the extremity, the ulcer heals, but the tissue taking its place is not highly organized, and the circulatory conditions in its neighborhood are not very good. Few patients know enough to give the extremity the care that it demands, with scrupulous cleanliness, and the majority are unable to do so, even if they know how. As a result a new ulceration follows; this may again heal under proper treatment, but the healing is slower, the resulting scar is larger, the œdematous infiltration penetrates deeper and spreads wider than the first time.

And so it goes on. With each new attack the tissues become more devitalized. Finally we see the fascia changed to a dense fibrous mass; the muscles undergoing fatty degeneration; the periosteum forming osteophytes; the tibia and fibula are united and ankylosed by formation of new bone, and the tibio-tarsal joint becomes ankylosed from a similar process in the periarthritic tissue; the patient has now instead of a leg with movable foot and toes, a kind of stump, swollen, deformed, unable to be bent, with no play of toes or ball of foot, and, what is yet worse, apt to be the seat of ever-recurring attacks of low inflammation. In such cases, as

*Read before the Minneapolis Academy of Medicine, January 5, 1898.

well as in the cases where the ulcers have spread to such a degree as to involve a certain part of the circumference of the leg, amputation is the only rational treatment. A peg leg gives just as good a leg to walk on, and is not subject to the inflammations and infections that constantly recur in these old chronic cases.

The infections that are apt to take place in the chronic ulcers, that, as a rule, are neglected and foul, may lead to inflammation in the diseased veins, diseases that may produce thrombi. Under the influence of the infectious germs these thrombi are apt to become the seat of inflammatory changes, to break down, and their infectious material to find entrance into the circulation, to be carried by the current to distant parts, produce pyæmia or septic infection, often leading to death.

Pains of a neuralgic character are very common; spasmodic contractions of the muscles are so common that the popular name of varicose veins in German is Krampfadern (spasmodic blood vessels); and these evil results of the disease are by no means confined to the cases that have progressed the furthest.

With such a picture before us, it is not to be wondered at that physicians have spent a good deal of time and thought upon the problem of curing this disease.

When we see that the disease often is apt to occur without any known cause, that it is apt to be found in several members of the same family, that other members are apt to suffer from varicose veins in other parts of the body, as hemorrhoids and varicocele, we are naturally led to the conclusion that it is the expression of a congenital weakness of the vessels, and that the tendency to it is beyond the correction of the healing art. We can certainly advise such people to avoid the causes that usually prevent the free return circulation from the lower extremities. We may advise them to see to it that their bowels are regularly unloaded, lest fæcal impaction in the pelvis press upon the iliac veins. But against the usual causes we are rather powerless to act. We cannot prevent women from getting pregnant, and the pressure of the enlarged uterus is one of the chief causes of this disease. Nor can we often expect to prevent our patients from following occupations that demand long standing upon the feet, for patients are, as a rule, compelled to work and are not often able to choose their occupations. It will, therefore, only be in a small proportion of cases that we are enabled to act against the causes.

When we come to the palliative treatment, the very great number of remedies that have been proposed and find each their advocates shows that no treatment is universally accepted. We do not find many remedies recommended against syphilis, as mercury and iodide of potassium cure all curable cases; nor have we a large number of remedies against intermittent fever, because quinine is the only remedy that is efficient; but who can enumerate the multitude of drugs that were recommended against epilepsy before we had learned that bromides were the only remedies that seemed to have any influence over it. We might go on and enumerate instance upon instance proving that the more remedies that are recommended against a disease the less is their efficiency. The conclusion seems, therefore, justifiable that the treatment for varicose veins is rather unsatisfactory.

In looking over the proposed plans of treatment we see that they easily can be divided into two groups, the one consisting of those measures that give an artificial support to the weakened vessels, the other of those that aim at the destruction of the diseased vessels; for the deeper veins, that usually escape the disease, are able to take care of the return circulation, when the superficial vessels, those usually affected, are destroyed.

It is quite interesting to follow the historical development of the treatment. The ancients destroyed the diseased veins by burning them with a hot iron, and the case of Cajus Marius, the Roman general who heroically submitted to this painful treatment for a disease that impaired his efficiency as a soldier, is often quoted. It must be admitted that the treatment with the actual cautery offered a certain protection against infection, as the heat often completely sterilized the operating field.

This method enjoyed, therefore, a certain popularity among the ancients, but it must often have happened that infection followed, with phlebitis, pyæmia and death, and this treatment gradually fell into desuetude. We find, therefore, that the surgeons of the middle ages and the earlier periods of modern history contented themselves with recommending bandaging by means of rollers, and added to them more or less fanciful internal or external remedies, the aim of which was partly to change the condition of the blood, which was supposed to suffer from too great venosity, partly to produce an agglutinative inflammation of the walls. As these remedies proved their futility, the stress was mainly laid upon giving a proper support. The simplest plan was to envelop the affected limb in a properly applied bandage, and this method is, in all its simplicity, of considerable value.

But it is difficult to put on a bandage so well that it exercises an even pressure, and so that it remains in place during all kinds of movement. If it is put on unevenly, so that a part is constricted, the bandage acts as a garter, preventing proper return circulation. It takes considerable

skill and patience to put it on right, and this class of sufferers are usually too careless to put it on with the nicety required. It has, therefore, a limited usefulness.

With the discovery of rubber, and the invention of making cloth with rubber strings woven into the tissue, a material improvement was achieved. Well-fitting elastic stockings and drawers are a great boon to many sufferers, especially to cavalry men, who are much exposed to varicose veins, and who are able to ride horseback without annoyance with good elastic bandages. But they are expensive, because their life of usefulness is short; they have frequently to be renewed. A very great improvement was the introduction of Martin's rubber bandages about a score of years ago. They are efficient and comparatively cheap. The objection against them is the suppression of cutaneous prespiration.

In proper cases they do a great deal of good, and they have enjoyed universal popularity, until Unna, of Hamburg, invented his zinc-glue bandage, which is the best remedy of this class and is a great improvement upon all previous efforts at giving support to enlarged and diseased veins of the lower extremity.

The importance of the subject, and the fact that their usefulness is not duly appreciated in this community, must be my excuse for describing the manner of application in some detail.

In the first place, it is necessary to describe the manner in which this glue is made. Three parts of gelatine are dissolved in a hot water bath in five parts of glycerine and nine parts of water. When this is melted and thoroughly stirred, three parts of oxide of zinc are added and thoroughly worked into the mass. Upon cooling this forms a white, hard substance that will keep forever, and may be used as the base for a glue bandage either unmixed or mixed with such drugs as may be indicated to modify the eczematous or otherwise diseased condition of the skin. You may add two to five per cent. oleum rusci, resorcin, salicylic acid or similar remedies, according to the therapeutic indications.

The application is made after the healing of ulcers by rest in bed and antiseptic applications. Very small ulcers however may after preliminary treatment, to which reference will be made below, be treated with the glue bandage without insisting upon the recumbent position. An ecezema without ulceration does not interfere with the use of the glue bandage.

The patient should by preference be kept in bed for 24 hours, and thorough cleaning should be effected by baths, antiseptic dusting powders, etc. The bandage is applied when the patient is yet in the recumbent position, so that the veins are small and that the extremity has its normal form and size. The glue is put into a hot water bath, and while it is yet fluid, but not hot enough to be painful to the skin, it is applied to the naked limb with a flat, painter's brush. When the extremity is painted from the ball of the foot to as high up as it is deemed necessary to apply the bandage, a roller of cheese cloth is evenly and firmly applied, taking especial care that it binds nowhere, but gives an even support everywhere. The cheese cloth must have no starch or sizing. After its application the glue is applied over and into its meshes, and a new roller is applied over it. This is treated in the same manner, and finally a bandage is applied outside of the last layer of glue. There may be two or three layers of glued gauze; more will rarely be found necessary. When the bandage is finished, it envelopes the extremity with more snugness than any other bandage that I know of, and it remains serviceable without change from five to eight weeks. To further protect it and make it more durable, I have occasionally put on the outside of it a moist bandage of heavily sized cotton roller, which, however, compels the patient to stay in bed for another day to make it perfectly dry. With such a bandage the patient may go about after it is dry, and perform his usual work.

He may, if moderately intelligent, learn to apply it himself, after he has seen it done a couple of times, although he will usually score a couple of failures before he learns to apply the bandage with the required accuracy.

If there are small ulcers and it is decided to put on the bandage at once to save time, the ulcers are first scraped, and very thoroughly disenfected with a 1-500 solution of bichloride of mercury; after this it is washed off with a sterilized salt solution, and all bleeding checked by pressure, so that a thoroughly dry surface presents itself, the ulcers are dusted with iodoform powder, and a very thin layer of cotton applied; over this comes a more abundant smooth wad of cotton, reaching about one inch outside and overlapping the margins of the ulcers.

Outside of this and the whole leg comes then the glue bandage. If the ulcer has been properly treated, and is not too large, the secretion is very slight, and does not penetrate. Should it after a few days penetrate, it is necessary to soak the bandage in hot water, take it off, treat the ulcer as before, and apply a new bandage. But such is the good effect of the support, even upon many good sized ulcers, that they heal under one bandage.

It might be supposed that such a bandage unduly interferes with the function of the skin, that it prevents transpiration, gives rise to a feeling of heat and discomfort , or to intolerable itching, but experience proves that nothing of the sort takes place. I do not know how many

cases of this kind I have treated, but they must certainly number several dozens, and in no case have I had occasion to regret this application. All patients have been pleased with it, and some even enthusiastic in their praise.

True enough the varicose condition of the veins is not cured, but all the painful symptoms disappear, and the dangers from the extension of the disease are averted. Of all remedies that simply aim at giving support to the dilated vessels and combating the result of this condition, Unna's treatment has, in my hands at least, proved the best one and has superseded flannel bandages, elastic stockings, Martin's rubber bandages, not to speak of the venerable plaster bandages, that now must be considered antiquated and obsolete, and are mentioned as such by Koenig in his "Lehrbuch der Speciellen Chirurgie;" while Schwartz in the fourth volume of "Dentu and Delbert's Traité de Chirurgie," of 1897 does not even mention plasters.

If palliative treatment is deemed insufficient, and we want to destroy the diseased veins, for we can unfortunately not bring them back to a healthy condition, then we have nowadays several methods to attain this end. The ancient way of destroying the veins with the actual cautery is fortunately abandoned, and has only historical interest. Phlebitis and occasional hemorrhage with almost unavoidable infection were the grave dangers that forced the surgeons of old to abandon this treatment. Even before the antiseptic and aseptic era the surgeons of the last part of the previous century and earlier part of this excised veins, ligated and divided sometimes on one, and sometimes on the other side of the ligature. They had many successes, but every now and then a case of death, so that nearly all actual interference with veins had been abandoned, when we finally from Lister learned to avoid sepsis. This had the same revolutionary effect upon the surgery of the veins as it had had on all other branches of surgery. Numerous suggestions and plans were proposed, numerous operations performed to excise, tie or obliterate diseased veins.

They all enjoyed more or less success and were, when asepsis had been successfully maintained, free from danger. For a person who had been brought up to look upon interference with large veins as highly dangerous, and who perhaps had seen instances of purulent phlebitis and suppurating thrombi as the result of such interference, it was almost awful to look upon the audacious manner in which modern surgery applied, perhaps twenty or thirty ligatures to diseased veins, and excised perhaps half a dozen pieces.

But the cases recovered, and the operations and methods multiplied. Schede, of Hamburg, was the pioneer in this work, and he had numerous successes. He partly used subcutaneous ligatures and partly resections. To effect thrombosis, which does not readily take place in an aseptically occluded vein, he compressed the vessel between the two ligatures by means of a piece of an elastic catheter, which was removed in twenty-four hours, when the opposed walls of the vein had become agglutinated.

Madelung went further than Schede, who, in the cases where he deemed excision necessary, was contented with resecting one or more smaller pieces; Madelung excised in severe cases extensive branches and venous convolutions.

All these operations proved more or less successful, but relapses were not infrequent, and the altered circulatory conditions in the deeper vessels were not favorably modified.

It was reserved for Trendelenburg to indicate certain anatomico-physiological facts relating to the circulation of the lower extremity, and building upon this scientific foundation to construct a new operative method, which has attracted great attention, and really seems to be very superior, both in its simplicity and in its results, in properly selected cases. Trendelenburg published his operation in 1890, and it has enjoyed great popularity both in Germany and France. He starts with the statement that the internal saphenous vein (also called the long, or the great saphenous vein) has no valves, at least in its upper part; nor has the femoral vein above the place where it receives the great saphenous, nor the iliac. When the great saphenous is pathologically dilated, it is, therefore, hyperdistended when the individual is in the erect position, on account of the pressure of the blood column that without hindrance presses upon it from the vena cava inferior to the saphenous opening. The result is that the current in the upper part of the great saphenous is not centripetal, which it is in health, but centrifugal; that is, the current in this section of the vein runs downward, and the flow has to find its way into the deeper vessels, thus forming an obstruction to the free emptying of the divisions of the internal saphenous vein.

It is easy to convince one's self of this abnormal circulation in those cases where it is present by two simple experiments, and as I have performed them myself, I can vouch for their accuracy. The first consists in placing the patient in the recumbent position and elevating the leg; the veins easily empty themselves and their collapsed condition becomes at once visible. Now find the oval fossa or saphenous opening, and apply your thumb so that it compresses the vein; maintain the pressure and cause the patient to assume the erect position. You would expect that the vessels would at once dilate, because the

flow through the great saphenous is obstructed; but that does not take place, at least not for some time; you convince yourself by careful inspection of this apparently paradoxical conduct of the vessels, and then you take your pressure off. In the same moment the veins bulge out and present themselves in their usual enlargement. I have repeated this experiment time and again, and always with the same results.

I think that the experiment only allows one interpretation, and that the one I have indicated. The other experiment is similar, and quite as convincing for Trendelenburg's hypothesis. Let the patient lie flat on a solid bed, so that the heart is a little lower than the leg; the veins, of course, empty themselves, as we would expect. Then raise the patient's trunk so much that the heart is slightly higher than the thigh, and you will see the blood at once flow in and distend the vessels; you may, under favorable circumstances, even see the blood come flowing in as a wave; now modify the experiment in such a way that only the upper part of the extremity is below the level of the heart, while the lower part is a little higher, and only the vessels of the thigh and those behind the internal condyle are filled, while the lower ones remain empty. The whole experiment is a demonstration of the laws in physics that fluids assume the same level in communicating tubes.

From these anatomical facts and experiments Trendelenburg drew the conclusion that there was a faulty circulation in these cases, and that the proper remedy would be the obliteration of the saphenus vein as near the saphenous opening as he dared to go. He laid, of course under the strictest aseptic precautions, the vein bare at the junction of the middle with the lower third, and had very good success; lately it has been found to be perfectly feasible and safe to tie the vein much higher up. The excision between the two ligatures is now performed one and one-half or two inches below the saphenous opening, and one and one-half to two inches of the vein is then resected.

According to all reports, and my own experience from a single case, the immediately results are surprisingly good. The eczemas and ulcers improve rapidly; the pains disappear at once. There may, of course, be some complications protracting the healing. Thrombosis of veins near the exsected piece is quite common; it gives rise to pain along the course of the vein, which is felt as a hard string, somewhat tender, with a slight œdematous infiltration around it. The pain and the perivascular infiltration disappear in time, but the vein may be permanently blocked, a rather fortunate circumstance, as obliteration of diseased veins has been one of the aims of the surgeon in dealing with these conditions. There is no better judge of the immediate effects of any treatment than the patient himself, and in this connection I shall mention that a great number of patients return with the purpose of having the other extremity operated upon, after have undergone operation on one. They would certainly not do so if they did not find great relief. While there can thus be no doubt about the palliative effects, there is no uniform experience as to the permanent results of Trendelenburg's operation. There are reported a number of cases of relief or cure that has lasted several years, but also cases that have relapsed after a shorter or longer period of complete health. But even if the relief in a given case should prove to be only temporary, there is much to be gained by respite from eczemas and ulcers and pain. It seems quite reasonable that as the symptoms of varicosities are aggravated by that form of faulty circulation to which Trendelenburg has called our attention, so they will be relieved by such measures as prevent this faulty circulation. Nobody will expect the operation to have any curative effect upon the blood-vessels themselves; but as the faulty circulation aggravates the results of the varicosities, the skin diseases, ulcers, cramps, etc., and as the sufferings and the disabilities of the patient depend more upon these consequences than upon the varicose condition per se, it is easy to see how the operation may have the effect, and act in just such a manner as experience proves it to do. As a correlative it follows that the Trendelenburg operation is only indicated in those cases where it is probable that the circulation in the great saphenous vein in the erect position runs down the thigh from the saphenous opening, instead of running in the correct direction.

I have only one case of my own to report, but as it was a very severe one, and as at least the immediate results were strikingly favorable, so that it amply bears out Trendelenburg's claims for the operation, I conclude my remarks by a brief history of it. The patient is a single woman of twenty-seven years, who, for seven years, has suffered so severely from pains in the leg, that she has been seriously handicapped in work, and debarred from all sports and amusements of an active nature. The pains have always been of a neuralgic character, and tormented her, not only in standing and walking, but even for hours after she has assumed the recumbent position. Her first physician thought she suffered from periostitis, and made an incision down to the bone along the crests of both tibiæ, but this operation gave no relief. About five years ago she came from her home in Iowa and applied to a prominent and very skillful surgeon here, who kindly showed the case to me. I was unable to give a diagnosis; the physician

in charge supposed there might be an osteomyelitic focus in each tibia, a supposition that seemed quite plausible. But the symmetrical appearance made the theory somewhat doubtful. Before operation remedies were given against the only infectious disease that might account for the symptoms, but without relief. The operation of chiseling into the bone was then performed; neither pus nor sequestra were found, and when the patient after the healing of the wounds, began to walk about, she was as bad as before. About two years later I saw her, and as at that time the superficial veins had become markedly varicose, the nature of the case became plain enough. Her former physician also saw her, and concurred with me in the diagnosis. I applied an Unna's glue bandage, and as long as she wore that she was free from pain, and could work. It was applied several times and gave satisfaction, but she could, of course, not wear it forever. She tried Martin's bandage, and elastic stockings and had the usual relief. But as she finally could not afford to keep herself supplied with elastic stockings, that had to reach midway to the thigh, and had to be renewed every two or three months, she lately came to me to have a new glue bandage applied. In the meantime I had learned of Trendelenburg's theories and operation. I gave her a very thorough examination; convinced myself repeatedly of the presence of the faulty circulation in the great saphenous vein, by performing both the above described experiments. The patient was eager to have the operation performed, as she was thoroughly tired of her pains, and as she had become almost incapacitated for work. Consequently the operation was performed, first on the right extremity. The pain disappeared at once in that leg, but in spite of protracted rest in bed, it persisted in the other; she finally had that operated upon, after the first wound had healed. She is highly satisfied with the result.

REPORT OF THE STATE BOARD OF HEALTH FOR THE YEAR 1897.

H. M. Bracken, M. D., Secretary.

In reviewing the work of the board for the past year, the question naturally arises, What has been accomplished? It seems to me a great deal.

The veterinary department has been created and has a thorough understanding of the veterinary work before us, as shown by the reports of Dr. Reynolds. The work connected with infectious diseases of animals has been very satisfactory, from the executive point of view, except so far as relates to the control of hog cholera. Here the board has had much to contend with.

The bacteriological laboratory has been worked to its utmost capacity, as shown by Dr. Wesbrook's reports. The work of this laboratory should be threefold. First, the ordinary routine work connected with the laboratory diagnosis of infectious disease. Second, the investigation of infectious diseases, the nature of which is not at present understood. Third, the testing of remedial agents, whether they be of a prophylactic or curative nature.

Your secretary is constantly called upon to advise as to the best antitoxin, the best vaccine virus, the best disinfectants, etc. Conditions should be such that the laboratory might make systematic and frequent reports on these topics, in order that your board might give intelligent answers. It is a poor policy to make recommendations where one's knowledge is imperfect.

So far, our laboratory has been very fully engaged in the routine work of microscopical diagnosis, to the disadvantage of the other lines along which it has been engaged.

The reports for this quarterly meeting of the board comprise, as usual, those from your secretary on the executive work, from Dr. Wesbrook, on the work of the bacteriological laboratory, and from Dr. Reynolds, on the work of the veterinary department.

Following out the instructions of the board at its last meeting relative to the isolation of tuberculous inmates in state institutions, your secretary sent out the following list of questions:

First. Is any effort made to isolate the tuberculous under your care?

Second. What percentage of those under your care is tuberculous?

Third. Is tuberculosis increasing any in your institution?

For the state prison, Dr. Merrill reported that the isolation of tuberculous convicts was introduced there four years ago. In connection with this isolation, a complete examination of every convict, at the time of his arrival at the prison, is made, for any symptoms of tuberculous trouble. There is a row of cells known as "tubercular row," to which are assigned the tuberculous convicts. In this row, each cell is provided with a cuspidor containing a disinfecting fluid, which is renewed daily. Extra precautions are taken in disinfecting the floors and walls of the cells. The night buckets are disinfected daily. Care is taken in assigning these convicts the work best suited to their condition. Care is also taken in the selection of their food. As a result of such action, there has been a decrease in the number of cases of tuberculosis.

There were six well defined cases of tuberculosis in the prison at the time of Dr. Merrill's report.

The report from the institute for defectives is quite remarkable. It is as follows: In the School for the Deaf and Dumb, no deaths for the first thirty years of its existence (up to 1893). Two deaths since 1893, one of which was from scarlet fever. No deaths from tuberculosis.

The School for the Blind had no deaths during the first twenty-eight years of its existence (up to 1895). In 1895, there was one death from pneumonia, one death from tuberculosis.

Dr. Rogers reports that in the School for the Feebleminded there were one hundred and ninety-eight deaths in sixteen years (1881-1897). Of these, forty-five were due to tuberculosis. Particular pains is taken to examine all new comers for tuberculosis. Children suffering from incipient tuberculosis are housed in one of the detached buildings of the institution, that is provided "with wide porches and airing courts; where they can spend much of their time. Absolute isolation is not followed, and is hardly necessary, for with children, the sputum is generally swallowed, and this childish habit, though not to be commended, is an actual safeguard against the general dessemination of the tubercle bacilli. Nov. 17, 1897, there were four tuberculous inmates, three males and one female. Of these, one male was improving, two males and the female declining. The death rate from tuberculosis, from the opening of the institution, has been about five per cent. It is recognized that there are many other cases in which tuberculous conditions are present. In institutions of this kind it is generally understood that from forty to fifty per cent of the children are tuberculous. In this institution, those suffering from tuberculosis are separated from the non-tuberculous during the nights.

Dr. Jaehnig reports from the State Training School: "No well-marked cases of tuberculosis." Tuberculosis is not on the increase. There is no need for isolation.

Dr. Greenlee reports from the Soldiers' Home that, so far as possible, the tuberculous in the hospital have been isolated; that great care has been taken in disinfecting the sputa; that it is not possible to isolate the tuberculous in a separate and detached building. There is no evidence thus far of the disease having spread from such lack of isolation. The following table is taken from Dr. Greenlee's report:

	Inmates.	Tuberculosis. Cases.	Deaths.
Year ending June 30, 1892.....	142	1	1
Year ending June 30, 1893.....	306	12	7
Year ending June 30, 1894.....	403	13	4
Year ending June 30, 1895.....	508	6	3
Year ending June 30, 1896.....	551	7	2
Year ending June 30, 1897.....	556	7	4

From the Minnesota State Reformatory comes the report that the changing population makes it impossible to give any accurate statistics. There has been, however, but little sickness at this institution. There are well developed cases of tuberculosis among the one hundred and sixty inmates.

From the State School at Owatonna comes the report that it is not a "Custodian Institution," hence there is no accumulation of tuberculous cases.

Little can be drawn from the reports of the three Hospitals for the Insane. At Fergus Falls it seems possible to isolate. At both St. Peter and Rochester, complaint is made of too great crowding of the patients to permit of isolation. The following table taken from the vital statistics reports since 1888 shows a gradual increase in the mortality from tuberculosis in at least two of these hospitals:

	Total Deaths for the Years of							
Institutions—	1889.	'90.	'91.	'92.	'93.	'94.	'95.	'96.
Rochester Hospital....	48	47	68	86	77	103	73	68
St. Peter Hospital....	54	44	62	83	62	45	38	61
Fergus Falls Hospital ..	..	3	8	12	19	48	41	28
Feeble-minded Hospital	7	3	9	12	9	17	21	10
State Prison Hospital..	4	3	2	1	1	3	5	1

	Deaths from Tuberculosis in the Years of							
Institutions—	1889.	'90.	'91.	'92.	'93.	'94.	'95.	'96.
Rochester Hospital....	7	8	15	11	19	27	18	21
St. Peter Hospital.....	8	8	10	4	10	8	11	9
Fergus Falls Hospital..	..	..	..	..	1	5	5	8
Feeble-minded Hospital	2	..	1	5	4	3	2	2
State Prison Hospital..	2	1	1	..	..	2	4	..

The School for Feebleminded shows a gradual improvement.

The State Prison shows an improvement for a time, with a sudden increase of percentage. This increase is attributed to the importation of national convicts from the South in the year 1893. The number of deaths from tuberculosis in this institution is again on the decline.

Judging from all of these reports, it is interesting to note that those in authority appreciate the importance of special care in tuberculosis as for any other class of infectious diseases. That where isolation is not practised, it is because of the unavoidable crowding in the institutions That those in charge of these overcrowded institutions appreciate the disadvantages under which they are laboring.

In relation to "piggeries" at slaughter-houses where the intent is to feed offal, it was suggested at a meeting of your executive committee, held Oct. 16, 1897, that the board put into force, at some fixed date in the future, a rule prohibiting the feeding of offal from slaughter-houses to hogs. The following was given as perhaps suitable in form for such a rule:

State Board of Health, St. Paul, Minn.

After April 1, 1898, no hogs shall be permitted to be kept or fed at or about slaughter-

houses; nor shall the offal from slaughter-houses be fed to hogs. These rules are established:

1. To prevent the transmission of certain infectious diseases to mankind.

2. To prevent the spread of certain infectious diseases among animals.

3. To avoid the creation of a public nuisance.*

As instructed by this board at its last meeting, Dr. Wesbrook and myself attending the meeting of the American Public Health Association at Philadelphia, Oct. 26-29.

Dr. Wesbrook presented two papers, one upon typhoid fever and one upon rabies. Your secretary presented one paper on typhoid infection. The session was a very busy one. Among the many interesting papers were those on yellow fever, diphtheria, tuberculosis, bovine tuberculosis, as bearing upon our milk and meat supply, pure water supplies, etc.

Of committee reports, those of special interest related to

1. Drainage, plumbing and ventilation of public and private buildings.
2. Pollution of water supplies.
3. Disinfectants.
4. Animal diseases and animal foods.
5. Disposal of garbage and refuse.
6. Nomenclature of disease.
7. Health legislation.
8. Transportation and disposal of the dead.

While the association was well entertained by the Philadelphians, little time was wasted in pleasure. A trip was arranged for October 30, to permit of those members who could stay over to visit the quarantine stations on the river below Philadelphia. Neither Dr. Wesbrook or myself found it convenient to stay.

A report upon lumpy jaw cattle, having come to me indirectly, I sent the following instructions to the chairman of the board of supervisors where the offending party lives.

"My Dear Sir: I am told that a certain man by the name of Schmead (or Schmidt) is making a business of keeping lumpy jaw cattle. This cannot be permitted. This disease is an infectious one and must be dealt with as are other infectious diseases. Please make a note of all the cattle on this man's place, taking such a description of each one as to enable you to identify each and every one, should any attempt be made to sell them clandestinely. It would be well for your board of supervisors to do this as a body. Note how many of the cattle have signs of lumpy jaw. Do not permit the sale of any of the lumpy jaw cattle except for slaughter, under inspection. Proper inspection can be made of such stock at packing houses where there are government inspectors, or should the owner wish to kill at home, we can send an inspector at his expense, who may pass upon the suitability of animals for slaughter. The carcasses of all condemned animals must be so treated as to render their sale for food an impossibility. This is generally accomplished by pouring kerosene over the carcasses.

The laws of the state relating to sanitation refer to rules and regulations of the State Board of Health, and of local boards of health. At present the State Board of Health has no rules beyond those drawn up in August, 1897, as relating to hog cholera. I would advise that the executive committee be instructed to take this matter up for consideration at once, with power to act.

In many states it is the custom for the various boards of health throughout the state to hold meetings for the discussion of sanitary questions. I would suggest that such a meeting should be arranged for in this state at an early date, and that some fixed custom should be established for the future. This question can well be left with the executive committee, with power to act, or to report back to the board, as you may decide.

Since we have been receiving the newspaper clippings, I have found that not all the quarantinable diseases are reported to the State Board of Health. Such report is necessary, if our morbidity tables are to be of any value. The "clippings" have enabled us to get knowledge of many outbreaks of diphtheria, scarlet fever, measles, etc. Recognizing the fact of imperfect returns, I thought it well to send to medical men throughout the state a blank, asking them to kindly fill it out. There has been quite a general and willing response to this request. I asked in this table for returns of typhoid fever, tuberculosis, leprosy and membranous croup, in addition to the recognized quarantinable diseases. This was with the object of encouraging more thoughtfulness in the care of these recognized infectious diseases, not yet quarantinable in our state. It may be well to draw attention to the fact that so-called membranous croup should be quarantined until the laboratory has established, beyond a doubt, that the disease is not diphtheria. I am sorry to say that observation leads to the conclusion that some physicians, and occasionally a health officer, will call a very suspicious case of "sore throat" membranous croup, rather than diphtheria, in order to shield the household from quarantine. It must be a very selfish individual who will ask that such leniency be shown him, and it must be a very obtuse neighborhood that will tolerate such illegal and outrageous proceedings. It is a fact, and an unfortunate fact, that there are

*At the meeting of the Board, Jan. 11, 1898 it was voted to put these rules into effect March 1, 1898.

still some physicians who sneer at the laboratory diagnosis of diphtheria. We can but pity them. They are too much behind the times to improve, I presume.

In regard to municipal meat inspection, and abattoirs to be placed under municipal control, nothing has yet been definitely settled upon as a policy to be recommended. It certainly is a fact that is quite generally recognized, that there should be careful inspection, both ante and post-mortem. In connection with the inspection of dairy cattle, as carried on by the City Board of Health of Minneapolis, it seems advisable that an authorized inspector from our board should keep such cattle as are condemned by the tuberculin test under observation until they are finally disposed of. I understand that it would be quite agreeable to the Minneapolis Board of Health that we should give such authority to their meat inspector. I would, therefore, recommend that Charles Tilbury be given authority to act as meat inspector for the State Board of Health. This, without financial obligation on the part of the state board, and with power of cancellation at any time, at the discretion of the secretary and executive officer of the state board, by properly rendering notice to that effect to the commissioner of health of Minneapolis.

It may be well to state that very active measures are being taken in various parts of the country looking to the sanitary control of abattoirs, and a more general inspection of all cattle to be used as food, or for breeding purposes, and of cows for dairies. Pennsylvania has recently taken such legislative action that after Jan. 1, 1898, all cows brought into the state for dairy or breeding purposes, must be able to show a satisfactory bill of health or be quarantined on the border until they have been subjected to the tuberculin test.

No progress has been made in action relative to transportation of the dead. I have been waiting for some proposition from the embalmers, as relating to the preparation of bodies for transportation. The American Association of General Baggage Agents has this same question under consideration. Connected with their association is a committee, consisting of Messrs. S. H. Smart, G. B. A. Great Northern railroad; W. H. Lowe, G. B. A. Northern Pacific railroad, and E. F. Wood, G. B. A. Chicago, St. Paul, Minneapolis and Omaha railroad, to whom such questions pertaining to the Northwest are referred. I have been asked to meet with them at some early date to consider this important question.

It behooves us to be up and doing in order to keep our state in the front ranks in all matters pertaining to sanitation.

The system of reporting vital statistics remains unchanged from that of previous years. Returns are coming in more promptly and in better form. This is probably due to a more thorough understanding of the law relating to vital statistics.

As this is not the close of the fiscal year, it is hardly necessary to make a detailed financial statement. Suffice it to say that the funds that are controlled are not adequate to carry on the work we have undertaken.

EXPERT TESTIMONY.*

By Cornelius Williams, M. D.,

St. Paul.

Expert testimony, as interesting the medical profession, should be divided into two classes. In the first class, testimony given by a medical man concerning matters at issue, and of which the medical witness has personal knowledge. In the second class, testimony as to hypothetical conditions.

The expert medical witness is one who is supposed to possess greater knowledge in the particular division of medical practice concerned in the affair at issue.

The office of the medical expert is to give true testimony to the best of his ability.

What might be called the miscarriage of the testimony rendered in court by the expert witness is more often than not due to the want of skill on the part of the attorney—the attorney friendly to the witness. It cannot properly be construed as an unfriendly criticism, if it be stated as a fact, that in many instances the lawyer goes into court with his case unprepared, as far as concerns the medical testimony to be expected. In this latter day the lawyer who would succeed in litigations involving medical questions, must know enough of the science of medicine to question his witness to the best advantage. It goes without saying that like skill must be used in the examination of the hostile expert, and in this case it must be remembered that the exigencies of the practice of his profession would seem to require of the lawyer that he elicit answers that tend to discredit statements made by that same witness in his direct examination. The task of the skilled lawyer is here to protect his witness, and to give him an opportunity of rectifying the distortions of his testimony produced by the assaults of the enemy. This would seem to be elemental, but it is a notorious fact that herein lies the secret of the widespread dis-

*Read before the Ramsey County Medical Society, December 27, 1897.

trust, on the part of the public, of expert testimony. The testimony as published is incomplete and often contradictory, not because of prevarication or want of knowledge on the part of the witness, but because of the asking of questions impossible to answer. As a sample the following may serve: The witness will be called upon to state whether "the peritonitic lining ligatures of the omental cavity have been consolidated or exfoliated." I have known of questions quite as ridiculous, and to which an answer cannot be given, yes or no; but an attempt to explain is promptly met with an objection, and the learned counsel has his opportunity. Questions which to the medical witness have as much relation to any conceivable state of affairs as would a question like this to a lawyer witness. "Suppose that an ex parte deodan should issue from a court of competent jurisdiction, would a nisi prius attorney in fact appeal to the court of oyer and terminer or to a referee in chambers?" Such questions are gravely propounded, and the ponderous legal weight, seemingly with the countenance of the court, demands a categorical answer. Should the unhappy witness attempt to convey to the court that the question is irrelevant, immaterial and not constructed according to the workings of good gray matter, then the p. l. w. avails himself of a privilege which the custom of courts seems to sanction, and proceeds to do things with the witness, a condition of affairs much enjoyed by the spectators. It is apparent enough that the jury will be inclined to disregard the expert testimony altogether, much to the disadvantage of one or both parties to the case, if the matters in testimony be not clearly stated in the final summing up by the court, and in this place it would seem also proper to insist that if it be necessary for a practising lawyer to be somewhat conversant with medical science, it is doubly necessary for the jurist on the bench to possess a yet greater knowledge of the science and the art of medicine, for his is the duty of eliminating, perhaps, at least of calling attention to parts of the testimony which will not bear the light of rigid analysis.

It is a customary thing for our friends of the secular press to comment very freely upon the very contradictory character of expert testimony as given by different authorities, affecting the same question. It would seem to be a matter beyond question, in the minds of many, that a real expert could not fail to be absolutely sure upon the thing in trial, and that if he is a real bona fide expert his testimony must be of such a nature that every other expert of the proper type must needs agree with him. A difference of opinion as between two of the pure culture, proves to the mind reportorial, or editorial as the case may be, that there is no reliance on the opinion of experts, and that they are venal, and are willing to testify to anything whatever for the fee of it, just as a lawyer would (some would) take the case of a client, whatever its merits, provided the retainer were forthcoming.

This brings me to the matter of the proper compensation of the expert witness when summoned by the state, or required by any other party to an action at law. The Supreme Court of Illinois, in a recent decision, Dixon vs. People, holds that an expert in any profession may be required to testify as to purely technical matter, as presented in a hypothetical question, without other than the statutory compensation, whether the case be a civil one or a criminal prosecution. The learned judge disposes of the question of the loss of time and its value as affecting the fee of the expert, and then attacks the question of the existence of a property right in the possession of particular knowledge; and upon this the whole matter hinges. The court rules that it is not the possession of particular knowledge which constitutes property, but that it is the right to apply such knowledge to the accomplishment of a particular purpose. The holding of the court is in effect simply that an expert must testify without compensation, because he is the possessor of particular knowledge, and because it is necessary to the operation of the court. Now, if it is only the application of particular knowledge which constitutes property, then is not the court in contradiction of its own dicta when it decides that the expert must make application of his knowledge for the accomplishment of a particular result in court, and for the benefit of a litigant, without especial compensation? By parity of reasoning, money, which is the product of knowledge, would constitute property only in so far as the right to use it for the accomplishment of some particular purpose might make it property. The possession of expert knowledge is a product of every element which may under any reasonable definition be considered as property. Its use can produce every form of property known to the law, and it is needless to say that its use is impossible without previous possession. Use and possession being then inseparable, they are the same.

The learned judge further says that the mere requirement of the expert physician that he give his opinion upon the facts stated in the hypothetical question before the court, is not an application of his healing art. The physician is merely doing a thing which will enable the court and the jury to understand correctly a case which is before the court. The fact that he is required to do this thing is admitted to be necessary to the operation of the court. In like manner certain other services of sundry persons have been and are required to provide for the very ex-

istence of the court and to insure its continuation, yet who would think of requiring the janitor or architect to render gratuitous service, even though, because of some fault of statute, no provision had been made for adequate compensation of these citizens? Yet the rendering of such services would seem to be necessary for the public good.

There seems to be another defect in the reasoning of the jurist in this particular case. The giving of an opinion as to any particular case is only another way of saying that a diagnosis is to be made, and since the mere prescribing cannot be done intelligently without a previous diagnosis, and the forming of a diagnosis is a necessary and inseparable part of prescribing, it follows that the calling upon the physician to make a diagnosis in court, whether it be for the enlightenment of the court, or for the mere benefit of one of the litigants, is to require "the physician to practise his healing art." In the case before the Illinois court, the issue of prime importance to the plaintiff was the making of the diagnosis. Important to her in view of the necessary and proper treatment, and vital as to the determination of the question of damages, and the requirement of the court was that those necessary and particular services should be rendered by the doctor without compensation. The court holds that a physician may not be required to make a journey, to hold a post mortem examination, or to prepare in advance for testifying in court; or to pursue a course of study to possess himself of particular knowledge, without being paid therefor; but that if he has done all these, and has become possessed of particular knowledge for the purpose of applying this knowledge to the earning of a livelihood, then, in that case, he may be required to render the fruits of this precedent labor by testifying in court for the benefit of the state or an individual, and without compensation. These arguments are intended to apply to the case of the physician called upon to give expert testimony as to a hypothetical case. Of course, within certain limits the physician may be called to testify as to facts within his knowledge, the same as any witness. It is interesting to note that the fact that the law of Illinois does not make any provision for the taxation of such costs as expert fees, seems to have been a factor in determining the decision in the case of Dixon vs. People. The decision of the court in that case should not be final, even in the State of Illinois, for the federal question involved ought to be settled by the United States Supreme Court. Our constitution provides that no one's property shall be taken without due process of law and proper compensation. The fee which the expert witness may receive should be entirely a matter of arrangement. There can be no other equitable plan. Neither side will call a witness who may be expected to give testimony inimical to its interests, and why should there be an exception in the case of the expert? The office of the expert is to inform and aid the counsel upon whose side he finds himself, by, first, telling the truth upon the witness stand, and second, indicating to his counsel any portions of the opposing expert testimony which are legitimately open to attack. It is the duty of the expert to inform his counsel very fully, before going upon the stand, as to what can be proven by a competent witness for either side. This course, it is true, may make him undesirable as a witness for one or the other side, and such a course will doubtless, as has been the case in the past, prove the means of averting much useless and costly litigation. There can be no doubt but that our laws should provide for the use in evidence of recognized authorities as represented by the writings of authors of standing and reputation. If this were done the tsetimony of a venal or incompetent witness could and would be readily impeached, much to the damage of the side that had employed him, and to the merited extinguishment of the individual as an honest and competent expert. Such a law would, I think, be far better than one providing for a "board of experts" whose say should be quasi cathedral as affecting the questions at issue. The idea of the creation of such a board is opposed to the genius of our laws and might operate to foster abuses more flagrant than those which its design is to correct, aside from the further question as to the constitutionality of such a measure. The same objection which obtains against the creation of a board of experts, holds against the appointment of an expert in any given case by the court.

I cannot close this paper without a formal protest against the universal tendency to underestimate the value of medical services. Notably is this the case in the learned profession of the law. It is to be regretted that our brothers of the ermine should be moved so little by ties of kinship; and while daily enforcing claims illustrative of the high value to be placed upon professional services rendered by members of their own class, that they, being in command of the machinery of the law, should so poorly appreciate the value of labor in the ranks of another profession, the importance of which, if measured by the same standard, and that standard the relative value of the issue at stake, would far exceed in worth that of the lawyer.

The medical profession, however, richly deserves the position which it occupies in the esteem of the people, because for want of assertion on its part its very benevolence is turned against it, a weapon in the hands of those who

persecute it, unmindful that its members render every day unpaid and unthanked aid to the community in value exceeding that given by any other class; and if one of us do but raise a resisting hand opposed to invidious and unreasonable demands, then with lofty tone we are upbraided as failing in patriotism as well as duty to the community, coupled with sonorous phrases about "liberal culture," "high sense of honor," which in themselves are very beautiful, appropriate and highly appreciated by us, yet, is the laborer worthy of his hire.

Finally, to err is human, inseparable from the nature of man, and any arrangement of circumstances which should make a human being's life hang upon the testimony afforded by a fragment of bone, or a blood stain, should not be possible under our laws.

SURGICAL ANÆSTHESIA.*

H. J. O'Brien, M. D.

St. Paul.

In considering this subject it is my intention to consider only the two chief anæsthetics, chloroform and ether, or a combination of the two.

It is commonly admitted that every man is entitled to at least one fad and one personal devil; ignoring the personal devil question, should surgical anæsthesia be assigned to me as my fad no demur will be offered. I am almost persuaded to apologize for again bringing this subject before the Society, as a resolution pertaining to anæsthesia in St. Paul hospitals introduced some months ago was not over kindly received, and met a prompt and ignominious death when put to vote.

Adhering to my former expressed opinion that papers read before a representative body of men such as compose this Society should deal largely in personal beliefs as study and experience have taught, I do not mean to go deeply into statistics, but will endeavor to put together in a hodge podge sort of way, some knowledge acquired by reading, observation and experience.

The line of battle in regard to surgical anæsthetics may be likened to a triangle, the sponsors of chloroform forming one side, the sponsors of ether the second and those of the mixture of chlorform and ether the third side, all united for the common weal from their particular standpoint, and the man who undertakes single handed to declare the victor imposes upon himself a task that I for one respectfully decline.

It may not be amiss to call attention to the fact that all so-called mixtures of writers are not identical; thus the chloroform commission of the Medico-Chirurgical Society of London used 1 part alcohol, 2 parts chloroform and 3 parts ether; while the Vienna mixture consists of 1 part chloroform and 6 parts ether; and again Billroth speaks of a mixture consisting of 1 part alcohol, 3 parts chloroform and 1 part ether.

Some years ago an inquiry into the subject of anæsthesia disclosed the fact that ether only was used in New England; in what is now Greater New York and Philadelphia comparatively few surgeons used chloroform; a larger number used a mixture of chloroform and ether, but ether was the favorite anæsthetic. Ether was also much more largely used at this time in the western and northern portions of the country than either chloroform or a mixture of chloroform and ether; in the South chloroform was preferred. In hospital practice in Great Britain, chloroform, ether and mixtures were about equally used. In France, excepting Lyons, and in Germany, excepting Vienna, chloroform was largely used. At the present time chloroform is certainly used more in this part of the country than it was fifteen or twenty years ago.

The belief that in ether narcosis a fatal ending is always due to primary failure of respiration, and that death follows fatal chloroform narcosis always through the circulatory apparatus has been abundantly disproved; the heart beat has been present long after respiration ceased in many reported cases of fatal chloroform administration, and again the heart has ceased to beat before respiration ceased in fatal cases of etherization.

In experimenting upon animals with chloroform, I have repeatedly produced respiratory phenomena, followed by death through failure of respiration before the stoppage of the heart.

In considering anæsthesia it is well to bear in mind that we have had and still do have sudden deaths under the surgeon's knife where no anæsthetic has been employed, and in cases where autopsy showed no sufficient pathologic lesion for the fatal issue, at least upon macroscopic examination.

It is reasonable to believe some deaths erroneously attributed to anæsthesia would be properly classified were more frequent and complete post mortem examinations made, not neglecting to bring to our aid microscopic examination.

I shall not soon forget a death occurring some years ago during a mastoid operation while I was administering the ether; the respiration stopped first, and though artificial respiration was vigorously and long persisted in it was never reëstablished and the heart soon ceased its pulsa-

*Read before the Ramsey County Medical Society, December 27, 1897.

tions. I requested an autopsy from both the attending physicians and coroner, and was greatly relieved when the brain was exposed to see the gentlemen conducting the examination demonstrate a ruptured abscess of the cerebellum containing two or three ounces of pus. Had this post mortem examination been denied another death would have been improperly attributed to ether; unfortunately all examinations into sudden deaths upon the operating table do not so clearly explain the cause of death as did this one.

Chloroform is often said to be without danger in children; this is probably a mistake, but the difficulty of administering ether to children too young to be reasoned with will commonly continue chloroform the favorite.

Some surgeons recommend chloroform anæsthesia for the primary stage and the substitution of ether later; while this method is undoubtedly more agreeable to the patient, as 50 per cent of deaths attributed solely to anæsthesia occur very early, especially when chloroform is used, it is doubtful that this as a routine practice would obviate the danger of anæsthesia. The hypodermic injection of morphine before anæsthesia has found favor with some surgeons, because of the lesser amount of vapor necessary to produce narcosis. The opponents of this method point to the increased difficulty of combating two narcotics should anæsthesia become alarmingly profound.

After all the experimental and clinical work done by individual observers and commissions, the relative danger of these two great anæsthetics, either alone or in combination cannot today be mathematically determined. That chloroform is a direct heart depressant and ether a heart stimulant, is probably true from the researches of MacWilliams, as well as Gaskell and Shores; but the question of vaso-motor stimulation or depression is not yet decided, Bowditch and Minot's experiments of 1874 showing paralysis of the vaso-motor centre being strongly contradicted by recent and careful investigators. The contention that nervous tissue, especially the brain, has a greater affinity for chloroform than ether, thus explaining the greater difficulty in resuscitation in profound chloroform narcosis, must be further elaborated before being accepted as final. One might continue in this line of thought, quoting and drawing deductions from Simpson, Wood, Reeve, Gould, the Hyderabad Commission, and a host of other observers, sufficient for a good sized volume.

The practical clinical fact is that both chloroform and ether, alone or in combination, have often produced death: sometimes by paralysis of the heart or its contained ganglia; at times by paralysis of the centre of respiration, and possibly occasionally by paralysis of the centre of circulation, though the latter is considered rare, and these modes of death are common to both chloroform and ether.

Recognizing the above clinical fact we should use every means in our power to prevent anæsthetic accidents; "forewarned is forearmed," and I believe we should reduce the dangers of anæsthesia to a minimum by a careful examination and consideration of each individual case; no one rule is applicable to all cases. Thus the surgeon on the battlefield, in the backwoods or small village is at much disadvantage compared with his more fortunate brother in a large city with hospital accommodations, and the cloth must be cut according to individual measurement.

When a surgical operation of any magnitude is unavoidable there is no contraindication to anæsthesia, and this should be complete, for if but partial, we have the combined danger of anæsthesia and traumatic shock, which is more dangerous than either alone. The anæsthetic selected and the manner in which it is given is of much moment; for example, ether causes a rise in arterial pressure, chloroform a fall, therefore, oftentimes in old people with atheromatous arteries, other things being equal, because of the danger of cerebral hemorrhage, chloroform would be indicated; at the same time a condition of the heart muscle might be present that would make ether the proper choice; so too in advanced renal mischief, though chloroform is commonly preferable, the vascular condition may contraindicate its use.

Personally, whenever possible, I like chloroform anæsthesia, preceded by hypodermic injection, morphine, atropine and nitro-glycerine, and this followed by an injection of strychnine.

Whatever method we use, or which anæsthetic we employ, I am convinced that when possible the anæsthetic should be administered by an expert. The common answer to the patient's query of the danger of this or that operation, is that we hope and expect the operation to relieve or prove curative, as the case may be, but that there is always danger in the production of anæsthesia.

If this is true, and certainly anæsthesia is the nearest approach to death without actually crossing the river one can imagine, it seems to me that too much care cannot be exercised in the choice of the anæsthetic and anæsthetizer. To the teaching of anæsthetics, together with their administration, our colleges do not give enough attention. The pulse, respiration, reflexes, pupils and skin should all be closely and constantly observed in all forms of anæsthesia, and this cannot be done without special training, care, observation and a recognition of the dangers and responsibility.

It is obviously impossible to at all times have

an expert in anæsthesia assist us, but I believe the ideal may be approached even though we fall short of its full attainment, by insisting that each hospital mantain an official anæsthetizer, chosen solely for his known ability in this particular line; when we are compelled to other assistance because of multiplicity of operators working at the same time, or the exigencies of anæsthesia outside of these institutions, we should seek the best possible assistance at command. We strive faithfully to protect our patients from wound infection, and should be equally vigilant to protect them against death through anæsthesia.

GONORRHŒA IN MARRIED WOMEN.

Van Schaick says in the New York Medical Journal that he considers that the conclusions of Noeggerath as to the importance of gonorrhœal infection have been fully confirmed. Three years ago he began the investigation of cases of married women suffering from vaginal discharge. In each instance cover-glass slips were made and stained with methylene-blue. Whenever gonococci were not found, subsequent examinations were made, at least three times, whenever it was possible, and in several patients it was only at the second or third examination that the gonococci were discovered.

He examined in this manner, during a space of very nearly three years, sixty-five women. Of these, four were examined again at an interval of at least a year, and two were examined again after an interval of two years and over. He thinks the result of his examinations does not represent an absolutely true statement of the condition of things. Cases of gonorrhœal infection must certainly have escaped notice. Most women take copious douches before coming to the office, and thus wash out the parts more or less completely, and in many cases gonococci are imbedded in the tissues, and for this and other reasons escape detection. Yet such evidence as he can present is positive.

All of the women seen complained of leucorrhœa, and in three only was there any evidence of an acute gonorrhœal infection from the appearance of the vulva, such as to lead to an instant diagnosis of gonorrhœa. In others the character of the discharge and the appearance of the parts simply led to suspicion, which was generally confirmed with the microscope. In four instances the patients declared that they were aware that their husbands had "something the matter" with them.

Among the sixty-five women examined he found gonococci seventeen times, or in 26 per cent. of the cases. Nineteen women were examined twice, and in three gonococci were found at the second examination. Thirty-two were examined three times, and in three of these the third examination revealed the cocci.—Universal Medical Journal.

Virchow, in the opening address at the last International Congress, said: Life has no other origin than from life itself, and this is one of the truths which the labors of pathologists and biologists of the present century have established beyond the possibility of doubt. For long many men of acumen and true scientific minds were inclined to doubt the unbroken continuity of life and to regard spontaneous generation as possible if not actually probable. This theory is, however, dead, and dead beyond the possibility of resurrection—a result which we owe to the labors of many earnest investigators, conspicuous among whom stands the grand figure of Louis Pasteur. The rôle of chemical action in the processes of life or of its continuity has also been found to be less important than it was at one time supposed to be. Life is in the cell. He who speaks of serum as a vital force apart from cells is wrong. The grand truth of cellular succession may be assailed in the future as it has been in the past, but it will never be thrown to earth; it will shine through all the long years of the twentieth century, few if any of which, the venerable speaker said in a half-regretful voice, it would be his privilege to see. This might be his last congress (cries of "No, no!"), but whether it was or not, his earnest hope was that the final mystery of life might be solved and its solution proclaimed at some future congress. If it ever is to be solved, solved it will be by the united labors of the biologist and the pathologist; it is in tneir laboratory that the key will be forged which shall unlock the door that still holds us back from a full knowledge of the processes of life.

Gutsmann, of Frankfort, has published a monograph upon stuttering in which he states that there are no less than 80,000 school children in the German Empire who suffer from this defect. Among recruits for the army one per cent are thus afflicted, and a considerable proportion is rejected for military service on this account.

F. K. Kleine states in the Deutsche Med. Wochenschrift that his recent experiments upon dogs confirm the view already held that the gastric symptoms from the morphia habit are due to a decreased secretion of hydrochloric acid in the gastric juice. A single injection of morphia produces no perceptible effect in this way, but after repeated injections there comes a decided diminution of the secretion of acid, preceded by loss of appetite and decreased power of digestion.

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UNUSUAL SOURCES OF TYPHOID.

Of all the innumerable questions that the physician is expected to meet with an infallible answer there is none more eagerly asked and more difficult to reply to than the inevitable query: "How did I get this?" So great, indeed, is the interest of the patient in finding out the cause of his sickness that he often seems to be less anxious about the cure. The physician must always have some kind of an explanation to offer, and in the many instances where it is impossible to assign a really likely cause of the attack, the doctor's tact will all be needed to furnish a satisfactory answer. A strange thing it is that people seem to expect the doctor to know the precise cause in every case of disease, forgetting that if medical science really knew it all, there would be nothing left for future discovery. To trace a disease to its source is a matter of the highest importance, not only to satisfy the patient, but to guard against the danger another time. Preventive medicine rests upon the knowledge of the etiology of disease. Unfortunately, at the present time it is the exception rather than the rule to be able to point with certainty to the cause of a disease.

Modern medicine declares with confidence that every case of typhoid fever comes from another case, and it makes this declaration without pretending or expecting to be able to prove it in all cases. Those who demand this proof and who maintain that until each and every case can be linked with another, the theory of infection is valueless, take an irrational position, for the reason that it is in the nature of things that the necessary information is wanting in many cases. A favorite argument of the opponents of the infection theory is to quote the saying that a chain is no stronger than any one of its links; that failure to prove infection in any given case of typhoid is the destruction of the whole theory of infection. The obvious answer to this is that failure to prove infection must inevitably follow in many cases because of the impossibility of getting a complete knowledge of the history of the patient, of his food, his drink, his clothing, and of the air he has breathed. It is reasonably certain that the poison of typhoid is swallowed, but to prove this in all cases it would be necessary to know the full history of everything that had gone into the mouth, whether solid, liquid or gas. If such a knowledge as that could be had of a case, and the typhoid germ were not discovered, then, indeed, it might be conceded that the infection theory had failed and that typhoid fever sometimes occurs spontaneously. What increases the difficulty of getting at all the facts of a case until it becomes almost an impossibility, is the long period of incubation of the disease, usually stated as from two to three weeks. It is hard to remember everything that one ate and drank yesterday; to go back to last week is seldom possible; and when it comes to the food and drink of two or three weeks ago it is seldom that any satisfactory history can be had.

Nothing more strikingly illustrates the probability that there are many unknown and unsuspected sources of typhoid than the occasional discovery of a new origin for the disease. The majority of cases doubtless come from the drinking water; in several epidemics it has been possible to point directly to the source of contamination in the water supply, as in the well-known example of the epidemic at Plymouth, Pennsylvania, in 1885. In the recent epidemics

at Duluth and Minneapolis conditions existed favorable to the contamination of the water supply, and there is no doubt that this was at fault. Next to water comes milk as the common carrier of the disease, and numerous epidemics have been traced to this source. In general, the physician confronted with a case of typhoid tries first to connect it with the drinking water; if he cannot do this, he throws suspicion upon the milk; if both sources fail, he is usually unable to account for the case. Within a few years an epidemic at New Haven, Connecticut, was clearly traced to eating raw oysters that had been planted in a harbor where the sewage from the city would flow over them, the poison of the disease undoubtedly entering the open shell and being imprisoned there. The discovery of this new source of typhoid opens up a way of accounting for a large number of cases, both in the past and in the present.

A French medical journal has recently described another possible source of many cases which could not be accounted for, and that is the practice of market gardeners, in many places, of using the contents of cesspools and privy vaults, not only as a manure to mix with the earth, but also as a top dressing for vegetables. With some gardeners it is the custom to dilute this dressing with water, and sprinkle it over the plants. It is easy to see that vegetables that are eaten raw, like cabbage, celery and lettuce, if imperfectly washed, might easily carry the typhoid poison to the stomach. To prove that this was more than a possible source of infection, the French writer took some of the vegetables raised in this way, washed them as if for the table and then soaked them in sterilized water. By inoculating culture media with this water he found it to contain numerous bacteria, common among which were the bacterium coli commune and the typhoid bacillus, while not a few scolices of teniæ were found.

It may be that market gardeners in this country seldom use human excrement as a manure in any form; it is devoutly to be hoped that this is the case, for more reasons than one. Nevertheless, the possibility of this source of infection must be admitted, and it may be applied as an explanation to many cases of obscure origin when it is remembered that lettuce, cabbage, celery and other vegetables washed in a contaminated water and eaten raw bring with them upon the table a considerable quantity of the water in which they have been washed. In the recent epidemics, already referred to, in this state many came down with the disease who were positive that they had drank neither water nor milk that had not been boiled, yet how many of them had the vegetables washed only in boiled water? And how many of them, to mention other sources of infection, knew the full history of the water they drank in lemonade, soda and the various bottled drinks of summer?

There is no lack of occasion to come out in the defense of the infection theory of typhoid when so recent a work as Pepper's American Text-Book of Medicine admits the possibility of a spontaneous origin of the disease. The ground for its doubt is that some cases of typhoid, although carefully investigated, have never been linked with a preceding case. It mentions in particular a case reported by Metcalf, where a patient fell sick with typhoid upon an island in the Pacific ocean where there had been no case of the disease for fifteen months. It describes epidemics in isolated places where the careful investigations of experts failed to account for the disease. But does this writer think that the last thing has been learned about the causes of typhoid? Does not all the history of the past teach him to expect that at any time there may be revealed sources of infection, at present undreamed of, yet far more important than any now known? If not, he has read the history of medicine in vain.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated meeting, Wednesday evening, January 5th, 1898, at the Hotel Ryan, St. Paul, the President, Dr. J. W. Chamberlin, in the chair.

Dr. Arnold Schwyzer, of St. Paul, presented a specimen of

SARCOMA OF THE FEMUR.

He had been called to see the patient, a lady, some nine months ago. She was suffering with

not well-marked pain in the knee; it was increased slightly by standing and upon pressure. A slight swelling was noted over the internal condyle. Operation had been performed eight months ago, with favorable results.

Dr. Knut Hoegh, of Minneapolis, read a paper, entitled

THE TREATMENT OF VARICOSE VEINS OF THE LOWER EXTREMITY.

See page 41.

Dr. H. B. Sweetser, of Minneapolis, in the discussion of the paper, objected to the statement that the saphenous vein has no valves. He did not believe that in the faulty circulation thus caused blood runs down in the saphenous vein, instead of running up. It did not seem to him that the experiments prove that. If this were so, the deeper veins would not be favorably influenced by the operation, as there would be greater difficulty for the venous blood to return when some vein was blocked, and all the blood would have to run through the single channel of the femoral vein. In regard to Unna's bandage, he wanted to know how the patient could bathe with such a bandage on.

Dr. J. Clark Stewart, of Minneapolis, wanted to know if the external saphenous vein was also dilated. He could not exactly see how Trendelenburg's operation acted. He asked if the author of the paper was familiar with and had practiced the operation of tying all the veins by a circular incision around the thigh, and another around the leg.

Dr. A. J. Gillette, of St. Paul, wished to call attention to one result of this disease which he had seen repeatedly, namely, a flattening of the arch of the foot, the production of flat foot. He found it necessary to treat the varicose conditions in these cases, for which purpose he had found elastic stockings rather insufficient. He was in the habit of applying an antiseptic bandage next to the skin; outside of this a layer of absorbent cotton; the whole dressing kept in place by a uniform layer of plaster strips. He thought this method preferable to Unna's glue bandage, as it was easier to apply.

Dr. Sweetser asked if the application of a truss to compress the saphenous vein was a method recognized by the author of the paper, and if he did not think that that would have the same effect as the bloody operation, and upon the whole be preferable.

Dr. Thos. McDavitt, of St. Paul, related the experience of a patient whom he had known as badly crippled from varicose veins; he saw him operated upon in a hospital in the southern part of the state, the operation consisting of the tying and excision of numerous pieces of vein. He was very much surprised to see the same man later in perfect health, and with complete restoration of the usefulness of his extremities.

Dr. Hoegh, in concluding the discussion, wished to emphasize that he did not think that Trendelenburg's operation was called for in all cases of varicose veins of the extremities. He would restrict the operation to those cases in which he could demonstrate this faulty return circulation, and would object to its performance in ordinary light cases. Since Dr. Sweetser refused to believe in the centrifugal circulation in the saphenous vein, he wanted to know how he would explain the fact that the blood immediately distended the vein when pressure was taken off. Trendelenburg had invented a special name for this centrifugal circulation; he called it the private circulation of the thigh, but the name had not been mentioned, as it did not seem a very expressive or well chosen one. This much would have to be admitted, that there must be great obstacle to the emptying of the lower veins, if the blood current in the great saphenous, instead of being centripetal, was centrifugal. In this connection he would also call Dr. Stewart's attention to the fact that the shutting off of the saphenous vein only apparently diminished the outlet for the venous circulation in these cases, as the blood did not find any other exit than through the femoral vein, and in the cases where Trendelenburg's so-called private circulation was established, the blood returning downwards through the saphenous opening would ultimately have to find its way back through the femoral vein, thereby encroaching upon the space left for the normal circulation from the extremity..

The statement had been made that Trendelenburg's operation could have no beneficial effect upon the cases where the deper veins were those principally affected. It all depended upon the question whether the internal saphenous vein was dilated so that it would allow the faulty so-called private circulation. In that case Trendelenburg's operation would certainly be beneficial, for, as before said, the femoral vein would not only have to take care of the returning blood from the lower extremity, but also of the blood that would flow down from the iliac and find its way into the femoral through the deeper branches.

Dr. Sweetser had asked about bathing, when patients were wearing the glue bandage. They could of course not bathe the leg that was bandaged, but might easily contrive some way of bathing the rest of the body.

Dr. Stewart had asked whether the external saphenous was varicose in the case reported; it was so, along with all its visible tributaries, to a high degree. As to the operation spoken of by Dr. Stewart, it was well known to the pro-

fession. It consists in a circular incision, down to the fascia; just as if the operator were going to perform circular amputation of the leg. All visible veins are tied. The operation comes naturally under the head of the operations that cut off the superficial venous circulation, and compel the blood to seek the deeper vessels. It has undoubtedly its use in proper cases.

In regard to the use of a truss, as mentioned by Dr. Sweetser, it must be said that if that ever did good, it must be only so far as it prevents the faulty circulation. That is done much more effectively by the operation. The whole tendency of modern surgery is to get rid of trusses and other permanent bandages where it can be done.

It was highly interesting to learn from Dr. Gillette that varicose veins may even produce flat foot. The doctor's treatment for varicose veins was certainly very good, but it must be denied that it had any advantage over Unna's glue bandage.

Dr. McDavitt's experience with the man who was restored to usefulness after prolonged disability was very valuable. The tendency of the paper read was not to deny the efficiency of the older well-established operations, but to indicate a new one for cases that were rebellious.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

Regular monthly meeting, Dec. 27, 1897, at the Society's rooms in the Lowry Arcade, St. Paul. President J. W. Chamberlin in the chair.

Dr. A. J. Gillette showed a child three years of age with multiple congenital enchondromata.

Dr. Cornelius Williams read a paper entitled

EXPERT TESTIMONY.

See page 49.

Mr. T. D. O'Brien, a guest of the Society, opened the discussion. He said:

The expert testimony which medical witnesses are called upon to give in courts has given rise to a great many vexations, both to the medical and legal profession. The legal profession, and perhaps it would be true to say most people outside of the medical profession, are inclined to believe that medical witnesses of high standing can be obtained to express an opinion upon either side of a disputed question in consideration of a large fee. It is not true that this can be done because of corruption upon the part of the medical witnesses, but it undoubtedly is true that the manner in which the services of a witness are required, and the fact that such witness becomes more or less of a partisan favoring the side securing his services, gives some color to it.

For instance, in a personal injury case, the side denying injury insists that its experts reject all subjective symptoms; therefore, in a case which presents no objective symptoms the witness testifying upon the presumption that the subjective symptoms claimed do not in fact exist, is justified in giving his opinion that no injury was sustained. Upon the contrary, the expert in support of the theory of an injury is assured of the truth of the statements made by the patient. Being surrounded with the counsel and friends of the patient, his sympathies incline towards the patient's side of the controversy, which leads him to believe in the truth of his statements. He, therefore, assumes that the subjective symptoms do in fact exist, and so testifies that, in his opinion, an injury does exist.

Another criticism upon the testimony of medical experts which I think may be fairly made, is, that they are sometimes inclined to conceal the truth. That is, they take advantage of their technical knowledge and evade giving an answer which would be disastrous to the side of the controversy upon which they are called.

At the same time medical experts claim to be entirely impartial. They insist that they act simply as the friend of justice, giving to the court and jury technical information which they (the court and jury) are not supposed to possess. This, of course, is the ideal position for a medical expert to occupy; but he does not occupy it when he takes advantage of the ignorance of medicine upon the part of a lawyer to evade a direct answer to a question which may be put to him.

It is undoubtedly true that a perfectly honest witness is often prevented from stating the truth as he desires by the bungling of lawyers. It is one of the glories of the legal profession that its members will find constant practical use for technical knowledge in almost every science, but until all lawyers become educated to the ideal we will find a large number who do not possess such knowledge.

I think it often happens that the medical expert leaves the witness stand very much dissatisfid with himself, when, as a matter of fact, his testimony has been full, clear and entirely satisfactory to the court and jury. A practicing physician, when upon the stand in a court of justice, no matter how often he may testify, is still in what, to him, must be a strange atmosphere. He is the autocrat of the sick room. The blessed dispenser of health whose coming is hailed by every member of the family, and their regard and affection for him is shown in their attitude of respectful adulation. In court, however, he is in the vortex of a fierce struggle. Men's property, sometimes their lives, are in jeopardy. The advocate in the heat of this strug-

gle, under a severe nervous strain, is apt to pay as little regard to the niceties of professional etiquette as the surgeon is to the blood stains he creates when performing a difficult surgical operation.

Again, while the witness often feels that he has not demonstrated his theory to his own satisfaction, or as he would be permitted to demonstrate it before a board of physicians, he overlooks the fact that the officers of the court may have arrived at the kernel of the matter, or may have received an answer upon a certain point and care nothing for the various considerations which have governed the witness in coming to his conclusion.

In the matter of fees it seems to me there is the same difficulty in arriving at any satisfactory solution. If a law should be passed providing for the payment of large fees, none but the prominent members of the profession would be sought as experts. If a small fee were provided, the services of the brilliant and successful physician could not be obtained. It is better, therefore, to let the natural order of things adjust this matter also. The law suit of sufficient magnitude to justify the expenditure of large sums of money will command the attention of the older and more experienced physician, while the young members of the profession will be given an opportunity of trying their teeth upon the smaller cases; and we must all remember that young lawyers and young doctors must have a chance to practice upon some one.

My conclusion is that this whole subject must be regulated by the good sense and honesty of the medical and legal profession, and principally by the members of the medical profession. I do not believe that evils such as I have mentioned can be cured by legislative acts; neither do I believe they can be cured by attempting to substitute anything for our present jury system. With all its inconsistencies, and after all has been said and done, the jury system still stands as the very best method of determining disputes between man and man upon questions of fact. I believe that there is no doubt that there are fewer miscarriages of justice from the erroneous verdicts of juries than there are from errors of law committed by trial judges, thus necessitating a re-trial of the action.

(To be continued.)

MISCELLANY.

Snegisjeff reports a case of echinococcus which he removed from the spleen by the following method. The tumor was the size of a man's head. The incision was in the linea alba. A jet of steam was directed on to the larger convexity of the spleen, and the subadjacent tissue at once became white and dry. A completely bloodless incision, seven inches long, was then made through the splenic tissue, and the tumor peeled from its surroundings by the finger. Whenever hemorrhage, which was sometimes violent, occurred, it ceased at once when steam was directed on to it, and in this way the whole tumor was shelled out. It was then decided to suture the incision in the spleen except at one spot, to pack the cavity with iodoform gauze, to make a small incision in the left hypochondrium, and to stitch the spleen to the abdominal walls. In doing this the splenic artery was pricked and bled profusely, but hemorrhage ceased on the application of steam. Unfortunately the artery became thrombosed, and after ligaturing it the spleen was completely removed. The patient recovered. Although owing to the accident to the splenic artery the intended treatment could not be carried out in this case, yet it is evident that an echinococcus or other tumor could be removed from any organ, instead of extirpating the latter. The steam is best superheated to 150 to 200 degrees C. In the case of soft organs the steam must not be at high pressure, and must always be directed obliquely on to the bleeding spot. In operations on bones the steam must be at high pressure.—British Med. Journal.

Whenever sodium salicylate cannot be given in articular rheumatism, because of grave toxic symptoms, use hypodermic injections of pilocarpine, one-sixth grain.

NOTES.

DR. H. McI. MORTON.

Dr. Morton desires to inform the profession of the removal of his office from the Dayton Building to suite 315, New York Life Building, where he will continue to devote himself exclusively to ophthalmology and otology.

Minneapolis, February, 1898.

TONGALINE BY ABSORPTION.

The disturbing effects of internal medication upon an irritable stomach and sensitive nerves in the treatment of rheumatism, neuralgia, grippe, gout, sciatica and lumbago, can be avoided by the local application of Tongaline Liquid, which has ben attended with remarkable beneficial results.

The affected parts should be sponged with alcohol, rubbed with Tongaline Liquid and hot

cloths saturated with the remedy held in apposition by oiled silk bandages, then heat applied to facilitate absorption.

In like manner Tongaline Liquid may be given externally by the aid of electricity.

ORTHOFORM.

Finhorn and Heinz (Munch. Med. Woch., August 24, 1897), first of all discuss the chemical constitution of cocaine and its relatives, as in this way they have been able to prepare the new local anæsthetic orthoform. This body is a white, light powder, without smell or taste. It is only partially soluble in water, but enough is brought into solution to make the fluid anæsthetic. It combines with hydrocloric acid, forming a very soluble body, but this hydrochlorate cannot always be used, as it irritates some mucous membranes, such as the conjunctiva. Anæsthesia is only induced in the places with which the orthoform comes in contact. The authors describe a case in which a 10 per cent ointment was applied to a painful wound on the outer side of the chest. Orthoform acts as an anæsthetic wherever it comes into contact with nerves, and thus it has no effect when applied to the unbroken skin. If it be applied to a burn of the third degree, the anæsthetic effect is remarkable. When compared with boracic acid it was found to be much more efficient. It always allays the pain of ulcers, whether cancerous or other. In one case as much as 50 gm. was sprinkled on a wound within a week, showing that it is quite harmless. It is strongly disinfectant, hindering decomposition and fermentation. Orthoform was also useful in ulceration of the larynx; after some of the powder was blown in the pain was relieved for 24 hours. In gastric ulcer and carcinoma it was also of service, but much less so in chronic gastric catarrh. For external use the free orthoform is the best, but for internal use the soluble acid salt. Further observation is needed in regard to its action on the mucous membranes of the mouth, nose and naso-pharynx. As it is non-poisonous it can be applied to large ulcerating surfaces. Internally 1½ to 1 gm. of the hydrochlorate has been given several times in the day. Orthoform is stable if non-hygroscopic, and can be added to other remedies.

ORIGINAL ARTICLES.

THE DISSIPATION OF ALBUMEN AND CASTS FROM THE URINE BY THE ADMINISTRATION OF METHYLENE BLUE.*

By H. A. Tomlinson, M. D.,

Superintendent St. Peter State Hospital,

St. Peter, Minn.

There have appeared from time to time during the past two years reports with regard to the effect of methylene blue upon the kidneys, both as a means of testing the permeability of the renal structure and as a method of treating nephritis.

It is stated that when methylene blue is given hypodermatically it will appear in the urine in from half an hour to an hour after injection; while in my own experience it takes from one and a half to three hours for the color to appear in the urine of apparently sound individuals where the drug is given by the mouth.

Drs. Archard and Castaigne (Le Bulletin Medical, June 23, 1897) have applied the methylene blue test to fifty new cases. In twenty-two cases in which the elimination of the blue was normal, five autopsies have shown the integrity of the kidney. Out of twenty-eight cases in which there was a tardy elimination, lesions of the kidney were found at thirteen autopsies. In this series three cases of urinary infection with suppurative pyelo-nephritis were found, one case of interstitial nephritis with con-

*Read before the Minnesota Valley Medical Association, December 7, 1897.

URINALYSIS.

E. E.	Aug. 1, '97.	Sept. 6, '97.	Sept. 13, '97.	Sept. 22, '97.	Oct. 7, '97.	Nov. 19, '97.
Specific gravity	1.011	1.025	1.020	1.021	1.022	
Color	Light yellow opaque	Yellow opaque	Blue opaque	Blue opaque	Yellow opaque	Yellow opaque
Reaction	Acid	Alkaline	Acid	Acid	Acid	Acid
Sediment	¼ per cent.	1 per cent.	4 per cent.	2 per cent.	1 per cent.	5 per cent.
Uric acid	.026 per cent.				.02 per cent.	
Urea	.9 per cent.	2 per cent.	2 per cent.	1.8 per cent.	2 per cent.	2.4 per cent.
Phosphates		Excess				
Phosphoric acid	.095 per cent.				1 per cent.	
Albumen	Marked trace	5 per cent.				Trace
Peptone						
Sugar						
Indican	3.5 per cent.	Increased	Much increased	Slightly increased	Slightly increased	
Sulphates						
Ether sulphuric acid						
Biliary coloring matter	Present					Present
Acetone	Slightly increased				Slightly increased	
Mucus						
Chlorides	0.46 per cent.					
	Granular casts and granular epithelium.	Ammonium urate crystals. Colon bacillus.	Much granular renal epithelium. Leucocytes.	Granular casts. Numerous leucocytes.		Excess of renal epithelium. Numerous leucocytes.

URINALYSIS.

B. J.	Aug. 25, '97.	Aug. 30, '97.	Sept. 13, '97.	Sept. 22, '97.	Oct. 4, '97.	Nov. 18, '97.
Specific gravity	1.016	1.009	1.014	1.016	1.010	1.017
Color	Lemon yellow	Light yellow	Yellow opaque	Yellow	Yellow opaque	Yellow translucent
Reaction	Alkaline	Neutral	Acid	Acid	Acid	Acid
Sediment	½ per cent.	Trace	1.5 per cent.	1 per cent.	1.5 per cent.	.25 per cent.
Uric acid	.02 per cent.					
Urea	1 per cent.	.8 per cent.	2 per cent.	1.4 per cent.	1 per cent.	2.2 per cent.
Phosphates	Excess	Diminished	No excess	No excess	No excess	14 per cent.
Phosphoric acid						
Albumen					Trace	
Peptone						
Sugar						
Indican	Increased	2.5 per cent.				2.5 per cent.
Sulphates						1 per cent.
Ether sulphuric acid						
Biliary coloring matter		Present			Present	
Mucus						
Chlorides						17 per cent.
		Few leucocytes.	Numerous leucocytes.	Granular and leucocyte casts.	Numerous leucocytes and much granular epithelium.	

siderable atrophy of the kidneys, cystic kidneys in a cardiac case without albuminuria, and a kidney presenting evidence of obstruction in a woman who died of uræmia. It was also noted in the case of circumscribed lesions of the kidney that the permeability remains normal if the remainder of the parenchyma is healthy. Variations of permeability and a return to the normal after recovery from acute disease, as in pneumonia, were noted; again, after finding a normal permeability in a tuberculous patient, there was a sudden delay and albuminuria and anasarca would come on. This test is useful not only in medicine, but also in surgery, as it indicates whether the kidneys perform their functions in a normal manner. Dr. Schwartz reports a case of hydronephrosis in which catheterism permitted the urine from each kidney to be examined separately. The blue did not pass from the hydronephrotic side, and it flowed with some delay from the supposedly healthy side, from which side, too, the urine showed traces of albumen. Epithelial nephritis gives rise to an excessive permeability, according to Dr. Bard, who has not demonstrated this statement anatomically; however, the facts agree with the experiments of the authors. Relative to the variations liable to occur from a defective absorption of the blue, it is found that even considerable œdema does not prevent the normal appearance of the blue in the urine and does not detract from the results of the test.*

Our own cases, six in number, show the following results:

E. E. Woman. Admitted August 26, 1893, Age 38. Physical condition good at the time of admission and no record of illness during residence, until last winter. Jan. 24, 1897, went to bed with elevation of temperature and vomiting. Some pulmonary disturbance was found but no tubercle bacilli. Recovered in a short time. Was again put to bed Aug. 30, 1897. This time there was some albumen in the urine with granular epithelium and casts. From this time on the urine indicated the progress of an interstitial nephritis. The following records show the condition of the urine before and the changes during the administration of the methylene blue.

*Medical Record, October 16, 1897. Page 554.

URINALYSIS.

C. D.	Sept. 11, '97.	Sept. 28, '97.	Oct. 7, '97.	Nov. 19, '97.
Specific gravity	1.026	1.013	1.022	1.018
Color	Dark yellow	Dark blue	Greenish opaque	Yellow opaque
Reaction	Acid	Acid	Acid	Acid
Sediment	1 per cent.	2 per cent.	1.5 per cent.	.5 per cent.
Uric acid	.04 per cent.		.027 per cent.	
Urea	2.1 per cent.	2 per cent.	1.50 per cent.	1.8 per cent.
Phosphates				6 per cent.
Phosphoric acid	.05 per cent.			
Albumen	.5 per cent.			
Peptone				
Sugar				
Indican			Increased	2 per cent.
Sulphates				1.25 per cent.
Ether sulphuric acid				
Biliary coloring matter				
Mucus				Increased
Chlorides				11.5 per cent.
	Hyaline casts and numerous leucocytes.	Numerous leucocytes.	Leucocytes. Granular casts.	Granular casts. Leucocytes.

B. J. Woman. Admitted Aug. 15, 1891. Age 43 years. There is no record of physical illness at the time of admission to the hospital or during her residence, until during the past year she has grown more stupid and became emaciated and weak. Aug. 24, 1897, she was put to bed on account of weakness and loss of appetite. Her extremities were œdematous, she complained of pain in the left side and there was cough and expectoration. Pneumococci and staphylococci were present but no tubercle bacilli. The urine at this time showed only reduction in elimination of urea. Excess of phosphates and increase of indican. The clinical picture was that of progressive mental and physical degeneration with impairment of renal function. The following is the record of the urinalysis and the result of the administration of methylene blue. There was some improvement in the general condition of the patient, but she is still weak and emaciated, confined to bed and will probably not live much longer.

C. D. Woman. Admitted Sept. 30, 1892. 45 years old. No record of physical disease during the first two years of her residence, but there was progressive arterio-sclerosis of probable syphilitic origin. During the past year she has grown more feeble. An indolent ulcer appeared on the left leg, the extremities became œdematous and she was put to bed Sept. 8, 1897. The following is a record of the urinalysis and the result of the administration of the methylene blue. This patient is still in bed and is steadily failing.

H. P. Male. Admitted April 16, 1879. Age 43 years. No record of physical illness until March, 1895, when he had an abscess in the right axilla. The pus contained tubercle bacilli. This abscess did not heal for a month and left the patient feeble and emaciated. He grew better during the summer but was never as active as before his illness. In the spring of 1897, albumen was discovered in the urine with granular and hyaline casts and diminished excretion of urea. Marked arterio-sclerosis was present. In August he was given methylene blue and the following record shows the result.

Dec. 3, he had a severe uræmic convulsion followed by profound dyspnœa and suppression of urine. He has rallied slightly but will probably not live much longer.

H. D. Male. Age 65 years. Admitted March

URINALYSIS.

C. H. P.	Aug. 12, '97.	Aug. 17, '97.	Aug. 24, '97.	Sept. 1, '97.	Sept. 29, '97.	Oct. 11, '97.
Specific gravity	1.023	1.015	1.022	1.017	1.014	1.012
Color	Yellowish red	Yellow transparent	Bluish	Bluish translucent	Dark blue	Light yellow clear
Reaction	Acid	Acid	Acid	Acid	Acid	Acid
Sediment	.25 per cent.	Trace		Trace	0.25 per cent.	
Uric acid	.047 per cent.		0.018 per cent.	.0137 per cent.		Diminished
Urea	0.1 per cent.	1.1 per cent.	1.2 per cent.	1.3 per cent.	1.6 per cent.	0.9 per cent.
Phosphates	Diminished	Normal	Normal			Normal
Phosphoric acid				0.08 per cent.		
Albumen	1.10 per cent.	Trace	1 per cent.	0.65 per cent.		Marked trace
Peptone	Present					Trace
Sugar						
Indican	3 per cent.	Normal				Normal
Sulphates						
Ether sulphuric acid						
Biliary coloring matter	Indications					
Mucus						
Chlorides	0.7 per cent.	0.75 per cent.		0.43 per cent.		
	Hyaline and granular casts. Leucocytes.	Granular epithelium	Hyaline casts.	A few leucocytes.	Crystals calcium oxolate.	

7, 1896, in fair physical condition, weighing 143 lbs. Arterio- sclerosis. Heart's action irregular and intermittent. No murmurs detected. His urine contained 5 per cent albumen. Nothing detected microscopically. His appetite remained good and he increased in weight up to about July 1, 1896, when he weighed 165 lbs. From this date his weight gradually diminshed and appetite was not good. There was nothing of marked interest in his condition with the exception of diminished appetite and loss of weight up to July 25, 1897, when he was put to bed with a slight œdema of the lower extremities, and mitral murmur detected and temperature of 102.8°. Arteries very much sclerosed. Weighed 130 lbs. Urine was examined and was found to contain hyaline and granular casts and albumen. The greater part of his life from this date to the time of his death was spent in bed, and the administration of methylene blue began. The following is the condition of the urine during its use.

He died Nov. 12, 1897, of uræmia.

S. B. H. Male. Age 51 years. Admitted June 24, 1897. Was not well nourished, weighing 130 lbs. His heart appeared to be normal in size. No murmurs detected. Second pulmonary sound accentuated. Arteries were sclerosed. His appetite was poor and digestion impaired. His urine showed no albumen nor casts. He was put upon tonic which resulted in an improvement of appetite and increase of weight. About July 1, 1897, his appetite became impaired. A mitral murmur was detected and a progressive diminution of weight ensued up to the time of writing when he weighs 103 lbs.

His urine was examined again July 24, and hyaline and granular casts and albumen detected. The administration of methylene blue was then begun and the following is the result.

A case is reported by Lemoine,* where under the influence of methylene blue the albumen in the urine was reduced from six grammes to 20 grains in the 24 hours, in ten days. Another case of Bright's disease died of some intercurrent disease, and at the autopsy the kidneys were found enormously enlarged, contained cysts and gave evidence of sclerotic change. The methy-

*Therapeutic Gazette, October 15, 1897. Page 680.

URINALYSIS.

H. D.	Aug. 10, '97.	Sept. 3, '97.	Sept. 29, '97.	Oct. 11, '97.	Oct. 29, '97.	Nov. 2, '97.	Nov. 12, '97.
Specific gravity	1.022	1.014	.1015	1.020	1.019	1.012	1.015
Color	Yellow translucent	Yellow opaque	Dark blue	Yellow clear	Reddish yellow opaque	Light yellow opaque	Yellow translucent
Reaction	Acid	Acid	Acid	Acid	Acid	Acid	Acid
Sediment	.25 per cent.	.25 per cent.	0.5 per cent.	1 per cent.	0.5 per cent.	0 5 per cent.	0.5 per cent.
Uric acid	0.033 per cent.			Crystals	0.045 per cent	0.014 per cent.	.05875 p.cent.
Urea	2.6 per cent.	1.4 per cent.	2.4 per cent.	2 per cent.	1.6 per cent.	1.2 per cent.	1.8 per cent.
Phosphates	Slightly excess	Normal		Normal	2.5 per cent.	6 per cent.	5 per cent.
Phosphoric acid							
Albumen	0.45 per cent.	.45 per cent.		2 per cent.	0.40 per cent.	0.30 per cent.	0.15 per cent.
Peptone				Present			
Sugar							
Indican	3 per cent.			Increased	3 per cent.	3 per cent.	2 per cent.
Sulphates	Diminished				1 per cent.	.75 per cent.	0.75 per cent.
Ether sulphuric acid					.117 per cent.	0.2 per cent.	
Biliary coloring matter	Present				Present	Present	
Mucus						Normal	
Chlorides	0.74 per cent.				0.59 per cent.	5 per cent.	8 per cent.
	Hyaline and granular casts. Leucocytes.	Hyaline and granular casts.	Triple phosphates. Hyaline casts.	Uric acid crystals.	Amorphous uric acid.	Crystals triple phosphates.	Hyaline and granular casts. Leucocytes.

lene blue had stained the secreting portion of the kidney but the fibrous portions had retained their natural color. He believes that this is an indication of the fact that methylene blue exerts a selective influence upon the secreting epithelium of the kidneys.

Our own experience has been analogous, although we have had no opportunity to verify the conclusion with regard to the selective affinity of methylene blue for the epithelial structure of the kidney, by post mortem examination, but the fact that the drug is recommended for use in the treatment of cancer, cystitis, gonorrhœa, etc., would indicate its special affinity for functional tissue. The cases recorded, with one, or possibly two exceptions, have not been materially benefited, while in the two cases in which marked improvement has taken place, the nephritis was either parenchmatous or mixed. Besides other cases not included in this report indicate that the greatest improvement is to be expected in parenchymatous nephritis. In all cases however in which the methylene blue has been administered, there has been marked improvement in the general condition of the patient, with increase in the amount of urine, and in the amount of urea while the general symptoms of renal inadequacy are very much ameliorated or disappear altogether. Our experience would indicate that the usefulness of this drug will be greatest as a means of testing the permeability of the kidney and in the treatment of the early stages of chronic Bright's disease, while it ought to be invaluable in those cases of renal inadequacy occuring as concomitants of acute infectious and contagious disease, where the probable selective effect of the drug upon the functional epithelium of the tubules and glomeruli, stimulating the excretory function, will prevent the accumulation of toxic material in the blood.

URINALYSIS.

S. B. H.	July 24, '97.	Aug. 6, '97.	Aug. 27, '97.	Oct. 1, '97.	Oct. 20, '97.
Specific gravity	1.029	1.004	1.014	1.009	1.014
Color	Yellow opaque	Greenish yellow	Bluish	Light yellow;clear	Yellow clear
Reaction	Acid	Acid	Acid	Acid	Acid
Sediment	.5 per cent.	Trace	.5 per cent.	None	Trace
Uric acid			0.016 per cent.	0.0023 per cent.	
Urea	2.7 per cent.	.6 per cent.	2 per cent.	1 per cent.	2.3 per cent.
Phosphates	Slight excess	Diminished		Normal	Normal
Phosphoric acid					
Albumen	Trace				
Peptone				Present	
Sugar					
Indican	3.5 per cent.			Increased	
Sulphates					
Ether sulphuric acid					
Biliary coloring matter					
Mucus					
Chlorides.					
	Hyaline and granular casts. Fat globules.				

MEDICINE OF THE CHINESE.

By Franklin Staples, M. D.

Winona, Minn.

Whatever has pertained to the civilization of the Chinese has been characterized by a fixedness not known in the history of any other people. Dr. Baas aptly likens the Mongolians, in this their dominant characteristic, to what exists in the inorganic world, which, once crystalized, remains forever unchanged, with no inherent tendency either to grow or decay; while the civilization of other peoples, those of Indo-Germanic origin, he compares to what is in the organic kingdom, whose existence involves the certainty of changes incident to life. "With the latter, civilizations have sprung up, developed, bloomed and decayed, and finally perished, sometimes together with the peoples themselves." The possibility of such permanence in the habits and in what pertains to the lives of the Chinese is accounted for, in part at least, by the fact that it has ever been the policy of the government of this vast empire to keep itself intellectually and physically free from intermixing with foreign races.

The material constituting the ancient history of different peoples has been transmitted to modern times in different ways. Evidences of the character and culture of the ancient Egyptians appear on remaining monuments in ancient ruins and tombs; the learning of the Greeks has come to us in the ancient Greek literatutre which has been preserved. Neither monuments nor historical literature are found in China, to furnish history much older than the present era. Unreliable and exaggerated traditions are found, which attribute certain scientific works to persons living in the remote past. As illustrative of these, it was given that the Emperor Chin-nung (B. C. 2699), who was the reputed author of a work on medicinal herbs, had discovered in one day no less than seventy different species of poisonous plants, and at the same time others that were antidotes for the poisons of the first seventy. What belonged to ancient Sin, Chin, Sinæ, China or Seres, or to mediæval Cathay, has come down in living generations of many centuries, and exists with little change of form and substance among the Chinese of modern times. In quite recent times some innovations have been made by foreigners, and natives educated abroad have carried the results of their learning to home institutions; but for the most part the present

tense may be used in describing customs which, so far as known, have always existed.

Something is known of a Chinese literature which is extensive, and is believed by some to have had its beginning as early as the sixth century. In the ninth century the Chinese invented printing by means of engraved blocks. With these, used as stamps, fine printing was done on silk and other textile material and on paper.* Movable type made of clay are mentioned as used by the Chinese from the middle of the eleventh century. In the British Museum is a Corean book printed with movable type in 1337. The Coreans are said to have printed by means of copper type at the beginning of the fifteenth century.

EARLY MEDICAL WORKS AND AUTHORS.

The name Hwang-te appears as that of a Chinese emperor (B. C. 2637), who was given as the author of a treatise on medicine. There is much uncertainty concerning the time of the origin of this work, and its authorship has been doubted, in the belief that it is probably a forgery of about the beginning of the present era.† This medical work, which is entitled "Nuy-kin" or "Neiszin," is still extant; and the fact that it still serves as a medical guide, is noticed as evidence of the unchangeableness and lack of proggress in medicine, as in all things pertaining to human life and affairs in China.

Before the time of Hwang-te appears the mythical character, Chin-Nung, who is given as the good emperor who invented agriculture. The tradition is that he tested all the drugs upon his own person, before allowing them to be used upon others, and that he succeeded in prolonging his own life and the lives of his people by introducing healthful articles of food.

Che-Hwang-te (B. C. 213), who was a powerful emperor, the builder of the great Chinese wall, is noted as the burner of books. This he did in opposition to the schoolmen of the nation, who opposed him in his administration of the government. But the writings of Hwang-te, and perhaps others, escaped destruction at this time.

We have some account of the following as among early Chinese works and authors: Nang-King wrote on medicine in the second century. Wang-Shu in the third century wrote ten large volumes on the pulse. Nothing farther is noted until A. D. 1247, when Sung-Tse is accredited with a work on forensic medicine. This work is said to contain valuable observations on the symptoms of drowning; and the fame of its mysterious wisdom is so great that the very sight of it is said to be enough to make poisoners, etc., confess their crimes. About A. D. 1500 appeared the Chinese cyclopædia of medicine, edited by Prince Chu-Su, of the Ming dynasty, and comprising 160 volumes, 770 treatises and 22,000 prescriptions. It was mainly from this that a committee of 800 physicans, under the presidency of Li-Shi-Chin, compiled in 1596 the famous Pun-Tsaou-Kang-mu, or Chinese materia medica, in fifty-two volumes, describing 1890 drugs. Medical literature then degenerated for a time into shorter monographs, of which only that on acupuncture (seven volumes with copious illustrations) may be noticed. In 1740 appeared a work of ninety volumes on the pulse, with a short notice of the circulation of air in the body and the treatment of fractures; and about the same time the Pentasco, or chief Chinese work on botany was published (Withington).

A LACK OF FOUNDATION.

It has been observed that, while the history of medicine since the time of Hippocrates shows that among the people of the advancing nations of the world, the effort has been to establish the science of medicine upon the real foundation of anatomy and physiology, yet among the Chinese and other kindred people, such a basis for the science of medicine has been mostly unknown. With no foundation for medicine other than the demon theory of disease which has obtained among the Mongolians to the present time, no development of science has been possible. As said by Dunglison, "A variety of insurmountable obstacles have opposed themselves to the Chinese ever attaining the same degree of civilization that the European arrives at with so much comparative facility. The first is situated in his organization, whether natural or acquired by education; the second, in the frightful despotism which hangs over his head; the third, in the foolish vanity which has induced him to believe that China is the country of wisdom and the sciences."*

The religion of a people never fails to have a great part in the formation of its civilization, and in affecting its advancement in science and art. Kung-foo-tseu (Latin, Confucius), born in China (B. C. 551), became a great philosopher. He was a man of great virtue and gained an influence over the whole Chinese people. The great endeavor of Confucius was to remedy the political and moral evils of his time. He had many disciples, who recorded the savings and maxims of their master, and the sacred books of the Chinese have preserved these precepts for the benefit of the people through all the centuries to the present time. He was successful in causing reforms, and no name stands above that of Confucius in the nation's annals. Confucianism has been called the chief religion of the Chinese. It was more an education in what pertained to material life, and in many things tended to ele-

*James Freeman Clark, in "Confucius and the Chinese."

†Baas' History of Medicine. Handerson. P. 51.

*History of Medicine, Dunglison, p. 71.

vate the people; but the great reformer hoped for more than has been realized in the progress of his people. Their religion has been an agnosticism, and an adherence to the worship of ancestors. Shamanism and Taoism, terms applied to Chinese religion, are but other names for sorcery. Taoism is a religion of great antiquity. It involves an implicit faith in sorcery. The Chinese have degenerated Buddhism, the religion originally an Indian product, into these religions, which have continued to the present time.* In the mythology of the Chinese, as in that of ancient Egypt and Greece, distinguished physicians are made to appear as deities; but in China such a distinction seems to be allowed principally to emperors and high officials in government. The Emperor Fuh-Hi is mentioned as the first physician and the deity of doctors. Kuang Tai Uong is the God of surgery. Ling Na is the goddess of midwifery and children. If children are sick, Taoist priests are employed in her temples to perform a ceremony for their cure. Ioh Nong Cha Su is the God of medicine and drugs. Druggists rather than physician are his worshippers.*

The veneration for ancestors and the value put upon the body after death, lead the Chinese to take great pains in the care and burial of their dead. The motive here and the object in view which prompts this care and regard for the dead, differs from that which in ancient Egypt caused the careful preservation of the dead body. The custom there resulted mainly from the belief that the same body was to be the future tenement of the soul. The time of mourning for a parent in China is three years, and for other relations in proportion. No expense is spared "in rendering the dead comfortable." "Every good Chinaman regularly every day burns incense before the tablet to his father's memory. There is in every respectable house the hall of ancestors, where the pedigree of the family, with the grandsire at the head, is inscribed, and here their descendants repair in spring to perform their devotions; then they go to the graves and present rich offerings of all kind of victuals, candies, flowers and incense; of which, however, they afterwards scruple not to make use themselves. The sums expended are often enormous; "but every one considers it his sacred duty, and no one murmurs. At stated times, when the body has mouldered into dust, they go and wash the bones and place them in an urn, which is generally preserved above ground.†

The element of superstition which appears in most things pertaining to Chinese life is illustrated by the following: The belief prevails that the infliction of demons on sufferers is by act of the Gods, as punishment for sins committed as well in a supposed previous existence as in the present life. The following case among others is given by Berode: Archdeacon Grey found a grievously afflicted monk in a monastery in the White Cloud mountains. He desired to take him to the Canton Medical Missionary Hospital; but the abbot took him aside and begged him not to do so, as the sufferer had doubtless in a former state of existence been guilty of some heinous crime, for which the Gods were then making him pay the well merited penalty.†

*Berdoe, from Prof. Teile, in art. "Religions," Enc. Brit.

†From Doolittle's Social Life of the Chinese.

WITHOUT GOVERNMENT CONTROL.

Concerning the governmental control, or rather the want of it in the practice of medicine in China, it is observed that the ancient and unlimited liberty of engaging in this business has not only rendered any educational standard for admission impossible, but has made the number of practitioners enormous. The following, however, as given by a German writer, while it suggests governmental interference, has a more important bearing upon what is the character of the profession. "The doctors," so runs the edict of 1882, "have the bad habit of not visiting their patients before one o'clock in the afternoon. Some of them even smoke opium and drink tea until late in the evening. These are abuses which the government will under no circumstances permit. Doctors must visit their patients at all times; if necessary, they must visit them several times a day. They must think more about them and less about their fees. The public and all officicals are notified that a physician who does not come at once when called, can claim only half of his fees and expenses. If you physicians put off your calls, you manifest your godlessness and sin against yourselves."

THE OUTLOOK.

Had it not been for the exclusiveness of the Chinese from all other peoples in the long past, not only more might have been known concerning what science and art may have existed among them at any time, but it is possible that more might have been added to the credit side of their account. It is known that the Chinese have long had some knowledge of the circulation of the blood, although their anatomy of the circulation is very imperfect. It is sad that the Chinese inoculated for small pox in the ninth century; yet it is known that they have goddesses of small pox and measles that are extremely popular divinities. "Should it thunder after the pustules of small pox have appeared, a drum is beaten to prevent them breaking. On the fourteenth day ceremonies are performed before the goddess, to induce her to cause the pustules to dry up." ‡

Acupuncture is largely practiced, and this is

*Karl F. A. Gutslaff, from "China Opened."

†From "Doctoring in China," National Review, May, 1889.

‡Berdoe, from Doolittle's Social Life of the Chinese.

supplemented by the use of the hot iron. Many varieties of the pulse are given, each having its own significance. The wily physician will impress his patient by sitting an hour with his fingers moving in a rythmic way over the region of the pulsating artery, and then pretend to make his diagnosis and prognosis from what he has discovered. But this practice is as good and worthy as some procedures accepted and allowed in the light of English and American civilization of the present time, where persons who ought to be better educated have been known to send a lock of hair to a distant quack, or to submit to the laying on of hands and other so-called "faith-cure" performances.

A recent writer (Dr. Park) sums up concerning Chinese medicine and surgery as follows: "It is related that one of the ancient Chinese emperors directed the dead bodies of criminals to be opened; but this is questionable, since it is certain that they have the most profound ignorance of rudimentary anatomy, and glaring errors abound in their system. Being thus replete with errors, and possessing no anatomical knowledge, their surgery was of the most barbarous type. Nn one dared attempt a bloody operation; the reduction of hernia was unknown; a cataract was regarded as beyond their resources, and even venesection was never practiced. On the other hand, they employed cups, and acupuncture, fomentations, plasters of all kinds, lotions and baths. The moxa, or red-hot button was in constant use, and they had their magnetizers, who appear to have been convulsionists. For a long time there existed at Pekin an Imperial School of Medicine; but now there is no such organization, nor any regulation for the privilege of practicing medicine or surgery since 1792. At least until lately the country and the cities were infested with quacks, who dealt out poison and death with impunity. They practiced most murderous methods in the place of the principles of midwifery. Only since the civilized missionaries have penterated their country has there been any improvement in this condition of affairs."

"China opened" is an expression only recently in any true way. Native Chinese students of both sexes are now in different educational institutions in this and other countries. An educated Chinese lady having received her medical degree from the Woman's Medical College of Philadelphia, has recently become the physician to a high official in the Chinese home government. How rapidly the education of native teachers in foreign institutions. the building of hospitals, the work of missionary teachers and the extension of railroads through the great interior of China, will elevate the general standard of scientific medicine and practice, is a question commanding attention at the present time.

THE RELATIONSHIP BETWEEN THE INFECTIOUS DISEASE OF ANIMALS AND OF MEN*

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It is within comparatively few years that people have become interested in sanitation. It is the physician who is the leader in sanitary matters. This appears reasonable when we consider that he it is who knows best the cause of disease. It must be admitted that in taking a leading part in sanitation, the physician is certainly displaying a spirit of unselfishness, for good sanitary methods mean a diminution in the amount of sickness, and of course, less business for the doctor.

The careful study of infectious diseases among animals, from the sanitary standpoint, is of more recent date than that of infectious diseases among men. Here there is an incentive to sanitation that is not generally recognized in dealing with the lives of human beings, viz: the financial side. We may talk of the cash value of a human life when discussing the ravages of infectious diseases, but this counts for little in actual practice. If a person dies from an infectious disease, the sentimental side, not the financial side, is uppermost. Providence is charged up with the death, be the negligence and culpability of man ever so pronounced.

When an infectious disease breaks out among animals, every one is interested. Dollars and cents are involved. Sentimentality and Providence are not thought of. The authorities for the suppression of such diseases are at once telegraphed to, and if the animals die, the authorities are held responsible for the fact, no matter how negligent the owner may have been in any attempt to exclude the disease from his premises.

We start out, then, with these two prominent points before us, in considering the infectious diseases of men and of animals, viz: the sentimental and the financial side.

We often find the responsibilities of caring for the infectious diseases of men and animals resting upon two distinct bodies, the State Boards of Health and a State Veterinarian. This is a mistake. The State Board of Health should have control of all infectious diseases. The suppression of infectious diseases of animals involves two interests, (1) protection of human life, (2) protection of property. Protection of human life comes into line because so many of

*Read before the Minnesota Valley Medical Society, December 7, 1897.

the diseases of animals are communicable to man. Who, for instance, should be most interested in suppressing bovine tuberculosis, a State Veterinarian of a State Board of Health? Naturally, the latter. The former is interested only in the financial side; the latter is interested in both the financial and the humanitarian side. It is interested, not only in the lives of the cattle, but in the products obtainable from such—milk, butter, meat, for these products may readily convey the disease to human beings.

Fortunately, the State Board of Health of Minnesota has control of both the infectious diseases of men and of animals. I will say fortunately with one proviso, viz: if the legislators can be convinced of the fact and give the proper financial support. At present the infectious diseases of animals are a millstone around the neck of the State Board of Health, for without financial aid, it is impossible to do much toward the suppression of these diseases, and the ill repute coming upon the Board for not doing that which is absolutely beyond its power, with the limited means at its control, injures the Board in all its undertakings. What can a paltry few thousand dollars do when it comes to dealing with a disease that is annually destroying millions of dollars worth of stock? Yet such are the ravages of hog cholera alone in this state now. One million dollars can be charged up against it this year, and this is but one disease that we have to deal with.

Let us take up, seriatim, the diseases that may be transmitted from animals to men. First and foremost should be considered tuberculosis. There can be no question as to the possibility of human beings becoming infected from cattle. The farmer who cares for the cows, the child or adult who uses the milk or the products of the milk, those who eat the meat of tuberculosis animals, all are in danger. What is being done to arrest this danger? Very little at present. Unfortunately, the symptoms of bovine tuberculosis are not so marked and distressing as they are in the tuberculous human being, otherwise the Humane Societies would come to our aid and insist upon the tubercular animal being relieved from its misery. A cow may be unfit for use as a milker or as a meat producer, and yet be used as both. We have in tuberculin a very positive test as to the existence of bovine tuberculosis. Supposing we are so fortunate as to live in a neighborhood where the milk supply is protected by compelling the dairymen to have their cows subjected to the tuberculin test? What happens then? Certain cows fail to pass the test, and nine times out of ten some one eats the meat of such condemned animals. The owner objects to the financial loss of his cow that would follow if it were to be killed and its carcass condemned, so he sells it to some butcher. Some one will say at once that in order to protect the people such an animal should be paid for by the state and then destroyed. The reply to this must be in the negative. It has been tried in states and found impracticable. Bovine tuberculosis has obtained such a footing that it would be an unbearable expense to the state to pay for such condemned animals. Beside, if such paternalism were established to protect the farmer against loss through bovine tuberculosis, where would it end? He would also seek protection against every other infectious disease among animals that it might be desirable to suppress, such as glanders, hog cholera, rabies, anthrax, chicken cholera, etc., etc. The state would soon go into bankruptcy with such a policy. Supposing such a policy were adopted, however, and the state paid the bills for all these losses, where, may I ask, does the state get the money to pay with? From the taxpayers. Thus the careful farmer would pay into the state treasury his hard earned money in order that some careless farmer might receive compensation for the fruits of his carelessness.

There is another reason beyond that of preventing infection of human beings for suppressing tuberculosis among cattle, viz: the interests of the owner. Suppose that a herd of cattle was tested with tuberculin and certain ones were found infected, which way would the interests of the owner lead him? To keep the infected cattle or to destroy them? Most certainly to destroy them, otherwise the whole herd would be liable to infection and the ultimate loss would be much greater than that which would follow the immediate destruction of the few.

Again, who is responsible for the existence of tuberculosis in a herd of cattle? Undoubtedly the owner, although unintentionally. He buys cows without determining before the purchase the presence or absence of tuberculosis. He buys cows that have been inbred for the sake of producing good milkers, although in so doing a low grade of vitality follows. He keeps the cattle too closely housed in poorly ventilated or unventilated sheds or barns. In many cases he feeds his cows so as to produce the greatest amount of milk, regardless of consequence to their health. Who should suffer the consequences for such carelessness? Undoubtedly the one who has brought about the condition. Take such a position and the farmer and the dairyman will soon appreciate that it is to his interests, in every way, to exclude tuberculosis from his herd.

What should be done, then, to protect all parties from tuberculosis?

First. The farmer or the dairyman, in his own interest, should see to it that he has no tubercular cattle on his place to begin with, and that in buying he selects only healthy animals. The tuberculin test should be his safeguard. It is put within his reach. He should see that the

health of his cattle is well cared for by proper housing, feeding and breeding. All this is in his own interest.

Second. The consumer should insist on knowing that the products furnished him for consumption are free from tubercular infection. This can be accomplished so far as milk, cheese and butter are concerned, by the periodic testing of cows with tuberculin. It can be accomplished, so far as the meat supply is concerned, by insisting that all animals shall be slaughtered only where careful inspection is possible, both before and after slaughter.

At present we hear a great deal about actinomycocis, or lumpy jaw. This is an infectious disease, dependent upon a peculiar fungus known as the ray fungus. There is less danger of communicating this disease to mankind through the use of the meat of infected animals than there is of conveying in food products bovine tuberculosis. Animals suffering from this disease may be slaughtered for food when the disease is local. The disease is a progressive one, however, attended by necrosis of tissue and suppuration. The disease, which generally begins in the alveolar processes of the jaw, spreads by gradual infection of adjoining parts. When infection becomes general, the meat of the animal is unfit for food. The fact that there is a stage in the disease when the meat becomes unfit for food should be a barrier against the slaughter of cattle suffering from this disease for food, unless careful inspection, both ante and post mortem, is enforced. Of course, from the cattle raiser's point of view, actinomycosis should be treated as any other infectious disease of animals. The keeping of such cattle cannot be too severely condemned. If such a practice were permitted, actinomycosis would undoubtedly soon become quite general in any neighborhood. I am sorry to say there are unscrupulous feeders in this state (and I presume in other states) who make it a business to buy up the so-called lumpy jaw cattle and put them upon the market. The profit for such feeders and for the butchers killing such animals is naturally greater than with the meat from healthy animals. Such a practice should not be tolerated, either by the farmers of the neighborhood or by the meat consumers. It is an outrage upon a community to bring this infectious disease into its midst. It is an outrage upon the meat consumers to have such meat sold to them as food. All forces should join hands in exterminating lumpy jaw cattle from the state. While the danger of conveying this disease by the consumption of such meat as food is slight, it should be borne in mind that those who handle lumpy jaw cattle run a certain risk of infection.

Another important disease communicable from animals to man is trichinosis. We do not give this enough thought. Trichinosis is probably not a frequent disease among hogs in this state that are fed in the open. We should expect it in hogs that are fed on offal at slaughter houses. It has been shown by investigation that a very large proportion of the rats about slaughter houses are infected with trichinosis. These rats, as opportunity presents itself, are killed, and their carcasses are thrown to the hogs that are kept at such a place. It is but reasonable to expect that hogs eating the carcasses of such rats shall become infected with trichinosis. Hogs fed on offal from slaughter houses do not furnish us as fine a quality of meat as the grain-fed hog, and this fact, together with the danger from trichinosis, should be sufficient reason for prohibiting piggeries in connection with slaughter houses, or the feeding of offal from slaughter houses to hogs.

At the January meeting of the Minnesota State Board of Health, by unanimous vote, action was taken as follows: After March 1, 1898, no hogs shall be permitted to be kept or fed at or about slaughter houses, nor shall the offal from slaughter houses be fed to hogs. These rules are established:

1. To prevent the transmission of certain infectious diseases from animals to man.
2. To prevent the spread of certain infectious diseases among animals.
3. To avoid the creation of a public nuisance.

Glanders is looked upon generally as a disease affecting horses, and yet we all know, not only that it is communicable to man, but that it is a most fatal disease in man. We have in mallein as absolute a means of protecting ourselves against harboring this disease as we have in tuberculin against tuberculosis. I have heard it stated by a competent veterinarian that should he test a horse with mallein and secure the characteristic reaction, and afterwards find no evidence of glanders at a post mortem, he would consider himself, rather than the mallein, at fault. That the disease was present, to a very slight degree possibly, although the point of infection had been overlooked in the post mortem. On the other hand, it is stated that if the clinical symptoms resembled very closely those of glanders and the mallein test gave no reaction, one would be justified in pronouncing the case not one of glanders. The mallein test will show the existence of glanders long before there are any clinical symptoms.

Rabies is a disease that most certainly demands our attention. There are those who say it does not exist. They are in the wrong. It is far more common among animals than we are disposed to admit. Self protection calls for a more careful study of this disease in our efforts to guard against its becoming epidemic.

But one other disease demands our consideration at present, viz: hog cholera. It is probable

that there is no danger of communicating this disease to man. We have not the same dual interest in its suppression, then, that we have in the suppression of bovine tuberculosis, of glanders and of rabies. However, while the direct communication is not probable, the meat of an infected animal is not safe for food, and precautions should be taken against the possible sale of such meat.

A fellow feeling should be sufficient to make us use every means in our power to impress upon every one the infectiousness of this disease and the methods to be used to prevent the spread of the infection. We have here a disease as fatal to the hog as Asiatic cholera is to mankind. The same means that we would take to prevent the spread of Asiatic cholera, viz: through quarantine and disinfection, with proper feeding, will protect the farmer against the ravages of hog cholera.

Why have I presented this paper to a body of medical men? Because medical men are interested in the suppression of disease. Because intelligent medical men can thoroughly appreciate the character of infectious diseases and the most successful methods for combating them. It is to the medical man that we must look for the greatest influence in suppressing the infectious diseases of animals as well as of man. His interests in the healthfulness of his clients should be sufficient reason for his using every effort in his power to prevent the spread of infectious diseases of animals to man. His interests in the financial success of those about him in the country districts should be sufficient reason for using the knowledge at his command to aid in the control and suppression of infectious diseases among animals.

RECENT PROGRESS IN GYNÆCOLOGY.

By John H. Rishmiller, M. D.,
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A NEW INCISION IN CÆSAREAN SECTION.

Heinrich Fritsch (Cent. für Gyn. No. 20, 1897) reports that Prof. Kaufmann made an autopsy for him on a woman who had lately died in pregnancy where the uterus was opened by a transverse incision above the fundus so as to obtain an undisturbed view of the internal os. The author was impressed with the easy extraction of the fœtus, the smallness of the incision and the unlikehood of injuring the tubes, which induced him to try this transverse incision in his next living subject.

The abdominal incision can be made higher, so that the umbicilus occupies the center of the wound. This lessens the danger of hernia and gives a better opportunity for the assistant to compress the vessels. Likewise, the undisturbed position of the parts favors the flow of blood outwards and not to reach the abdominal cavity. In his case no intraabdominal sponging was required and the cleanliness of the operation was surprising. Some hemorrhage was encountered on account of the incision having reached the placenta, but as soon as the placental sinuses had emptied themselves the bleeding ceased without requiring the compression of the cervix. After he had detached the placenta the legs came then into reach and the child was easily extracted. The contraction of both the fundus and wound was rapid. The incision, about 8 cm. in length, required but seven sutures, and then all hemorrhage was controlled. A point to be borne in mind is that the transverse incision at the fundus is parallel to the vessels, consequently the sutures will ligate the vessels. On the other hand, in the longitudinal incision the sutures are parallel with the vessels, and hemorrhage is not so easily controlled as in the method above described. The operation lasted 21 minutes, which briefness of time speaks likewise for its easy performance. Patient made an uneventful recovery.

REMARKS ON URETERO-ABDOMINAL FISTULA.

Dr. Seiffart (Cent. für Gyn. No. 21, 1897,) performed a cœliotomy for a cystic neoplasm in the right ligamentum latum about the size of a man's head, which reached above to a line midway between the symphysis and umbilicus, below to the bottom of the pelvis, and benind it so firmly adhered to the promontory that it was enucleated with difficulty. In the enucleation two cords, about as thick as a finger, obstructed the procedure and seemed to originate from the right posterior part of the pelvis and ran diagonally towards the left. On severing the outermost cord between ligatures it was found to consist of tumor wall and peritoneum, but on removing the other cord in the same manner, about 4 cm. long, the latter was found, to his astonishment, to contain a piece of the ureter. After completing the removal of the tumor, the operator approximated the severed ends as closely as possible (the hiatus being about 2 cm.) and sutured them in this position into the abdominal wound.

The bladder at first contained but a small quantity of turbid urine, most being passed through the fistula. The author intended to do a nephrectomy afterwards, but in the meantime kept the lower part of the ureter open by daily catherization. He observed that the hiatus between the two openings of the ureter in the cœliotomy wound gradually decreased, until about four months after the operation they formed a single outlet. With this gradual approximation of the severed ends of the ureter in the abdominal wound the quantity of urine in the bladder increased, while less and less passed through the fistula. He then closed the fistula with adhesive

plaster, and eight days later, to his delight, found the fistulous opening closed so that no urine passed. The patient has been under observation for the past three months. The abdominal covering over this former fistulous opening is very thin, permitting the intestines to be felt through it. Cystoscopic examination shows that the urine passes normally into the bladder, but the examiner has detected a slight fundibuliform sinus at the insersion of the ureter into the bladder, which is evidently due to a retraction of the ureter.

A NEW CASE OF HÆMATOMA LIGAMENTI ROTUNDI UTERI.

J. Schramm (Cent. für Gyn. No. 45, 1896) reports this unique case of hæmatoma of the right round ligament in an unmarried woman, 35 years of age, who presented a good family history and always enjoyed good health. Her present ailment dated back seven months, when she sat down suddenly in the dark upon a long knob of a water-closet cover, from which she received a severe blow over the right inguinal region. A week later she noticed a swelling the size of a nut, which gradually increased and caused her much pain in walking. Examination revealed in the right inguinal region a tumor the size of a hen's egg, which rested on the horizontal ramus of the pubes and could but slightly be displaced. The growth was of firm consistency and the overlying skin was not adherent. It was unaffected by coughing or pressure, was flat on percussion and gave the impression of originating from a pedicle in the inguinal canal. Vaginal examination negative. The differential diagnosis lay between a cystoma and a fibroma of the round ligament. The uniform consistency with no distinct fluctuation favored the latter, but it seemed hardly reasonable that from trauma a fibroma could have developed in so brief a time.

The writer enucleated the neoplasm and observed the tumor had a pedicle about the thickness of a lead pencil, which extended for two inches into the inguinal canal. Patient made an uneventful recovery. The tumor was opened and found to contain dark bloody fluid. The walls of the cyst were about 2 cm. thick, their inner surface smooth and presented no communication between the cyst and the pedicle. The inner layer of the cyst wall could be easily stripped off, and was found microscopically to be made up of smooth, long and flat cells. The next layer was principally composed of smooth muscular fibres, connective tissue and many small vessels between their fasces.

Gottschalk has reported a similar case, and regards a central gap in the pedicle as characteristic, while in the author's case not only one but many such gaps were found, formed by wide meshes of connective tissue. He concludes in maintaining that such a hæmatoma is not a neoplasm, but an ectasis of a cord which had been originally hollow, and whose cavity had not been normally obliterated. The hollow cavity receiving a continuous blood supply from the injured vessels, and thereby gradually enlarges as an hæmatoma.

SUCCESSFUL CŒLIOTOMY FOR ECTOPIC GESTATION WITH A LIVING CHILD.

Adolf Reismann (Cent. fur Gyn. No 1, 1896) promptly reports a case of this nature that had previously been delivered of two normal pregnancies. During the third month of her present gestation she developed severe paroxysmal pains in the right iliac region with syncope. She first came under the author's observation during her ninth month of pregnancy, when he found her in marked labor.

Examination revealed a tripartite growth, the central portion was on the left side, rising above the umbilicus as large as a child's head, and showed intermittent contractions. To the left of this was a second enlargement. The third portion filled the right half of the abdomen up to the ribs and exhibited feeble intermittent contractions. The fœtal heart sound was audible in the left side and on a level with the umbilicus. A bulging mass filled the posterior half of the pelvis. The uterus was diagnosed to be the median contractile tumor. The conclusions were: First, pregnancy; second, the uterus not involved with the tumor; third, the fœtus situated in the tumor and not in the uterus. This was, then, a case of abdominal pregnancy.

Cœliotomy was performed and the gestation sac was found behind the uterus. The right half was covered by the right broad ligament; the left half by peritoneal bands which extended to the fundus uteri, and posteriorly it was limited by the sacrum and vertebral column.

The fruit sac was opened and a living child extracted. It occupied an oblique position with the head wedged between the vertebral column and uterus, with the breech to the right and upwards. The placenta and membranes were separated and removed. Profuse hemorrhage was encountered from the posterior uterine wall, which necessitated the extirpation of the uterus and adnexa. Gauze drainage was established through the vagina, and the abdominal wound closed in toto. Patient rallied promptly. Her convalescence was protracted on account of a thrombotic process in her left leg which confined her to bed until the thirty-fourth day.

The child had paralysis from cerebral spastic hemiplegia, due to the compression of the skull in its cramped abdominal position. All the limbs were distorted and contracted, and the patient made very slight improvement and gained but little in weight while in the hospital.

Dayton Building.

Northwestern Lancet.

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A DEFECTIVE QUARANTINE.

A few weeks ago one of the minor weekly papers of St. Paul contained a vigorous protest because a leper was exhibited before the Ramsey County Medical Society at one of the regular meetings in the Society's rooms. The newspaper article greatly exaggerated the risk from this exposure and contained many absurd statements, as is inevitable whenever a lay newspaper attempts to discuss medical matters; none the less was there a good foundation for the protest, and people have a right to complain when they learn that there has been moving about in their midst a victim of that loathsome disease, leprosy, a disease strictly quarantined in other parts of the world.

Medical men well know that although leprosy is undoubtedly a communicable disease, due to a well recognized germ, the actual danger from their contact with a case is so small that it amounts to almost nothing. But it must be remembered that the smallness of this danger is due partly to the fact that they are medical men and know just wherein the danger of contagion lies and how it may be avoided. It is almost an unheard of thing for physicians or nurses to contract the disease through attendance on its victims. The lepers at Tracardie, in New Brunswick, have been nursed for forty years by Sisters of Charity, not one of whom has ever contracted the disease. Although communicable, leprosy is transmitted in much the same way that syphilis is, through the same kind of contact. Morrow says that the disease is practically always communicated through sexual intercourse, but there are no constant and visible lesions of the sexual organs to account for the contagion. That the disease has sometimes been transmitted through vaccination is highly probable. But abundant instances of a single leper living in closest intimacy for years with the rest of a family with no second case appearing shows how limited must be the methods of contagion.

To make a clinic of a leper is entirely proper. Physicians must constantly run greater risks than that in the study and practice of their profession, and they are the only ones who run any risk in the case, since the chance that leprosy could be conveyed to a third person is not worth considering. What is objectionable is that a leper should be allowed to roam about at large, traveling in public conveyances, stopping perhaps at an hotel or boarding house, and using towels and drinking vessels in common with other people. The risk is slight, but where such a loathsome and hopeless disease as leprosy is concerned even slight risks to the general public should be avoided. It is true that there are many syphilitics at large endangering those with whom they come into contact in much the same way, but this does not excuse the lack of quarantine upon the leper, although it may be an argument in favor of quarantining the syphilitic, a precaution which may actually be adopted at no distant day.

There are many weak points in the carrying out of quarantine in diseases where the law requires the isolation of the patient. Some physicians, to their discredit, allow themselves to be persuaded not to report cases of infectious disease when it is represented that considerable pecuniary loss would follow, as where a quaran-

tinable disease breaks out in a boarding house. In a recent instance of this kind the nature of the first case was not discovered until a second case in the house led to an investigation. The doctor's gain by obliging the family at such a time will be more than balanced by his loss of standing in their regard as a physician who does not do his duty to the public.

A very reprehensible practice, one that must serve to disseminate disease widely, is the use of public conveyances to transport cases of contagious disease. It is a common practice in St. Paul, if a patient with diphtheria, scarlet fever or other contagious disease is to be carried to the hospital, to use a hack for the purpose. Indeed, this is the only kind of vehicle that is available, to judge from the recent experience of a mother who, wishing to convey a child sick with scarlet fever to the City Hospital, applied at the City Physician's office for the ambulance, and was refused on the ground that to use that vehicle for a contagious case would expose its future occupants to the disease. When the mother asked how she should move the child she was advised to take a hack! Could anything be more glaringly absurd? It may be that the ambulance cannot be thoroughly disinfected, but at least the attempt could be made under intelligent supervision, and such disinfection, with proper precautions in the handling of the patient, would reduce to a minimum the danger that any contagion would be left behind. At least the risk to the public would be infinitely small compared to what would be incurred in a hack, with its stuffed cushions ready to catch and retain the germs, and effectual disinfection neither probable nor possible.

There are other flaws in the armor that is interposed between the public and disease, some for which the doctor is responsible and others beyond his control. In excuse for the imperfections of the system it may be said that all forms of quarantine do not meet with popular approval, and that the precautions taken are likely to be effective just so far as they are supported by public opinion. Perhaps the physician's best work would be to educate the people to an interest in all forms of quarantine, so that they will demand and submit to the rigorous measures in all contagious diseases which can now be carried out only against small-pox, cholera and yellow fever.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

BURNSIDE FOSTER, M. D., SECRETARY.

Regular monthly meeting, Dec. 27, 1897, at the Society's rooms in the Lowry Arcade, St. Paul. President J. W. Chamberlin in the chair.

REPORT CONTINUED FROM FEBRUARY 1, ISSUE.

Dr. Arthur Sweeney said that, in his opinion, the trouble with expert testimony was that the necessities of law prevented the full expression of medical opinion. A doctor who swears to "tell the truth, the whole truth and nothing but the truth" is not permitted to tell the truth nor the whole truth, but only such portion of the truth as the lawyer finds to suit his purposes. The average personal injury suit is a speculation for the lawyer, who usually contracts with the claimant for one-half of the gross receipts of the trial. This in law is known as champerty, a proceeding which, in most states, is regarded as disreputable, and in England is forbidden. The attitude of the lawyer toward the case is one of a mercenary nature, and all his efforts in the suit are directed toward a pecuniary end rather than toward the pursuit of justice. Truth is an abstraction which he admires, but is not to be used too freely in the trial of a law suit. The doctor who is summoned for the plaintiff is asked his opinion on a hypothetical case based upon the plaintiff's evidence, which he must assume to be true, although he may believe it to be otherwise, and the result of his examination. This statement of facts is so uniformly favorable to the plaintiff that no other than an affirmative answer can be given. Then comes the doctor summoned for the defense, who is shown the other side of the shield, and a totally different state of facts, and his opinion must necessarily be the reverse of that previously expressed. Under these circumstances, so little understood, even by the medical profession, it is not to be wondered at that expert testimony appears to be shaded according to the color of the respective sides of the case. In fact it is not true. The facts may be different, but the opinion based upon the facts is nearly always logical and honest. It is true, as Mr. O'Brien asserts, that it is possible to get experts on any side of a case, but it is equally true that one can just as easily get a lawyer to quote good law for the plaintiff and another to quote equally good law for the defendant. The paradox is more apparent than real. As a rule, lawyers seek only that testimony which is favorable to their side of the case. In the celebrated Prendergast trial, the five eminent alienists who examined the prisoner for the state agreed that he was an irresponsible lunatic,

and were told that their services were not wanted. The county attorney then searched the highways and byways until he found men who knew nothing of insanity, and were willing to swear the unfortunate man's life away. In the Cronan trial it became necessary to befuddle the minds of the jury as to the value of expert testimony for the state, and a witness was put on the stand who testified that it was perfectly possible, owing to the dependent position of the body in the catch basin, for the contents of the stomach to run into the skull cavity through the foramen magnum. Physicians are made to serve the mercenary ends of lawyers, and are defiled by such service.

The appointment of a board of experts by the courts has been suggested as a remedy, but the plan is not feasible, for the reason that the judges are not the proper ones to decide as to the fitness of physicians for such service. Who will examine the examiners? It appears to me that the only hope of improvement lies in the education of the legal profession to a proper and fair use of medical knowledge, and incidentally to a little more of honesty and rectitude in the trial of cases.

Dr. Haldor Snévé: I have listened with great pleasure to the paper of the evening, and the discussion of the gentlemen who have preceded me. I cannot fully agree with the essayist of the evening as to the remedy he proposes for the alleviation of the lot of the medical expert, and if I understand the remarks of Mr. O'Brien, he is content to leave things as they are, and ascribe the lot of the expert and his disagreement merely to the frailty of human nature.

Dr. Sweeney has told us that it is all the lawyer's fault, because we are not allowed to answer fully and explain ourselves, and the remedy he proposes is to educate the lawyers, but I wish to say, gentlemen, that not only must we educate the lawyers, but we must educate the doctors as well.

A short time ago I acted as expert in a case of the everlasting railway spine at Des Moines, Iowa. Five doctors testified that a man was irreparably injured and would never recover. Five others, equally eminent, testified that the man was simply nervous and anxious because of litigation. Now, it was not the fault of the lawyers that such diversity of opinion existed; it was the fault of the doctors.

Let us look at the history of expert testimony. In England the first experts were called by the court simply to elucidate technical knowledge, the "special knowledge" occurring in the case, for the instruction of the court and jury. This is the proper function of the expert. Some time later, in a contested election case where an expert functionated, a lawyer offered to prove that the first expert was wrong by another expert; the court granted the petition, and from that time on we have had the warring of experts.

Be it noted, doctors are not the only experts that disagree. In a legal contest, the experts under the present system, merely serve as bishops in the legal game of chess. The true function of the experts should be that of referee, interpreter and counsellor in a case, to the court and jury. There should be a distinction always between experts and medical witnesses who testify to facts.

The fall of the expert dates from the day that they were called by the lawyers on opposite sides. We have had nearly two hundred years of the present system of expert testimony. It is a failure! The expert is now held up to the derision of the law and laity. The bill introduced at the meeting of the last legislature was killed in its infancy by lawyers. It provided for a board of experts to be chosen by the court. I opposed it, with Doctor Sweeney, when it came before the Medical Society, because no provision was made as to who should be chosen as experts. We would all like to be experts, provided that the compensation could be arranged so that we could get from $10 to $100 per day, but we are not all qualified to be experts, and under the law proposed, the judge could choose anybody as an expert, be he hydropath, homœopath, osteopath, or any other path.

My idea is that the Medical Society should here, as in all other questions, represent medical opinion officially to the world, and the Medical Society could prepare a list of all of those fitted to testify on certain subjects, and, in fact all who desired to qualify as experts, from which number a judge could choose his boards as necessary. In my opinion it is folly to talk of doctors not having prejudices or being partisans, when called on opposite sides of the case. It is a compliment to a man's ability to be called as an expert, and it is human nature to wish to return as far as possible the favor, and how about "contingent fees?"

We should all, united as one man, work to influence legislation to restore the dignity and usefulness of the medical expert, and do it by passing a law providing for the choosing of a board of experts for each case by the judges, the list to choose from being furnished by our various societies.

Dr. E. J. Abbott: I cannot agree with Mr. O'Brien's enthusiastic defense of the jury system, which seems to me in many cases, a fraud. If I were a criminal and anxious for acquittal I should prefer a jury trial, but in a case where I was seeking justice, I should prefer a trial before a fair-minded judge. In regard to the Dixon case, I think Dr. Dixon might have saved much trouble and expense, had he answered as I did some years ago, when, having been called as a

witness of fact, I was asked a hypothetical question calling for an expert opinion. I refused to answer on the ground that I had not received expert remuneration. The judge insisted that I must answer the question, so I said: "I do not know." In regard to admitting textbook evidence, I do not think it wise, as we all know that by properly selecting quotations from textbooks we can prove almost anything. An expert is often compelled to give an answer to a question asked in such a manner that his answer does not express by any means his honest opinion of the case, and then he is not permitted to explain, often, too, a properly conducted cross-examination would bring out the truth if the lawyer would ask the proper questions.

I believe that if the opposing lawyers would get together and select their experts by mutual agreement there would result a much more satisfactory state of things than now exists.

Dr. Hawkins: It seems to me that Dr. Snévé's suggestion leaves out the general practitioners and makes only specialists available as experts. I believe that physicians are perfectly honest when they go into court, but that the hypothetical questions asked by lawyers very often fail to bring out the truth. I do not think lawyers are competent to examine physicians properly concerning technical matters, but that physicians should be selected for this purpose. In this way I believe the true facts could be brought out.

Dr. Williams in closing, expressed his gratification at the interest shown in his paper, but regretted that Mr. O'Brien had evaded the legal points involved in the Dixon case, which he had hoped to hear more freely discussed.

Dr. H. J. O'Brien read a paper entitled

SURGICAL ANÆSTHESIA.

Dr. Renz opened the discussion. He said:

I believe Dr. O'Brien is in error when he states that ether is preferred in Vienna, for according to my recollection chloroform is much more commonly used there. One danger not mentioned in the paper must be borne in mind concerning the use of ether, and that is the danger of ether pneumonia, which may occur within a day or two. I heartily agree with Dr. O'Brien that the anæsthetic should always be administered by an experienced anæsthetizer, and not trusted to a student or to an inexperienced man, as a majority of the accidents of anæsthesia are due to its method of administration.

Dr. Boeckman: In all my surgical experience I have used chloroform only. I, therefore, have no practical knowledge of ether anæsthesia. I tried for a time operating without any anæsthetic, and performed many major operations without anæsthesia. I gave this up because the shock which followed the operations was so severe. I am not afraid of chloroform, and have never lost a patient from its use. Most of the deaths from chloroform have been in minor operations, and have occurred almost at the beginning of the anæsthesia. I always like to be present to superintend the giving of the chloroform, and to quiet and encourage the patient, which I consider an important matter, and I often precede the anæsthetic by giving a little morphia. The chloroform should be given slowly, allowing plenty of air to be inhaled with it, and deep anæsthesia should be avoided. I think a hospital interne can be very soon instructed so that he can safely give the anæsthetic. I watch carefully the pupil reflexes, the pulse and the respiration. I think many of the deaths from shock are the result rather of the chloroform than of the operation, although this is a hard matter to prove. The temperature of the patient must be kept up during the operation.

Dr. Rothrock: I should like to call attention to the importance of making a careful examination of the patient before giving any anæsthetic. Especially examine the urine in patients over fifty. For if there is present a contracted kidney, this is a source of danger. Recent experiments have shown that chloroform is even more apt to be dangerous to the kidney than ether. Chloroform may also produce pneumonia, especially if there is a lighted gas jet in the room during its administration. I believe pneumonia is only produced in persons whose lungs are not sound; that it does not occur in perfectly healthy patients. I am convinced that if a careful physical examination were made in every case before giving any anæsthetic we should be able to ward off many of the dangers.

Dr. E. J. Abbott: I believe that no subject in surgery is more neglected than anæsthesia, and it is a common fact that almost anybody is considered competent to give the anæsthetic. This is entirely wrong, as it should always be administered by an experienced anæsthetizer, who should give his entire attention to the condition of the patient, and not attempt to watch the operation. I remember Prof. Goodell, of Philadelphia, saying some years ago that the prejudice against chloroform was so strong in that city that if a surgeon lost a patient through its use he would be liable to an indictment for manslaughter. I have seen three cases of death from ether, but never one from chloroform.

Dr. Williams called attention to the unnecessary and dangerous habit of young anæsthetizers of continually touching the cornea of the patient with the finger. This is senseless and should not be permitted.

Dr. R. A. Wheaton: I believe the importance of watching the patient until he has recovered from the anæsthetic, has not been spoken of. This should never be forgotten, as if a patient vomits while semi-conscious there is great danger of suffocation.

Dr. C. A. Wheaton: This subject is of great interest to me, and I am glad to have heard this paper and discussion. I am sorry that Dr. O'Brien did not go more into the detail of the method of administering the anæsthetic. I have always insisted that the surgeon should superintend its administration in every case, as the responsibility rests entirely with him. It is impossible to instruct a student to give an anæsthetic, except by actual experience, and if the young anæsthetizer is carefully watched and instructed during the operation, the safety of the patient will not be jeopardized. It must be remembered that many of the deaths following anæsthetization are not due to the anæsthetic, but to some pathological condition already existing in the patient.

Dr. Foster showed some photographs of the first operation performed under ether anæsthesia at the Massachusetts General Hospital in Boston, and of Dr. Morton and Dr. J. C. Warren, who made the operation.

Dr. O'Brien in closing said he desired to thank those who had discussed the paper, and that he had little to add. He desired again to insist upon the importance of having experienced anæsthetizers attached to the staff of every hospital.

MISCELLANY.

THE FEBRUARY MAGAZINES.

Harper's opens with Part I of a series on Social Pictorial Satire, by George du Maurier, which seems to us one of the most delightful sketches that ever came from this writer's gifted pen and pencil. It is on the life and works of John Leech, who made the English nation laugh for over a score of years as it never laughed before or since, and whose funeral in Westminster Abbey brought forth a demonstration of love and respect perhaps never before seen in England. The description of such a noble life could not have fallen into better hands, nor could any magazine in the world have better reproduced the illustrations that are so essential a part of the text.

"Projects for an Isthmian Canal," "Some Americans from Oversea," "Undercurrents of Political Life in India," with short stories and the usual departments, make up an issue that is worthy the name that this magazine bears.

The Atlantic opens with one of the most important of recent contributions to a subject of universal interest—the subject of the evils of government. In an article entitled "The Capture of Government by Commercialism," Mr. John J. Chapman shows clearly the growth of many of the great evils we are wont to ascribe to party politics, but which have nothing to do with parties. He shows what made the ward, the county, and the state "boss," and why we have no national "boss"; and he also shows why the days of all bosses are numbered. Mr. Chapman is a vigorous writer, and his article is one of great interest and value.

Of no less interest is John Stephens Durnham's article on "The Labor Unions and the Negro," which points out another evil and injustice done by the masses against men in a hopeless minority.

Col. Higginson continues his delightful reminiscences, and Russell Sturgis gives valuable suggestions on "The Proper Education of an Architect."

Poetry, short stories and the usual departments complete a number of marked excellence.

Lippincott publishes few better short stories, because few better are written, than those contributed to its pages by Captain Charles King, who gives, in this number, a sketch of army life in the southwest, in a story entitled "A Trooper Galahad." "Some Literary Shrines in Manhattan," by Theodore F. Wolfe, is continued, and Mr. Wolfe is handling a delightful subject in a delightful manner. He seems to have forgotten none of the island's celebrities, and of each one he gives entertaining reminiscences. "How They Live on Nothing a Year," by Dora E. W. Spratt, tells of the men who live by their wits, and who are known by various names—such as fakir, adventurer, swindler, etc. It is a highly amusing contribution.

The Review of Reviews deals with the leading topics of the day in a most satisfactory manner. For instance, it shows why autonomy in Cuba is a failure; it gives all the Cuban news to date; it summarizes the news pertaining to Hawaii and China; and it goes rapidly, but exhaustively, over the minor subjects of general interest.

Walter Wellman summarizes, in a readable article, the past achievements and future plans of Arctic exploration; and Mr. Stead deals in a similar manner with "British Problems and Politics for 1898."

The number is full of good things.

The Outlook, with its illustrated monthly magazine number, takes very high rank among the periodicals for the busy man and for the home. Its editorials and its departments furnish a fresh and vigorous treatment of subjects of general interest, and its contributions, covering a very wide range, are most excellent reading. Such writers as Charles Dudley Warner, Edward Everett Hale and Dr. Lyman Abbott are among the constant contributors who have made the Outlook the foremost family paper of America. The February magazine number contains illustrated articles on "Lincoln as a Literary Man," by Hamilton W. Mabie;" James Russell Lowell and His Friends," by Edward Everett Hale; "Toronto: A Municipal Study," by W. D. Gregory; "President Dole and the Hawaiian Question," by the Hon. L. A. Thurston; a sermon by Lyman Abbott, in the series above mentioned, and other excellent articles.

NOTES.

HYDROZONE AND GLYCOZONE IN THE TREATMENT OF GONORRHŒA.

Prescott, Arizona, August 16, 1897.

To the Editor of the New York Medical Journal:

Sir—My attention has been attracted to an article published in your journal for July 3, by Dr. J. A. Silverman, of Butte, Montana. The writer states that no antiseptic has been discovered that will destroy the gonococcus without doing injury to the mucous membrane. As I presume that he is open to conviction, I submit to you for publication the following report of three cases which I have successfully treated during the last few months with hydrozone and glycozone, which I consider not only harmless, but the most powerful healing agents that I have ever used in my practice of thirty-five years.

Case I.—A man called on me on June 20, with gonorrhœa of four weeks' duration, with profuse discharge, micturition painful, and an acute burning sensation along the entire urethral tract. Pus sacs had formed in the canal, the meatus was inflamed, and the gonococcus was active, as determined by microscopical examination. I prescribed injections of one part of hydrozone and ten parts of sterilized lukewarm water, an ounce for each injection, four times daily. After two days I reduced the proportion to one part of hydrozone and fifteen parts of lukewarm water, and I directed glycozone mixed with an equal amount of glycerin pure to be injected on his going to bed. The diet was not restricted, but no stimulants were permitted. In two days no gonococcus could be detected. The discharge was lessened, the pain and difficulty in micturition had ceased, and in twelve days the patient was well. Continence was imposed for two weeks. Doses of bromide of potassium and bicarbonate of sodium were administered from time to time in order to make the urine alkaline and quiet the patient.

Case II.—A married man had contracted blenorrhœa from a woman who had the whites. The same treatment was ordered, and with such satisfaction that the woman also was brought for examination and treatment. Result, a cure in each case within three weeks.

Case III.—A man, fifty years old, contracted gonorrhœa from a woman of the town. As the patient lived in the country, twenty miles out, no treatment was given until ten days after infection. Aggravated symptoms of gonorrhœa were present, and there was chordee every night; the patient, to use his own expression, was "plumb wild." The hydrozone injections were ordered, one part to twenty, owing to the great sentitiveness of the urethra and the possibility of orchitis if a stronger injection was used, as there was a slight swelling of the testicles. The glycozone, diluted with equal parts of pure glycerin, was ordered at night. I also gave glycozone internally in medicinal doses, to allay a gastric disturbance due to nervousness. In this case the treatment was continued for twenty-five days. I sent my patient to his cattle ranch happy.

Warren E. Day, M. D.

CONSTIPATION: ITS DANGERS; A HINT IN REGARD TO TREATMENT.

Without doubt the most frequent departure from the normal state of health is found in the alimentary tract, and is commonly known as Constipation.

It occurs in all classes, and is perhaps the most found in the upper classes of humanity, or those of sedentary habit.

This state of affairs may be due to disease, but more frequently it is due to habit, first, and afterwards it becomes, so to speak, the normal condition of many.

Generally speaking, constipation exists when the fæces are retained beyond the usual or normal time, and evacuated with more or less difficulty. It has erroneously been supposed that constipation always signifies a difficult movement of the bowels, but this is not strictly true, as one may have only one movement every other day, and yet the stools may be quite soluble. This condition is, however, not frequent, but it has been seen in the experience of the writer.

When constipation exists we always find either a deficiency in the peristalic movement of

the bowels, increased absorption, motor paralysis of the muscular coats of the bowels, or all of them. The stools are generally of a hard, indurated nature, the evacuations difficult and not as frequent as normally they should be.

Its dangers. The one great danger to be feared in this condition is auto-intoxication. Normally the waste products are regularly and speedily removed from the body. When they are retained we have at once an infective process set up. The retained material furnishes food for the nutrition and multiplication of numerous pathogenic microörganisms, and the eliminative apparatus is confronted with a new poison. When ptomaines are thus set at liberty in the human organism we have at once a retrograde tissue changing process set up, they interfere with the metabolism of the leucocytes and another line of symptoms is set us.

The most prominent among the latter are headache, coated tongue, cold and numb extremities, cardiac irregularity and a general feeling of malaise.

Treatment.—For the alleviation of this trouble it is important that one remembers the great factor that habit plays in this particular. The patient should make an attempt to visit the toilet at regular intervals and make an effort to have an evacuation of the bowels. It is surprising how much can be accomplished in the proper direction by this simple means.

This, however, will not overcome perstaltic inactivity, it will not lessen absorption, and it will not restore a liver that may have been inactive for a long time.

These indications must be met by the medical adviser of the patient and the proper medicines administered.

A drug that meets the requirements in the majority of cases of this kind is Senna, one of the oldest and best known laxatives. It has a mild but potent action on a torpid liver, and causes free and easy evacuations of the bowels. The California Fig Syrup Co. has recognized the value of this drug and has given it the foremost position in their elegant and efficient preparation which they have named Syrup of Figs.

The value of this preparation is most marked when used in the cases of pregnant women and children, as it produces no pain of a griping nature, is easy to take and answers every purpose required of a laxative.

Its palatability is a great factor in its administration to children and even to adults, as there is frequently an idiosyncrasy against drugs of a nauseating character, while its admirable action places it in the foremost ranks as a remedy for the disease under discussion.

J. D. Albright, M. D.,
Jan. 18th, 1898. Pottsville, Pa.

SANMETTO A STANDARD REMEDY IN GENITO-URINARY DISEASES.

I have prescribed Sanmetto in a large number of cases of genito-urinary troubles during the last four years, and with uniformly good success. In prostatic troubles of old men, with difficult micturition, it acts like a charm. In cases of irritable bladder with incontinence of urine I have never met with any remedy that acts so well. I prescribe it frequently, and shall continue to do so, as I look upon it as a standard remedy. J. F. Suydam, M. D.

Alma, Mich.

DIET IN CHRONIC INTESTINAL CATARRH.

An exclusive milk diet should have a trial in every case. Skimmed milk can be taken in larger quantities and with less repulsion, and is, therefore, to be preferred. The exclusive milk diet can be varied with buttermilk, koumiss, or wine-whey; and fruit juices, as orange juice, lime juice or tamarind water please the patient without doing harm. In the case of adults as well as children the milk is made more digestible by diluting it with barley or rice water, or by adding transformed farinaceous food to milk in the form of Mellin's Food and other foods of this class.

From "System of Medicine."
William Pepper, M. D., LL.D.

SANMETTO IN INCONTINENCE OF URINE.

I used Sanmetto in a case of a lady forty years of age who could not retain her urine more than one hour for years. She had been under treatment before, without any remarkable result. I put her on teaspoonful doses of Sanmetto four times daily, and her improvement was very marked, and she is now practically cured. I desire to keep Sanmetto on hand, as there is nothing better to fill its place in such cases.

Fred A. Goedecke, M. D.
Milwaukee, Wis.

ORIGINAL ARTICLES.

A COMPARATIVE ANAYLSIS OF THE WISCONSIN SYSTEM OF CARING FOR THE INSANE.

By R. M. Phelps, M. D.

Assistant Superintendent Rochester State Hospital.

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The Wisconsin system of caring for the insane has received so many advocates in this state during the past year, that an analysis comparative in character seems fitting, and as such, with an attempt to assume a judical attitude, the following is submitted:

1. Cheapness.—Cheapness has been one of the most prominent arguments in favor of the Wisconsin County Asylums in all discussions. To care for patients at $1.75 per week instead of $3.25, and to avoid the building of "palaces," as the larger hospitals are sarcastically designated, constitutes the argument. To this we would reply that the cheapness as shown in current expenses is more largely apparent than real, for while the county asylums show a cost of $1.73 per week, per capita, the State Hospitals of Wisconsin show a cost of $4.00 to $5.00 per capita. A true comparison can therefore be only made by using an average, which calculating as closely as figures given us will allow, and using the reports of the year 1896, shows quite accurately a cost of $2.559* per capita for all the patients in the state. But it is none the less true that in our own state of Minnesota the chronic cases really cost less than $2.00 per capita, and the acute cases more than $4.00 per capita, though because the accounts are not separated the fact is disguised. In this hospital the cost per capita for 1895 was $2.90; for 1896, $3.18. An average would show $3.04 to have been a sum quite "possible" to keep up a so-called first-class furnishing and equipment in a state hospital. The other hospitals in Minnesota show a somewhat higher per capita.

In Minnesota no patients are in poor houses and no patient is refused admission, however crowded the condition may be.

As this per capita is based on an overcrowded population, however, we are willing to accept the $3.25 quoted as a fair "possible" per capita for a large hospital keeping chronic patients, in climates and conditions similar to Wisconsin. It is to be incidentally noted, however, that in a review made two years ago, about thirty hospitals out of some 130 or more in the United States, were found to have a per capita below $3.00 per week, one being below $2.00 per week. The element of "size of population," and the element of "fuel" (because of differing climates) are very variable. Given, however, fuel of equal cost and population of equal size, and the other expenses vary down or up according to the economy or lavishness of the spenders. The per capita of the county asylums could doubtless be very easily matched in a state having large hospitals, by equal furnishings and similar methods. It is not necessarily inherent in the county system. It is inherent in the grade of furnishings and equipment. Attention might be called to a next door neighbor, Elgin, with a per capita of $2.42 in 1894, or Kankakee, with a most widely extended medical equipment, with a per capita of $2.66 in 1896.

Owing to differences in methods of keeping accounts, perfect accuracy of comparison of the two states is difficult. The Wisconsin state hospitals add the produce of their farm to the amounts expended, thus increasing their "comparative" per capita considerably. They, however, deduct any increase in stock on hand of items of current expense as shown by annual inventory, which in 1896 decreased their comparative and actual per capita very much. The two differences nearly balance each other. The counties of Wisconsin, moreover (holding two-thirds of the insane population), like Minnesota, do not charge up the subsistence produced by the farm. But these counties did deduct $6,756.75, received from friends and relatives before computing their per capita. This would make their comparative and actual per capita about $1.77 instead of $1.73. There are no such receipts in Minnesota.

Lastly, most of the clothing needed is requisitioned back to the county and back to the relatives, making the difference between the per capita of the two states still less. Just how much less it is impossible to determine. Mr. Heg assumes that it is quite an important item, even as high as twenty-five cents per week. Other elements of expense compare quite accurately. Assuming fifty cents, however, approximately large enough to cover the difference, it repre-

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* Figures for 1896 are as follows:

County asylums average 2,720 patients, at $1.73 per capita weekly.

Northern Hospital, average 556 patients, at $4.07 per capita weekly.

Mendota Hospital, average 397 patients, at $5.01 per capita weekly.

Milwaukee Hospital, average 345 patients, at $3.79 per capita weekly.

Total number of patients, 4,018; average cost per capita weekly, $2.59.

sents the total of saving for which so much is given up as is designated later in this paper.

There surely is a saving from concentrating large numbers under one plant. Of course this saving in state hospitals does not show as compared with these counties, for out of it all the medical equipment, medical officers, nursing staff, furnishings, amusements and central plant for officers are to be provided.

Incidentally an element of the system in Wisconsin by which the county pays the state $1.50 per week and furnishes clothing, when it sends a patient to the state hospital, and by which the state forfeits the $1.50 and pays $1.50 additional to the county, when it sends the patient back to the county asylum, is to be noted. It is entirely irrelevant to our argument, for the state as a whole gains or loses not one whit by the process. By such system the tax is distributed somewhat unevenly, how justly it is impossible for an outsider to say. As an ingenious device, however, for making transfers easy, it is admirable. It is almost a necessity in avoiding friction in carrying out the scheme.

The statement that "out of this gain the counties that have had asylums ten or twelve years have paid for their entire permanent investment in land, buildings, improvements and repairs," is, it seems to me, very misleading. The people of a county can hardly lift themselves by their boot straps in this way. Analyzed, it is something like this: If the people of a county send no patients to the state hospitals, they pay their quota of state taxes to support those hospitals anyway. If they do send some, they pay this quota plus $1.50 per capita and furnish clothing. If they take the patients back to the county asylum, they still pay this quota to the state and also pay to the county what amount over $1.50 it costs to keep the patients returned. There is no mysterious source of income. The people always pay the bills, even while it is possible for one section to gain at the expense of another.

Cheapness as regards the first cost of buildings and plant seems quite wholly fallacious, even admitting that cheaper buildings have been provided. From Mr. Heg's own statistics, appended to his argumentative exposition of the system, it appears that the twenty-three buildings so far erected cost $1,420,172, and that the land cost $299,051, making a total cost of $1,719,223. This would give a per capita cost of $632 for the average population of 2,720, of 1896, or a per capita cost of $609 for 2,816 patients, the number present at the end of 1896. (We cannot learn the "normal" capacity of these buildings. This would of course be needed to compare accurately with the "normal" used below in our own hospital.) He says that $2,000,000 would have been needed to build the state palaces. Taking, however, our own hospital, as one with the details of which I am most familiar, and which can justly, I believe, claim an equipment considerably above the average in the West, $555,500 is by the published inventory the total cost of the land, buildings and all the equipment, including sewerage, waterworks, heating and everything except current stock on hand. Moreover, a large part of the buildings are expensively and thoroughly fireproof, the rest slow-burning construction. We have here at present 1,150 patients, which would mean a cost of about $483 per bed, but if we assume our "normal" capacity at the more nearly correct number of 1,000 patients, even then $555 per capita has paid for everything outside of current expenses.

Of course it must be admitted that a state in building her hospitals, like a citizen in building his home, can put in much or little money, as means or pride may dictate, and still accommodate the same number of people with the same general comforts and equipment of living. Recent buildings also tend to be built more economically than those in the past. It is only claimed by us here that with less than $600 per capita, it has been shown to be quite easily "possible" (not, perhaps, common), to build the "palaces," as against the $609 or more, the cost of the Wisconsin county buildings. Indeed, as a general principle of business policy, twenty-three buildings in separate localities, under separate control and separate equipment or "plant" could hardly in possibility be built of equal accommodation and quality for the same money as two or three large ones. (We do not wish by this to recommend all the methods of dividing patients found in this hospital as desirable.) Moreover, the state hospitals of Wisconsin, not allowed to keep the chronic patients, and thus grow to a thousand of population, have their per capita per bed much increased, probably up to $1,000 or $1,500, which sum, averaged with the $609 of the counties, would raise the per capita for the whole state very much.

If Wisconsin had its 4,000 of insane in four state hospitals of about 1,000 each, at a cost of about $600 per capita, every chronic patient could have at present the medical study, the supervision, the diversions, the classification, the bathing, the hot water and heating facilities furnished for the best. If also the acute insane were kept carefully separate in each such hospital, in a building or wards by themselves, they could be as truly and well treated as if they were miles away with another plant of their own. The low per capita cost caused by the grouping would go to furnish higher medical ideas, higher grades of furnishing throughout all the lines of heating, light, food, nursing, supervision, amusements, household furnishing, while finally, each one on

getting sick has the best of the whole at command. Incidentally that large element in each hospital which changes in behavior from time to time can be constantly kept in places suitable, one week violent and perhaps a month later on the quietest ward, etc. By such provision, beside the lowered cost of building, the transferring back and forth is avoided.

2. A More Normal Living.—It is claimed that the patients in county asylums are brought more nearly back to their "normal," have more homelike surroundings, and live more as if at home. "To keep them in palaces," it is said, "does not benefit patients unaccustomed to such splendor and luxury." These statements are all a little vague. They seem to assume all to be day laborers. Moreover, it will be noted that by implication they tend to advocate a step backward toward the poor house, for this is nearer the people, nearer the normal, has more freedom, has smaller numbers, etc. By implication also it would argue that the conveniences of a large hospital in sewerage, hot and cold water, steam heat, carpets, etc., were more a disadvantage than an advantage, for these must be what the words "splendor and luxury" signify as far as patients are concerned. It is hard to see in just what way fifty or one hundred people in a county hospital, with its congregate tendencies, would be much better in surroundings as regards their indoor life, than the same, or usually a less number on each of a series of wards classified with regard to behavior, noise and other characteristics. It is significant also that the more recent asylums are noted as "most beautiful structures, finished in hard wood, with an abundant supply of water, heated by steam and lighted by electricity." This is significant, not only as showing a recent tendency to elevate the system, but by implication, showing the lack of such conveniences in other of the buildings mentioned. It is also significant as against the above claims that the board advocate recently a central chronic asylum of medium size for the more disturbed of the chronics, "as one of these cases in a county asylum will disturb the sleep of all the other inmates, and in many other ways add difficulties of management." The congregate and economical tendencies are not thus exactly homelike unless such patients as have no troublesome tendencies are selected, and if no dirty or violent are taken to the counties, there will be many who will become so after arriving there.

The most cogent argument underlying these statements is, I think, that the patients get more work. The county hospitals have about two acres of land to a patient. The state asylum here works about 1,000 acres, or a per capita of nearly one acre to a patient. However, the population of the Wisconsin county asylum is made up supposedly of selected chronic cases, among whom are most of the workers, and therefore would by this reason alone call for a much larger per capita quantity of land. While we are inclined to admit more of effort on the part of the farmer who has charge of the county asylum, partly because the working classes are selected for him, and partly because he needs the help to get the more of income out of the farm, yet we can hardly see how the same kind of patient is under especially different incentives, except perhaps in degree than he would be in the larger hospitals. For all of the larger hospitals have large farms also. While it is possible to secure as much work from patients in a large hospital as in small ones, yet we are willing to admit a greater tendency to neglect to do so. These counties, with selected populations, report about seventy-seven per cent. as doing some work, more or less, yet one large hospital, the London Hospital, Canada, in 1893, reported nearly ninety-five per cent. of individual patients as doing some work, little or much, and what was even more remarkable, that the population as a whole worked seventy-eight per cent. of the full possible number of days for the whole or part of the day.

3. The energies of the state hospitals freed from their chronic cases are to be especially devoted toward curing the acute insane. This argument, seemingly of some considerable value, upon analysis turns out to be somewhat misleading. It will, I think, be found, by a canvass of the states, to be a fact which cannot be successfully disputed that it is in the larger hospitals that most prominent work in medical and clinical ways is being done today. The large number of patients, making small per capita, sustains and justifies the high equipment of hospital wards, justifies the establishment of surgical work, justifies special baths and bath rooms, justifies the establishment of training schools, with the use of massage, electricity, and all the still greater refinements of modern work, and it is the presence of chronic cases that makes the large hospitals. Moreover, it is seemingly almost a "knock-down" to the argument that upwards of one-half of the cases of bodily disease calling for these elements of treatment are from the so-called chronic classes, cases which in Wisconsin would be supposedly in a county asylum. Small hospitals have, and probably always will have, very great difficulty in securing the above elements.

As arguments presenting themselves against the so-called Wisconsin system, we have as follows:

1. No immediate medical oversight. By this we would refer, of course, not only to the giving of drugs, but the medical direction of the patient's life, behavior and hygenic conditions. This has been set aside, claiming that there exist only ordinary diseases to be treated after two

years of insanity. As regards specifics to cure the insanity, this is largely true. As regards care tending to modify the mental state this has a large element of error. Moreover, as shown by their own statistics, chronicity is by no means always perfect at the end of two years. The counties report 14 recoveries with 587 admissions, or two and one-half per cent. Some of the best of the large hospitals only report from sixteen to twenty-five per cent.

But the "physical condition" of those insane is, it would seem, an argument enough. To afford them trained nursing and good surgical and medical equipment, with daily medical oversight, would seem to be easily worth the fifty cents a week. One would hardly wish his mother, or son, or relative to lose these advantages because two years had gone by. All of this population are growing old, and, aside from special diseases, need considerable care and attention during the degenerative process.

2. The lack of provision in the way of entertainments, of church services and of diversion of various kinds, which are possible and common in state institutions. Working patients are usually of some intelligence, and intelligence calls for diversion and mental stimulus among the insane as well as among the sane. It is difficult to afford any especial equipment or provision of this kind for a grouping of less than one hundred people.

3. It tends toward the poor house system, so universally condemned. It is essentially that system in so far as it consists in placing the patients on a farm under men who are under inducement to get as much work from them as possible. Seemingly as a mode of living, it would fall about half way between the poor house and hospital. The poor house is placed upon the commercial basis of expending as little as possible, because considered as a matter of business. It also aims to get as much work out of the patients as possible. It brings into prominence the idea of saving and puts into the background the idea of benefiting. In these county asylums the state supervision may redeem this from its more gross features, but it seems to leave unchanged the general principle as being an essential one. In fact Mr. Heg, in his argument, claims that the saving by which $1.75 per week is possible is from the medical and nursing "supervision" and in the "subsistence." A saving is claimed from the wages and salaries of about $1.00 per week (from $48.50 to $83.50 per year), and in subsistence of about seventy-three cents per week, as compared with the Wisconsin state hospitals. Thus, while there is claimed to be "personal, individual attention, absolutely essential to the insane," yet $1.00 is claimed to be saved from the supervision. As was before said, however, these comparative per capitas are partly only apparent, as in large hospitals also the least of the expense goes to the chronic cases as surely as if they were separated.

The "subsistence" is claimed to be made up to normal by reason of the food raised on the farms. As most of our large hospitals have farms also, and as they also try to raise as much as possible per capita toward subsistence in the same way, it is hard to figure out but that some of this saving must be found in economy in the provision of food. No detail in accounts, however, is furnished, by which one can judge comparatively with accuracy.

4. The classification of patients cannot be very practicable in the county asylums. This surely is worth serious consideration. For the more quiet and refined woman to be obliged to associate with those who are reckless, noisy or dirty, is hardly best. The large hospital can, of course, easily keep epileptics upon separate wards, also the noisy patients, the dirty patients, the aged and feeble, those sick in bed, the most quiet and intelligent, and even others if desired.

Incidentally, rather than as arguments, several things might be mentioned. First, a traveling board is almost a necessity for the coherence of the system. It is a system of many disjointed institutions, retired largely from public view, the Board of Control having the power of auditing, directing supplies and deciding all prominent movements and changes, and if this board is active it can bring all the institutions into one line of action. Undoubtedly without it and without medical supervision, controlled by purely commercial instincts, they would diverge and often be purely directed toward economy.

2. The board so constituted takes away many of the duties and responsibilities from superintendents and stewards.

3. Of that vexed subject, politics, it is hard to say much, but the system is probably as apt to be controlled by political parties as under the unpaid "Board of Trustees," common in other states.

4. The secret of the success of the county care over the county care in other states is that it is not truly county care at all. The state pays $1.50 of the $1.77 needed per capita for the current expenses of these institutions, and by its board controls all important movements. The county supplies the building and plant. They are really branch chronic asylums of the state, and it is notable that the last report suggests a large chronic asylum as desirable.

5. The word "palaces," so frequently used, may refer to the more heavy and fire proof construction of the state buildings, or to the use of carpets, pictures, sofas and ornaments; or to the central or officers' quarters. It is only to be said that churches, public libraries and all state buildings (as well as hospitals) are generally

thought best made more ornamental and heavy. It is not a necessity. It is in general accord with public opinion.

SUMMARY.

We would note our conclusions as follows:

1. The Wisconsin system of caring for the insane has not necessarily, or in fact, any economy in the first cost of equipment, even after accepting a cheaper grade of building and in many cases without modern conveniences. This is for the counties. For the whole state the average per capita would be made more expensive by the increase in per capita in the state hospitals, caused by taking away the chronic cases.

2. The system has an economy in current expenses amounting to about fifty cents per capita, but this saving is taken from medical supervision, trained nursing, details of modern hospital equipment, from diversion and from subsistence.

3. The system has the vague good claimed to be derived from the small aggregations of people and the good of securing from them a somewhat larger amount of work. It has, of course, the good also of the fifty cent per capita of saving in current expenses.

4. The system must for its success almost necessarily have the elements of a traveling State Board of Control, actively managing the affairs of all institutions, and the system of paying back and forth between county and state.

5. The system involves a very considerable transferring of patients; involves keeping that per cent. of patients who become violent, or dirty, or noisy, or weak, or paralyzed, or sick in any way, at the county with its poor equipment, small attendant force, and congregate tendencies, disturbing likely the rest; or the expense and trouble or returning them to the state hospitals.

SOME NOTES ON THE USE OF URANIUM NITRATE IN DIABETES MELLITUS.*

By J. W. Daniels, M. D.,

St. Peter, Minn.

The following are cases of glycosuria that, coming under my care, have been subjected to the use of uranium nitrate:

Case I. J. S. Female, 48, American; has four sisters, who, with herself, are all neurotic.

She first consulted me concerning her sickness on Jan. 1, 1894. The onset had been insidious, but dated back probably two or three months. She had lost but little weight or strength; appetite good. Excepting some neuralgia and tendency towards introspection, there was little disturbance except from disease itself.

On examination of urine: S. G. 1040; no albumen; sugar on one minim of Fehling's test; urine excreted per diem, one gallon.

Placed on non-saccharine diet and uranium nitrate. She was on this drug quite constantly one and a half years. Under it the urine gradually altered in S. G. from 1040 to 1030. The amount fell from four to two quarts, and the sugar completely disappeared.

During last two and a half years the uranium has been used but for a few days at a time on recurrence of diabetic symptoms. These recurrences have been rare and readily yielded to treatment, so that at the present time sugar is absent and the excretion of urine normal. She has, without intermission, continued on diet.

(Since the above, patient died suddenly from cerebral hemorrhage.)

Case II. H.P. M., Aet. 65. German. Patient has always been well excepting a tendency toward hypochondria.

He first came under observation August 19, 1895. He was then a large, heavy man of 200 pounds. He had lost no strength or weight, and felt well except for urinary symptoms. He had been under treatment for diabetes mellitus for about one year. On examination of urine: No albumen; S. G. 1032; sugar on M1, Fehling's test; urine passed in 24 hours, two gallons. Non-saccharine diet and uranium nitrate was ordered.

Patient has been under observation for two years. During the first year he took the uranium regularly and had two or three relapses. Under this drug the urine would change in S. G. from about 1033 to 1025 and the sugar would disappear completely; excretion of urine from seven or eight quarts down to two quarts.

Relapses occurred on omission of uranium, but they promptly yielded on return to the drug. During this year, otherwise, the patient has been in good health.

During the second year (to date) he reports himself well, as determined by a normal amount of urine and no sugar. His health otherwise continues good. He has continued on the diet, but the uranium has been stopped a year.

Case III. F. J. M. Male. Aet. 14 years. American-Swede.

Father about 35 years old; had been suffering for several years from an obscure (trophic?) disease which proved fatal six months later.

Saw patient first on Aug. 19, 1895. He had then been sick about one month after a sudden onset. He had lost rapidly in weight and strength in spite of a good appetite. Urine: S. G. 1040; albumen a trace; sugar on M. 1 Fehl-

*Read before the Minnesota Valley Medical Association, December 7, 1897.

ing's test; urine passed in 24 hours, eight quarts.

Patient was put on non-saccharine diet and codeia. Treatment continued over a period of seven months, during which time the patient was on codeia the first half and on uranium ni-

During the treatment there was no regular change or improvement in the S. G., which fluctuated from 1030 to 1052; amount of sugar showed a like fluctuation with no regular improvement; quantity of urine changed little from eight quarts daily. At no time was there noticed any nephritis or intolerance of the stomach towards the uranium. Appetite continued good. Weight and strength were steadily lost, and at the end of seven months the patient died from an acute pneumonia.

Case IV. A. H. Male. Aet. 22. American-Swede. Father slightly depressed mentally; physically small and not robust.

Only brother is suffering from pulmonary tuberculosis; his age is 24 years.

First came under observation March 7, 1897. He had then felt sick for four weeks; during that time he had fallen in weight from 156 to 128 pounds. Pulse 100. He has become very weak and unable to walk a block.

Urine examination: S. G. 1031; no albumen; sugar on M. 1; amount, seven quarts in 24 hours.

Patient was placed on non-saccharine diet. Uranium nitrate ordered in two grain dose. This was regularly increased at intervals until gr. xii. t. i. d. was taken Aug. 6, 1897.

During the second week of treatment, viz: March 17-25, a trace of albumen appeared, and with it was anorexia and loss of strength. On suspending the drug for a few days these symptoms disappeared, and at no time since has albumen appeared. But during the first two months the drug was given in smaller doses he suffered at intervals from anorexia and vomiting, apparently produced by the drug.

During the five months of treatment the S. G. has irregularly fluctuated from 1030 to 1043. There has been no marked change in this respect, excepting when on a recent trial the dose of the uranium was cut to one-third, when the S. G. promptly rose to the highest observed point, viz: 1043.

Sugar has maintained the same per cent, but the absolute amount has been diminished with the lessening of the urine, viz: diminished to about one-half or one-third.

The quantity of urine has more regularly diminished from seven quarts per 24 hours to two to three quarts.

The patient originally urinated four times at night; now the sleep is unbroken.

The appetite has remained good.

The weight has increased about six pounds.

The strength has shown the most marked change. In the beginning the patient was unable to be on his feet. Now he performs more than half a day's full farm labor.

Case V. Mrs. J. O'C. Aet. 62. Irish. Date of attack, about June 1, 1894; onset insidious; suffered from carbuncles in September, 1894.

Came first under observation for glycosuria July 31, 1896. Then S. G. 1034. Health had been fair but not of the best for the past two years. Placed on diet and uranium. These were not adhered to strictly. Today, one year after beginning the treatment, the patient has lost considerable in strength, the diabetes symptoms continuing.

On irregular resumptions of the uranium the sugar has decreased and disappeared; amount of urine becomes normal, but the secondary nephritis continues.

Cases treated for six years previous to the use of the uranium nitrate are:

Case I. L. A. M. Aet. 70. Norwegian. Primary defective. Suffred only from immediate symptoms of glycosuria and decreasing vision.

Under the codeia the excretion of urine diminished. At times the sugar disappeared, but was usually present. At the present time, eight years later, the patient is blind and has lost strength only in proportion to his age.

Food for the past six years has been unrestricted and no medicine has been taken.

Case II. Miss C. F. Aet. 20. American. Date of attack, July, 1888. Urine: S. G., 1032; sugar, gr. 22 per oz. Treated with diet and codeia. Slowly and gradually failed; became blind and died two years later.

Case III. A. R. M. Aet. 55. German. Date of attack, Nov. 1, 1888. Urine: S. G., 1035; sugar, gr. 23 per oz. Treated with diet and codeine. Failed rapidly and died in five months from gangrene and senile dementia.

Case IV. H. P. P. F. Aet. 14. American. Mother from tubercular family; father has had scrofulosis; brother had acute suppurative bone lesions.

Placed on diet and codeine; both were but little adhered to. Failed rapidly in weight and strength and died six months later in uræmia.

In the preceding cases where uranium was used, the initial dose was one or two grains. This was increased up to four to twelve grains t. i. d.

In one case only was any intolerance noted, and in that case it was not long persistent.

Larger doses and time appear to give better results.

It seems to be markedly superior generally to any derivative of opium.

It is not equally beneficial in all, as is ap-

parent in case II., where absolutely no improvement could be detected.

After considering the natural tendency of the disease to become benign among cases of advanced age and the frequency in this class of the complete disappearance of sugar for a time without any treatment, there still remains evidence that the drug caused the sugar to disappear more rapidly; and even where the excretion of sugar was not altered in percentage, there was much gain in strength, as instanced in case IV.

Altogether, it appears that in uranium nitrate we have a drug of unequaled value in different cases; and on the whole, one of the most efficient remedies thus far brought forward.

ADDENDUM.

Since writing the above, the following case came under treatment:

Mrs. J. M. German. Aet. 65. Family history negative.

Diabetic symptoms began insidiously about three years ago. Since then there has been a progressive loss of weight from 190 lbs. to 120 lbs. Recently secondary pulmonary tuberculosis has developed. On examination of urine: S. G., 1043; no albumen; sugar on M. 1; amount, 15 quarts per day.

Under diet and codeia in two weeks the amount of urine was lessened to ten quarts.

Under uranium nitrate one week, the S. G. has fallen from 1043 to 1031, and the amount to three quarts per day.

HYPNOTICS.*

By A. W. Wilmarth, M. D.

Supt. Wisconsin Home for Feeble Minded, Late Assistant and Acting Supt. of the Pennsylvania Training School for Feeble Minded and Senior Ass't Physician to the South-Eastern State Hospital for the Insane of Pennsylvania.

Chippewa Falls, Wis.

It is only in very recent years that the number of hypnotics has been at all large, and no better proof could be given of their need than the efforts which have been made to produce drugs which would induce physiological brain rest without too much systematic disturbance, or which would not induce a habit of possibly life-long continuance.

The calls for enforced sleep are more frequent than one would at first realize. Cerebral over-excitability, as evidenced by insomnia, may be simply due to mental overwork or to irregular hours of sleep, or it may be one of the earlier manifestations of neurasthenia, acute mania or maniacal delirium. It is frequent in the aged, in beginning senile change, and unless checked in some measure will certainly hasten that change. During the last five years I have experimented with some of the better known hypnotics and have a large number of cases to lay before you. Not all of them have been altogether under my care, but through the kindness of my colleagues I have been allowed to keep some of their cases under observation, and the notes I present for your consideration are all from cases which I have personally studied.

The hypnotics of later origin which are best known at present, are: 1st, urethane, a carbonate of ethyl ether. Reports are contradictory and probably its action is uncertain. 2nd, the sulphonal group, comprising sulphonal and its derivatives, trional and tetronal. 3rd, somnal an ethylated compound of chloral and urethane. 4th, paraldehyde and its companion, metaldehyde (said to have similar properties to paraldehyde). 5th, hypnal (compound of chloral and antipyrine). 6th, hyoscin. 7th, duboisin. 8th, chloralamide, or chloral formamide. 9th, bromal hydrate, said by Cerna to have the good qualities of both paraldehyde and chloral. 10th, hypnone, or acetophenone, said to have a depressant effect which must limit its application, and it is also uncertain. 11th, hyosciamin. Of three of these I have made an extensive use, which I will proceed to describe in detail.

Paraldehyde, as you know, a polymeric form of aldehyde, is unpleasant from its odor and taste. Is somewhat difficult to mix with water unless a little alcohol is first added. Making up in the form of elixir prevents irritant effect on the stomach, and a little oil of orange covers much of the disagreeable taste. It can generally be detected in the breath later. This cannot be prevented by any means so far as I know.

It appears to be harmless in ordinary doses, and unless its use be unduly prolonged, no marked after effects follow. Under prolonged and continuous use disturbances of nutrition have been known to occur, although this I have never seen myself, except in one case an eczematous rash appeared when it was long continued. It is very rapid in its action. The sleep, which often comes on in a few minutes, is quiet and natural.

The sulphonal group embraces three different remedies: sulphonal, trional and tetronal. The two latter are derivatives of the first. They are altogether the most valuable of the whole list of hypnotics. They are nearly tasteless, very safe and very certain. The disadvantage of sulphonal is its insolubility unless given in hot solu

*Read before the Inter-County Medical Society of Wisconsin, Nov. 9, 1897.

tion. It is liable for this reason to be absorbed so slowly as to lose its effect, or to produce sleep several hours later and perhaps at a most inconvenient hour for the patient.

The second number of this group is trional. The administration of this drug is never followed by depression. I have given it to patients who were very weak and were rapidly exhausting their small supply of strength by their restlessness. I have given it to an epileptic where strabismus, slight difficulty in swallowing, and vomiting indicated dangerous disturbance of the lower centers, and without apparent ill effects. The sleep it induces is quiet and natural. It leaves no dry feeling in the mouth as does hyoscin, and no odor in the breath as does paraldehyde. Four cases of poisonous effects are on record, two fatal and two recovering. In one of these fatal cases ataxia existed before the administration of the drug. Ill effects from its use are certainly rare, and so far I have never seen any.

Tetronal is said to differ in no material way from trional, except that it requires a somewhat smaller dose. I have not used it.

Hyoscin. Isomeric with atropia it is derived from the henbane plant. It is valuable from the fact that while a good hypnotic it can be administered hypodermically, which is impossible with either trional of paraldehyde. It produces more constitutional disturbance than the others. The pupil is sometimes dilated. When this is marked there is reason to suspect impurities. Paralysis of the pharynx I have never seen. I was once called in at midnight to see an old man whose loud breathing raised the suspicion in the mind of the physician of this trouble, but the extraction of a lower plate with several teeth attached from his pharynx relieved this symptom. However, I have avoided this remedy in the aged when possible, as I once saw one seventy-fifth grain hypodermically produce twelve hours sleep in an old, feeble man.

In making a record of the use of these three remedies I have divided my cases into four classes:

It will be seen that in chronic excitement paradehyde furnishes us with an almost certain remedy. These cases we find among the epileptic, in senile mental change, etc. Trional is less effective in such and hyoscin still less so.

In acute melancholia paraldehyde has not failed me, although the trials were comparatively few.

In acute maniacal conditions, which includes mania proper, the first stage of general paresis (which usually is seen by the general practitioner first) and delirium, trional or hyoscin is to be preferred. In the first place they are much more easily administered; in the second they are more distinctly curative. Especially in this the case with trional. In delirium of acute form, I believe trional to be unequalled.

Hyoscin occasionally excites instead of tranquilizing, which never appears to be the case with the other two remedies.

Occasionally we find a person who resists the action of trional or hyoscin alone and who will not take paraldehyde. In such cases trional and hyoscin combined has been invariably effective.

In regard to dosage, paraldehyde will generally be required in fifty grain doses, although it is well to begin with twenty-five grains; seventy-five grains may be given. In refractory cases the addition of one-fourth grain of morphia greatly increases its efficiency, but this is a dangerous habit to persist in.

The dose of trional varies greatly. In simple insomnia five grains is often ample, and when larger powders are necessary to begin with, we may often diminish the dose on successive nights. In a case of homicidal melancholia I gave doses of forty grains. Good sleep was the result and recovery followed. One of my colleagues gave eighty grains a day for several days with benefit and no apparent evil results.

The dose of hyoscin is usually one-one hundredth grain, but different specimens appear to vary in activity and I have found that with Merck's preparation, while one lot would require one ninety-sixth grain doses the next might require one-fiftieth grain to produce the same effect. Dr. Griffin states that the varying results from different observers may be accounted for on the theory that it is not a definite base. If any one is fearful of any depressing effects on the heart it is well to know that it may be given with aromatic spirits of ammonia with no apparent impairment of its activity. I have not been able to find any record of fatal poisoning from the drug.

I close this paper with a consciousness that I may not have presented any new points, but it contains at least an extensive and careful study of a class of drugs which are indispensable in the treatment of a class of diseases which tests our utmost care and skill, and which come under your observation in their first stages when treatment is of the most value, and at a time when possibly mental stability may be preserved by procuring brain rest by means of these agents.

Gillette recommends the use of hydrogen dioxide in cases of bleeding at the nose. He uses a teaspoonful or more in full strength, with any ordinary syringe. Relief is obtained immediately. In operations in the nasal cavity, when bleeding obscures the vision, inject hydrogen dioxide. Ask the patient to blow his nose, and the field is clear again.—New York Medical Journal.

A CASE OF MELANCHOLIA ATTONITA.*

By Arthur W. Dunning, M. D.,

St. Paul.

My purpose in presenting this case to you is three-fold: First, because it is comparatively a rare condition; second, because it presents some clinical features which I believe to be instructive; third, because I wish to enter a plea for the private hospital or home care of curable cases of insanity.

"Melancholia attonita."† or "melancholia with stupor," is, of course, but a clinical classification of the disorder, and so far as we know, the general consideration of its pathology and morbid anatomy is identical with that of other types of melancholia, as is also the general course of treatment.

The history of this case as taken from my case book is as follows:

Miss F. H., age twenty-one years. School teacher by occupation, of American parentage, and a native of St. Paul. As to family history, one brother had hemiplegia when but two years old, and another brother became almost a prodigy in the matter of figures and statistics at a very early age, thus showing a decidedly neurotic tendency, which is also plainly discernible in other members of the family. There is, however, no history of a single case of mental disorder on either side of the family; neither is there syphilitic or tubercular disease anywhere discoverable. Personally the patient has been well all her life, is a very decided blonde, tall and well formed, quick and active. She came under observation July 4, 1897, when the following history was obtained. She had been a very apt pupil at school, and an almost abnormally conscientious worker in all that she undertook. She had graduated from the High School at the age of eighteen years, had taken two years in a training school, immediately secured a position as teacher in the primary department of the city schools, and was given a class far below grade. Extreme anxiety to do thorough work with her class, to raise it to grade, to make a creditable showing before the school supervisors, and to maintain her position, led her to throw herself into the work with great energy. She worked very hard each evening and often far into the night, preparing the work for the following day. This led gradually to insomnia, with brain tire and depression. Her conscience and ambition led her to force her work against these obstacles, and, of course, resulted in final break down.

The first that her family noticed wrong was a disposition to sit and stare into space when trying to work over her books. When spoken to, she would rouse with a start and essay to resume her work, only to lapse again into the same attitude, with vacant, expressionless countenance. A little later there began to be periods of extreme "blueness," a tendency to dwell upon religious topics, and to upbraid herself with her many sins of omission, etc., chief of which when questioned was that she had "given up."

At the time of my first visit I found her with a temperature of 99.6°, a heavily coated tongue, a restless, anxious countenance, and a determined resistance to all attempts at treatment, saying that she was not ill and protesting that she was "only wicked." A grave prognosis was given at this time, and control and treatment in a private hospital advised. The following ten days were spent by the family and patient in a sojourn in the country, in the vain attempt to avoid the course I had suggested.

On July 15, however, she was placed under my care at St. Luke's Hospital. The symptoms named above were all exaggerated at this time. She refused to eat or drink; would not speak a word, and resisted (passively) all attempts at handling her. She would sit or stand in any position like a statue, or like one in a cataleptic state, with this exception, that every passive movement was met in every direction by muscular resistance. She would lie in bed with her head raised from the pillow for hours at a time, and could not be induced to let it rest. When forced down she would immediately raise it again. She even resisted the inclination to void the urine and fæces so that the catheter and the enæma had to be resorted to in order to secure proper evacuation of the dejecta. Indeed it would seem that all the inhibitory influences of the brain were brought to bear to prevent voluntary acts of nearly every kind. When left to herself she would invariably start toward the door, moving in an automatic way, having much the appearance of a somnambulist. She would also frequently start up very suddenly with an expression of alarm or of grave concern, and make more forcible attempts to press by her attendant, and leave the room. Upon subsequent questionings this was found to be due to hallucinations of hearing, she believing that she heard some unknown voice calling her name. So far as can be learned, however, she has not the recollection of extreme horror at that time which these cases often describe, yet her face frequently wore the expressions of fright, horror and anxiety, in rapid succession.

The course of treatment adopted was that of a modified rest cure, the patient being kept constantly in her room under a special nurse, though not always in bed, for eighteen weeks, or until

* Read before the Minnesota Academy of Medicine, February 2, 1898.

†This term is not from "atony," or "atonia," meaning lack of muscular tone, but "attonita," (thunderstruck).

the temperature became normal, and the reason partially restored, when she was given systematic exercise in the open air, gradually increasing the length of her walks, until she went from five to seven miles per day. When confined to her room she was given massage and general faradization daily, with reconstructives, such as iron, gentian, malt extract, etc. During the period of refusing to eat, which lasted three weeks, she was fed with the stomach tube; large quantities of milk, meat juice, beaten eggs, broths, etc., with from three to six ounces of whiskey daily, when indicated, to produce quiet and to promote nutrition.

It is interesting to note that the temperature from her entrance to the hospital on July 15 until Nov. 25, ranged from .6° to 1.8° above normal. That since Nov. 25 to the present it has remained perfectly normal, and that the return to the normal temperature was practically coincident with the complete establishment of convalescence and the return of reason. I have noticed this same thing to occur in several cases of acute and simple melancholia, and it naturally leads to the inquiry: what is the pathological process that can give rise to these various phenomena?

In each of the above instances this slight rise of temperature has continued long after the nutritive processes had been restored and the body weight increased thereby, even to above the normal. Is it, therefore, due to a morbid process in the central nervous system itself, or is it the result of an ordinary fever of low grade, due to some obscure cause, and in itself the direct cause of the mental disorder? I am inclined to believe it is the former, and that it points directly to the pathological process in these cases. The pulse rate bore throughout a fair relationship to the temperature record. In the first few weeks it ranged from 90 to 120, but gradually assumed the normal rate with the temperature and the return to the normal state.

Another interesting point from a psychological view is that the first attempt at speech after that long period of silence was made in the German tongue. A nurse, other than her regular attendant, came into her room and made a laughing remark in German, to which the patient immediate replied in the same tongue and spirit. The experiment was repeated, each time with the same result. She had been educated in German, but for two years had made no use of this knowledge. What was the peculiar psychological process which caused her to make use of this knowledge before any other?

The body weight was greatly decreased in the beginning of the disease, the weight being but 112 pounds on the day she entered the hospital, whereas her normal weight was 130 to 135 pounds. After the first three weeks, and while being fed with the tube she began to gain in weight, and steadily continued until, on Nov. 25, her weight was slightly above normal, and on Jan. 3 she weighed 144 pounds, or ten pounds more than her greatest previous weight.

Patient slept very little during the first two weeks, but after the nutritive processes were reestablished she began to improve in this respect, and throughout the balance of her stay in the hospital slept from seven to nine hours each night.

This case, to my mind, is one which, if left to itself, would have died through innutrition and exhaustion; while under the foregoing course of treatment she has made a good recovery. On the other hand, had she been sent to the State Hospital for the Insane to associate with large numbers of other insane persons and where close personal care is not obtainable, the probability is that it would have run a considerably longer course, and the tendency toward chronicity would have been much greater.

Therefore, as stated above, I wish to enter a plea for the home treatment of all cases of curable insanity, where the means for so doing are possibly obtainable. With our improved and constantly growing hospital facilities, and the abundance of trained nurses, who are efficient and capable of controling this class of patients, we ought to raise considerably the percentage of recoveries, and at the same time to save the state a considerable item of expense, and to save the individual and tne family from that stigma which unfortunately still clings to subjects of insanity in the popular mind. These people are sick people and should, when possible, be treated at home, where all the comforts and advantages which go to make their recovery rapid and complete can be secured.

582 Endicott Arcade.

It is told of Trosseau that on one occasion a great lady whose child he had saved from death begged him to accept a little silk purse which she had worked for him with her own hands. Seeing, as he thought, the snare, the great physician said: "Madam, it is my rule not to accept presents. My fees amount to 1000 francs." The lady replied: "I am sorry to have unwittingly infringed your rule. I had ventured to put ten 1000-franc notes in this purse. Allow me to present you with one of them!"

A case of death from lead poisoning has been reported, due to the use of diachylon ointment made after Hebra's formula, and applied for a long time to a child suffering from eczema of the scalp.

Northwestern Lancet.

A SEMI-MONTHLY MEDICAL JOURNAL

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A HUMBUG.

The accusation is often made that reputable medical men as well as quacks are guilty of practicing a good deal of deception upon patients. Allusion to "brown bread pills" has been common since some well known physician (was it Dr. Holmes?) publicly referred to their use. It must be admitted that the charge against the profession has an element of truth, but there is something to be said upon the other side, and that is that there are many situations where the deception of the patient is not only harmless, but may even be salutary. The expectation of an effect is often a great adjuvant to a remedy, and where the doctor is ministering to a disease that exists only in the imagination of the patient he is entitled to employ a remedy whose effect can be only through the exercise of that same imagination.

There is another kind of deception in connection with the practice of medicine that is not to be commended, a deception whose mitigation lies chiefly in the fact that the doctor himself is often deluded as much as the patient. This is the use of remedial measures which, though active enough in themselves are powerless to do any good for the purpose for which they are applied. The most striking instance of this kind of a medical humbug is the general use of carbolic acid solutions as a disinfectant. When the doctor orders a sheet wrung out of a one per solution of carbolic acid to be hung across the doorway of the scarlet fever chamber he knows that the carbolic acid part of the performance is all a humbug. Possibly the wet sheet may intercept a stray germ or two, but that one per cent of carbolic acid cuts no figure except to impress the family by the solemnity of its awful presence. And again when he orders a few drops of carbolic acid to be added to the water with which a patient is bathed, perhaps just after a confinement, the doctor knows that the drug can do no earthly good. It does indeed add one more to the many bad odors of the sick room, but it has not even the merit of the little saucers of chloride of lime that used to be relied upon for disinfection in the days before the advent of bacteriology, for the chloride made so bad a smell that people had to open the windows, and thus accomplished something for good. It is a well established fact that carbolic acid is a feeble disinfectant except in solutions too strong for safe use upon the body, solutions that are decidedly uncomfortable to the skin. The surgeon may find a place for the drug as a solution for his instruments, but it is wholly unfitted to be used popularly as a disinfectant. In fact it is more than doubtful if there is anything to be gained by the popular use of any disinfectant, although physicians and health authorities are constantly recommending their employment. Except in skilled hands and directed by intelligence disinfection is rarely more than a sham, often doing positive harm by giving a false sense of security that leads to imprudent exposure to contagion supposed to have been destroyed by the disinfection.

The particular mischief of the introduction of carbolic acid for household disinfection has been the large number of cases of poisoning, accidental and otherwise, that have been laid up against it. The records of the British Regis-

trar General's office show that in England in 1894 carbolic acid produced twice as many deaths from suicide as resulted from the taking of opium. Of all poisons that are taken by mistake none seems to be so often chanced upon as carbolic acid. The frequent accounts of people who get up in the night and by mistake take carbolic acid instead of the intended dose of medicine, show how common it is to have bottles of this deadly poison standing about in the living rooms of houses. It is safe to say that the employment of carbolic acid for domestic disinfection has destroyed ten lives for every one that has been saved.

REPORTS OF SOCIETIES.

MINNESOTA VALLEY MEDICAL SOCIETY.

E. D. Steel, M. D., Secretary.

The seventeenth annual meeting of the Minnesota Valley Medical Association was held at Mankato, December 7, 1897.

The meeting was called to order at 10 A. M. by the President, Dr. John Williams, and prayer was offered by Rev. Lee W. Beatty.

On motion roll call was deferred until the afternoon session. The minutes of the previous meeting were then read by the Secretary, and on motion stood approved.

The report of the Committee on the Entertainment of the State Medical Society was deferred to the afternoon session.

On motion a committee of three was appointed to draft resolutions on the death of Dr. W. D. Flynn, of Redwood Falls. The President appointed Doctors Strickler, Adair and Spalding on the committee to report at the afternoon session.

On motion the report of the Executive Committee was also deferred to the afternoon session.

Dr. James, Treasurer of the Association, then presented his annual report, as follows:

Minnesota Valley Association, in account with Dr. J. H. James, Treasurer.

Dec. 1, 1897.

Cash on hand	$44.31	
Received for Membership	7.00	
Assessments	15.00	
Overpaid Treasurer, Dr. M.	.50	
		$66.81
Cash paid on Orders and Expenses for Postage, Stationery, &c., Treasurer	35.01	
Balance in Treasury, Current Fund		31.80
Cash Received from Special Assessment	295.00	
Cash Received from Rent of Space	55.00	
Cash Received from Dr. Andrews..	19.75	
Total		369.75
Cash Paid, Banquet	285.00	
Cash Paid Janitor	6.50	
Cash Paid for Flowers	4.00	
Cash Paid for Damage to Hall	3.00	
Cash Paid Dr. Andrews' Bill of Claims	1.50	
Total		300.00
Balance Special Fund	69.75	
Total Balance		$101.50

J. H. JAMES, Treasurer.

On motion the Treasurer's report was adopted.

Dr. Andrews, Chairman of the Committee on Entertainment, then announced that his Committee was ready to report.

He had to report that the entertainment of the State Medical Society of last June was a complete success, and demonstrated that the State Association could be well taken care of outside of the Twin Cities.

The financial part of their report was embidied in the report of the Treasurer.

On motion the report was accepted and the Committee was discharged.

It was moved by Dr. Davis that the balance of the special assessment fund be refunded to those who had responded, pro rata. This motion was amended by Dr. James to read that the pro rata amount be credited to each contributor in payment of future assessments. This amendment was carried and afterward the original motion as amended.

It was then moved and unanimously carried that all who had not contributed to the special fund be absolved from payment.

The Society then proceeded to an informal ballot for President, and on Dr. Tomlinson receiving the highest number of votes, he was elected by acclamation.

On separate motion the Secretary was instructed to cast the unanimous vote of the Society for the following officers as they were nominated, when they were declared duly elected by the President:

First Vice President.....Dr. J. H. Adair
Second Vice President.....Dr. L. A. Fritsche
Third Vice President.....Dr. F. N. Hunt
Treasurer.....Dr. G. F. Merritt

And on motion the President was instructed to cast the vote of the Society for Dr. E. D. Steel as Secretary for the ensuing year.

The Society then listened to a paper by Dr. J. W. Daniels, of St. Peter, on

TREATMENT OF DIABETES MELLITUS.

See page 85.

The discussion was led by Dr. Harrington, of Mankato.

The next paper was read by Dr. J. L. Rothrock, of St. Paul, and was entitled

THE DIAGNOSIS AND TREATMENT OF OBSCURE BLADDER DISEASES IN WOMEN.

On motion adjournment was taken until one o'clock P. M.

The Society was again called to rder at two P. M. by Vice President Spaldin .g

The Committee on Necrology made the following report:

It is our sad duty to chronicle the death of Dr. W. D. Flynn, of Redwood Falls, an honored member of our profession and of this Society. In his death our profession has sustained the loss of an ideal physician; the community in which he devotedly practiced his profession for more than a quarter of a century has lost an honored citizen, a beloved and skillful physician, and his sorely afflicted family a kind, dearly beloved and affectionate husband and father.

Resolved, That we hereby convey our heartfelt sympathy to the grief-stricken widow and fatherless children because of the irreparable loss that they have sustained.

O. A. STRICKLER, M. D.
J. H. ADAIR, M. D.
A. E. SPALDING, M. D.

On motion the above report was adopted and a copy ordered published in the Redwood Falls papers.

The report of the Executive Committee was called for and at their request they were given further time in which to report.

The Society then listened to a paper by Dr. H. M. Bracken, of Minneapolis, on

THE RELATIONSHIP BETWEEN INFECTIOUS DISEASES OF ANIMALS AND OF MAN.

See page 69.

The discussion of this paper was led by Dr. H. A. Tomlinson, of St. Peter.

The next on the program was a paper by Dr. H. A. Tomlinson, of St. Peter, entitled

THE DISSIPATION OF ALBUMEN AND CASTS FROM THE URINE BY THE ADMINISTRATION OF METHYLINE BLUE.

See page 61.

The discussion of which was led by Dr. C. O. Cooly, of Madelia.

Dr. O. C. Strickler, of New Ulm, read a paper on

COMPOUND DISLOCATION OF THE ANKLE JOINT,

presenting a case for a clinic and skiagraphs of other cases of like nature. Dr. J. E. Moore, of Minneapolis, opened the discussion.

A clinic illustrating laryngeal spasm was presented by Dr. H. A. Tomlinson.

Dr. C. J. Breise next followed with a paper on

RHEUMATISM.

Owing to the limited time the discussion was omitted.

Dr. C. F. Spratt, of Minneapolis, read a paper entitled

A NEW METHOD OF TREATMENT FOR TRACHOMA.

Owing to the lateness of the hour, the President's address on medical ethics and Dr. J. H. James' paper were, by the consent of the authors, deferred till the spring meeting.

The Executive Committee presented a report as follows:

We, your Executive Committee, having carefully investigated the professional attainments and ethical standing of the following named physicians, do hereby recommend them for membership in the Association:

Dr. L. W. Kruger.
Dr. Helen Hughes.
Dr. H. M. Morton.
Dr. Charles L. Greene.
Dr. Percy Dredge.

The Committee would also request that the Secretary hand the names of candidates for membership to the chairman of this Committee at least two weeks before each meeting.

Signed. C. F. WARNER, Chairman.
F. A. DODGE,
A. E. SPALDING.

The Society then elected Dr. L. W. Kruger, Dr. Helen Hughes, Dr. Charles L. Greene, Dr. Percy Dredge to membership in this Association.

On motion, the name of Dr. H. M. Morton was left with the Executive Committee for further consideration, to report at the spring meeting.

The names of the following physicians are now before the Executive Committee to report upon at the spring meeting as candidates for membership:

Dr. A. O. Bjellant, Mankato, Minn. Graduate of University of Minnesota, 1896. Passed State Board, 1897.

Dr. J. S. Holbrook, Mankato, Minn. Graduate of University of Minnesota, 1897. Passed State Board, 1897.

Dr. Marie Merrill, Mankato, Minn. Graduate of University of Minnesota. Passed State Board.

BOOK NOTICES.

Practical Diagnosis. By Hobart Amory Hare, M. D., B. Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia; etc. Second edition. Illustrated. Phila: Lea Brothers & Co. 1897. [Price, $4.75.]

Few books have ever obtained a more immediate success than was won by Hare's "Diagnosis," which appeared for the first time only some fifteen months ago. As was said at the time in these columns, the work has the merit of great originality, and the prediction then made that its plan would commend itself at once to the medical profession has been justified by the event. The second is an improvement upon the first edition in that it has given the author a chance to correct the inevitable errors of a first publication and made a few improvements in the text.

A System of Medicine. By Many Writers. Edited by Thomas Clifford Allbutt, M. A., M. D., LL.D., F. R. S., F. L. S., F. S. A., Regius Professor of Physic in the University of Cambridge, etc. Volume IV. New York: The MacMillan Company. 1897. [Price, $5.00.]

The fourth volume of this work is devoted to general diseases of obscure causation, such as rheumatism, gout and diabetes, to diseases of the alimentary organs, including the peritoneum and to subphrenic abscess, diaphragmatic hernia, and the subject of abdominal diagnosis from a gynæcological standpoint, the last group of affections being really in the domain of surgery, although they usually come first under the notice of the physician. Besides various articles by the editor, there are chapters on rheumatism by Dr. Garrod, on gout by Dr. William Roberts, on diabetes by Dr. Saundby, on dyspepsia and other topics by Dr. Lauder Brunton, and on intestinal obstruction and perityphlitis by Mr. Treves. It is somewhat surprising to find the title "Perityphlitis," which has now been practically entirely abandoned in this country, but apparently still holds a place in England. Treves uses the name, not to show the seat of origin of the trouble, but because it shows sufficiently clearly the predominant pathological feature of the malady. He gives to Fitz the credit of first placing the pathology of the disease upon a sound basis by demonstrating its relation to the appendix, but he dubs "appendicitis" an uncouth word. Is "perityphlitis," then, so very euphonious?

A Manual of Obstetrics. By A. F. King, A. M., M. D., Professsor of Obstetrics and Diseases of Women and Children in the Medical Department of the Columbian University, D. C., etc. Seventh Edition. Illustrated. Phila.: Lea Brothers & Co., 1898. [Price, $2.50.]

The prime object of the book is to instruct, and if some of its statements may seem to be put in rather too didactic a way, this should be remembered, while at the same time it is easy to forgive an emphasis that falls upon the right place. Precise and positive statements, when possible, are the best to make when addressing students, and it is for embryo obstetricians that this book is particularly designed and adapted. This edition contains some corrections and a revision of the chapter upon puerperal septi cæmia.

A System of Practical Medicine. By American Authors. Edited by Alfred Lee Lomis, M. D., LL.D., late Professor of Pathology and Practical Medicine in the New York University; and William Gilman Thompson, M. D., Professor of Medicine in the New York University; etc. Volume III. Illustrated. Phila.: Lea Brothers & Co., 1898. [Price, $5.00.]

As the successive volumes of the "System" appear the value and importance of the work becomes more and more apparent. It is really encyclopædic in character, and might be called an American Ziemssen.

The present volume deals with diseases of the organs of the abdominal cavity, except those of the kidney and suprarenal capsules. It also includes diseases of the thyroid gland and various forms of chronic poisoning from alcohol, opium and the metals. It has an excellent section upon food poisoning by Vaughan, who is recognized as a past master of this subject. In view of the fact that some still cling to the belief that these cases of poisoning are due to the ingestion of metallic poisons from the can or other receptacle of the food, it is interesting to note Vaughan's statement that, whereas ten years ago, in investigating a poisonous article of food, he used to look first for the metallic poisons, he now no longer wastes his time upon them.

Maternal Impressions. By C. J. Bayer. Winona: Jones & Krœger, 1897.

As an argument in favor of the theory that the experiences of the mother during pregnancy often influence the physical or mental character of the child this book will not be likely to make many converts among medical men. The theory is one that his never been demonstrated in any scientific way, and is not likely to be. In the rare instances where children are born defective it would be strange of the mother who sought to account for the defect by an impression upon

herself could not find some experience during the preceding nine months that would answer the purpose. It is improbable that any woman goes through a pregnancy without experiences quite as startling as those alleged to influence the fœtus in certain cases, and it must be confessed that if an impression upon the mother affects the child at all it is but once in a thousand times, and is consequently less important than other factors, at present unknown, but necessary to fully explain why the phenomenon occurs at one time and is absent so many others.

About Children. By Samuel W. Kelley, M. D., Professor of Diseases of Children in the Cleveland College of Medicine; etc. Cleveland: The Medical Gazette Publishing Company, 1897.

This is a collection of six lectures delivered in the Training School for Nurses attached to the Cleveland General Hospital. The lectures are, of course, not intended for the professional man, but will be found useful by the student, by nurses and by mothers.

Medical Education and Registration, United States and Canada. By William T. Slayton, M. D. Hyde Park, Vt.: Lamoille Publishing Company, 1897. [Price, 75 cents.]

The title of this work describes it so fully that nothing further need be said of its contents. It is an annual publication, and will be most interesting to state examining boards and other medical officials.

The Care and Feeding of Children. By L. Emmett Holt, M. D., Professor of Diseases of Children in the New York Polyclinic; etc. Second edition. Revised and enlarged. New York: D. Appleton & Company, 1897.

This little book is a catechism intended for the use of mothers and nurses. It is arranged in the form of questions and answers upon the proper care of children, and may be safely recommended by the physician as a suitable guide in such matters—one that he can put into the hands of a mother without fear that she will derive from it any of the false and fanciful notions about the management of children that are so often met with. The present edition has been rewritten in some parts, notably the chapter upon infant feeding.

Elements of Latin for Students and Pharmacists. By George D. Crothers, A. M., M. D., Teacher of Latin and Greek, St. Joseph, Mo., High School; etc.: and Hiram H. Bice, A. M., Instructor in Latin and Greek, Boys' High School, New York. Phila.: The F. A. Davis Company, 1898. [Price, $1.25.]

This is a beginner's Latin book, differing from other books of the kind in that the exercises and vocabularies are made up as far as possible of words and sentences used in medicine. Thus the student learns Latin like any other beginner, but at the same time acquires from the start a vocabulary every word of which helps him to understand the medical terms with which he is constantly coming into contact.

Outlines of Rural Hygiene. By Harvey B. Bashore, M. D., Inspector for the State Board of Health of Pennsylvania. Illustrated. Phila.: The F. A. Davis Company, 1897. [Price, 75 cents.]

A book full of practical directions as well as scientific descriptions of matters relating to the water supply, drainage, disposal of excreta and other matters of importance to both dwellers in the city and in the country, but furnishing problems whose solution is quite different according to differences in the dwelling place. The physician practicing in the country will find in it many useful hints for which his patients will thank him. A chapter on the normal distribution of chlorine is added by Prof. H. E. Smith, of Yale.

The Principles of Bacteriology. By A. C. Abbott, M. D., Professor of Hygiene and Director of the Laboratory of Hygiene, University of Pennsylvania. Fourth Edition. Illustrated. Philadelphia: Lea Brothers & Co., 1897. Price, $2.75.

Chief among the bacteria that have been admitted to recognition since the last edition of this book are the bacillus of bubonic plague, the bacillus of influenza and the gonococcus. All of these are now described and the work has been thoroughly revised and in many parts rewritten, so as to bring it up to date. Its high value as an authority upon bacteriology as well as a text book for the use of students was testified to in these pages when the first edition came out in 1891.

A reprint from the Wiener Klinische Wochenschrift, entitled "Inspection of the Rectum," by Dr. Walter J. Otis, of Boston, deserves more than a passing notice. It is a description of a method of examining the lower part of the bowel by means of instruments whose construction is the result of a careful study by the writer of the exact anatomy of the rectum, a study which he has carried on for many years, and some of the results of which have already been published. The instruments designed are unique in form and principle, and are intended to make the full inspection of the rectum possible without an anæsthetic.

The International Medical Annual for the year 1898 will now soon be issued. This publica-

tion has reached its sixteenth year, and has acquired a high reputation. It is promised that the forthcoming volume shall surpass all previous issues and contain several new features. The work may be obtained from the publishers, E. B. Treat & Co., of New York. Price, $3.00.

The Record says that Professor Schenk, well known to American students as the head of the Embryological Institute in Vienna, has announced that after twenty years' study of the question he is now prepared to tell how to determine and regulate the sex of offspring, and will do so in a communication to the Academy of Science.

MISCELLANY.

THE STATISTICS OF ABORTION.

The following letter is addressed to all registered physicians and licensed midwives in the United States:

Dear Doctor:—I most earnestly appeal professionally to each of you regardless of your school of practice, your prominence in the medical profession, or your location, to answer the questions given below. In replying please designate each question by its number. Answers can be made in numerals, and if you do not elect to respond by letter a postal card will do as well. The face of such a card will present only an aggregation of meaningless figures to all who handle it except ourselves.

However, I will highly appreciate whatever you may impart in relation to criminal abortion otherwise than may be contained in your answers to my questions. I trust your visiting list, your cash and account books, and other data in your possession, will enable you to give definite or approximate answers without consuming too much of your time. If the 115,000 to 120,000 physicians in the United States will kindly give the information I ask I will return to them through the medical press, some time during 1898, a summary of the results of my investigation.

I desire to assure you that every line given me on the subject of my inquiries will be held strictly private, if you request it, and should you not request its privacy, I will give it good treatment. If for any reason you wish to withhold your full name your initials will suffice. Remember my inquiries cover the year 1897, and where you cannot give a definite answer an approximate answer is desirable:

QUESTIONS.

1. Give total number of abortions from all causes that occurred in your practice during 1897?

2. In how many of these abortions were the elements of criminality, to your mind, apparent?

3. In how many of these abortions, except those classed in question 2, were the elements of criminality, to your mind, probable?

4. How many of the abortions named in questions 2 and 3 were followed by puerperal septicæmia or other diseases?

5. How many deaths resulted from the abortions named in questions 2 and 3?

6. How many still-born in your practice?

7. How many infanticides?

8. How many viable children born in your practice?

9. How many cases of puerperal mania resulted from the abortions classed in questions 2 and 3?

All midwives who are licensed are solicited and urged to answer the above questions so far as their knowledge enables them. Doctor, permit me again to beg that you answer my inquiries either definitely or approximately, and if for any reason you cannot fully answer all, do your best on questions two, three, five and nine. Medical journals throughout the United States are requested to favor the undersigned with an insertion of these questions in their January or February, 1898, issues. C. D. Arnold, M. D.

El Reno, Okla.

*Note.—Question 1 should include abortions which you know occurred among your lady patrons without the attention of a reputable physician. Any abortion that resulted from an obstinate disregard, on the part of the woman, of a physician's advice, or from the wilful commission of any act which her observation, experience and other knowledge gave her reason to believe might induce immediately or even remotely the expulsion of the uterine contents, was criminal. (Any act, however simple, occurring in the daily avocation of a pregnant woman, if impelled by an intent, or even a desire or wish to get rid of her pregnancy, is criminal whether she aborts or not.) I use the word "abortion" here to mean the expulsion of the products of conception at any time during gestation to the end of the seventh month, if the abortion was unavoidable, and to full term, if criminal.

The latest report of the Pasteur Institute of New York shows that during the seven years, 1890 to 1897, there have been treated 962 patients of whom twelve have died of hydrophobia. This is a percentage of 1.24.

SEXUAL DEBILITY.

Dr. F. R. Sturgis says in regard to sexual debility:

1. That the cases of sexual debility which are marked by imperfect erections and by premature emissions are usually, if not entirely, due to hyperæsthesia of some portion of the urethra.

2. That masturbation has very little, if anything, to do with it, beyond the fact that if indulged in to excess it may induce a tendency toward this hyperæsthetic condition, but this is no more marked in masturbators than it is in those persons who indulge to excess in the venereal act.

3. That organic stricture has little, if anything, to do with it; but that associated with this hyperæsthetic condition there is an irritable condition of the canal which produces spasmodic contractions of the urethra upon attempts to pass instruments, oftentimes during the first act of micturition and at the time of the connection.

4. That varicocele plays no unimportant part in these cases.

5. That neuralgia of the testis, if a cause of this disease, induces it merely as a secondary consequence to the pain, which is one of the distinguishing features of this disease.

6. That tuberculosis, syphilis and gonorrhœa may also play their part and should all be reckoned with in summing up the causes which may induce this peculiar and depressing condition of affairs.—Gaillard's Medical Journal.

Jaboulay, of Paris, before the Academy of Medicine in Paris, read a paper dealing with nine cases of section of the cervical sympathetic for exophthalmic goitre. The results were good, both with respect to the exophthalmos and to the goitre and palpitations. The best results were obtained in young people in whom presumably the accelerator system of the heart was less developed and more thoroughly modified by the division of the sympathetic. In cases of the failure of the treatment he thinks it can be explained by the existence of two sympathetic cords in the breast which is often the case. At the same meeting Doyen reported two cases treated by thyroidectomy. He thinks this is more successful and a great deal safer than the division of the sympathetic.—N. A. Practitioner.

The Paris correspondent of the Chicago Clinic writes: We are informed through the veracious columns of Le Journal Amusant that there has recently been invented a new form of treatment, which is called Zoötherapie, or the art of curing by contact with animals. It is not to be thought that this is the product of the veterinary school, but we are told it has its origin among authentic medical men, whoever or whatever they may be. Le Moniteur des Expositions gives abundant and curious details regarding this quaint method. For example, the disappearance of a violent migraine is accomplished by the application of a dog to the forehead. According to Le Moniteur, Doctor Bonnejoie (a most sympathetic name) was relieved of a severe pain in the shoulder by the application of a rook to the affected part. The case of an ecclesiastic, who is described as nervous and bilious, and whose health was entirely ruined by malarial fever, was relieved by having a cat occupy his couch, and he was reëstablished in excellent health by the transpiration of the diseased condition to the little animal. Naturally, the ecclesiastic remains still nervous and bilious, but the fever has disappeared.

Thominski has observed the influence of kumyss on menstruation in three cases, one case of which deserves particular attention. A woman, 39 years old, in the last five to six years menstruated every ten days or two weeks, the flow lasting seven to nine days, and being very abundant. In the years 1889 and 1890 she was treated by specialists, who found endometritis fungosa; but she did not consent to scraping (excochleatio), and used only injections of Savage's solution, two or three times, in order to arrest hemorrhage, but without any effect. In the summer of last year she went to Samara, on account of her children's health, where she drank kumyss from June to July 20th. During the kumyss treatment the menstruation set in every five to six weeks; her strength improved; the quantity of blood lost was considerably diminished. Now she menstruates every three weeks, and in less degree than formerly; so that she does not see any necessity for undergoing special treatment. Besides two other cases of such good effects of kumyss on irregular menstruation, the author has seen, also, in one case, the arrest of abundant nasal hemorrhage after the kumyss treatment.—Watch.

Dr. Singer, of Vienna, asserts that acute articular rheumatism is due to the presence of pus microbes in the tissues, and that it is, therefore, a modified form of pyæmia. Following out this theory, he believes that the true specific treatment of the disease consists in the intravenous injection of a sublimate solution, and he claims that this will cut short the disease and prevent valvular complications much more effectually than salicin or salicylic acid. His experiments and investigations were conducted in Weichselbaum's clinic.—Record.

Dr. Richard Ellis, writing of the effect of tobacco upon the optic nerve, says that it is the working man, who lives out of doors, and who consumes tremendous quantities of food and oxygen as well as tobacco, who is usually the victim. The cigarette smoker escapes because his stomach gives out before his optic nerve is in the least danger. In short, there is more harmful possibility in one pipeful of strong shag than in 100 mild cigarettes.

THE ARMY MEDICAL SERVICE.

The Army Medical Board will be in session at Washington City, D. C., during the month of May, for the examination of candidates for appointment to the Medical Corps of the United States Army, to fill existing vacancies.

Persons desiring to present themselves for examination by the Board will make application to the Secretary of War before April 15, 1898, for the necessary invitation, giving the date and place of birth, the place and state of permanent residence, the fact of American citizenship, the name of the medical college from which they were graduated, and a record of service in hospital, if any, from the authorities thereof. The application should be accompanied by certificates based on personal acquaintance, from at least two reputable persons, as to his citizenship, character and habits. The candidate must be between 22 and 29 years of age, and a graduate from a regular medical college, as evidence of which his diploma must be submitted to the Board.

Successful candidates at the coming examination will be given a course of instruction at the next session of the Army Medical School, beginning in November, 1898.

Further information regarding the examinations may be obtained by addressing the Surgeon General, U. S. Army, Washington, D. C.

GEO. M. STERNBERG,
Surgeon General, U. S. Army.

OBITUARY.

ROBERT A. WHEATON, M. D.

At a special meeting of the Ramsey County Medical Society, February 14, 1898, the following resolutions were adopted concerning the death of Dr. Robert A. Wheaton:

Whereas, We have learned with unspeakable sorrow that the hand of death has fallen upon Dr. Robert A. Wheaton, our associate and fellow member;

Therefore, be it Resolved, That in the death of Dr. Wheaton this Society has sustained a loss which can never be repaired. He was not only one of our most active and faithful members, but he was a friend, loved, honored and respected by every one of us.

As a physican he was skillful, accomplished and worthy of every trust. As a citizen he was public-spirited and just. As a friend he was honest, unselfish and devoted.

To his family, who have lost in him a loving husband and father, we offer the true and deep sympathy which comes from the hearts of those who loved him.

Resolved, That a copy of these resolutions be engrossed on the minutes of the Society; that a copy be sent to his family, and that a copy be sent to the public medical press.

NOTES.

MEDICATION VS. SURGICAL OPERATION IN THE DISEASES OF WOMEN.

The man who becomes a successful and an eminent surgeon owes his success and his reputation not alone to the skillful use of the knife, but also to the skillful disuse of it. It may not be said of such a man that he operates too freely, for he knows when not to operate, as well as when relief is not possible without operation. The danger comes from over-confidence and from a lack of experience, especially in the class of operations which, though common to the specialist in the large city, are not so common to the general practitioner or even to the surgeon in the smaller city.

The gynæcologist—and who is not a gynæcologist in these days when the diseases of women are all-prevalent?—has been the freest with the use of the knife, and has done the most harm, both by his own bungling and the example he has set for less experienced and skillful men. Far be it from me to say one word against a necessary operation, however great the risk; but let the necessity for the operation be established by conclusive evidence that no other means, attendant with less risk, give hope of equally good results.

The causes for the diseases of women are often very obscure and remote, but the symptoms which present themselves to the physician point very clearly to conditions that must be changed to preserve health and save life. Foremost of the conditions are congestion and inflammation, attended by a whole train of evils. If the inflammation can be controlled, and the circulatory system put into, and kept in, a nor-

mal state, a good beginning has surely been made. With this start other conditions will reveal themselves, and will generally suggest and yield to proper treatment. I have found nothing so useful in the preliminary stages, and frequently throughout the management of most of women's ailments as Micajah's Medicated Uterine Wafers, which exert an antiseptic, alterative, and healing effect upon the inflamed uterine mucous membrane, rapidly restoring it to a normal condition. When the mucous secretions have disappeared, the physician will often find little cause for operative measures; but if such measures must be resorted to, his patient has been prepared for them by the use of the wafers, and the best results may be expected.

These wafers are particularly to be commended for use in cases which seem to call for a vaginal tampon, and with proper care in their application and rest on the part of the patient, most gratifying results will be obtained.

ORTHOFORM—A LOCAL ANÆSTHETIC FOR OPEN WOUNDS, BURNS, ULCERS, ETC.

Messrs. Victor Koechl & Co., the large German importing house, announce that the new local anæsthetic orthoform may now be obtained from pharmacists at about $2.00 per ounce, and that they will supply it at this price when it cannot be otherwise obtained.

Orthoform possesses so many advantages for local application that they cannot be described in the space at our command; but any one interterested can obtain a full account of the drug by application to the importers for the March issue of the Therapeutic Progress, wherein the distinguished discoverers of orthoform fully describe it.

BLENNOSTASINE IN LARYNGEAL AND BRONCHIAL COLDS.

I have made use of Blennostasine with the following results:

I have prescribed it in the treatment of three singers, who were using their voices every night at theaters, and who, at the time of coming to me, were suffering from acute laryngeal and bronchial colds; two of them were of the character of grip. I gave them one grain of Blennostasine, every half hour during the day, and succeeded in cutting short their nasal colds in a remarkable degree, and in diminishing the congestion of the larynx. I think we have in this drug a very useful remedy in aborting coryzas and acute laryngeal colds, and much prefer it to preparations of belladonna.

C. C. Rice, M. D.

ACCIDENTS OF GESTATION PREVENTED.

The rule of many physicians is to administer Dioviburnia in teaspoonful doses, four times a day one week before the time for periods, during the last three months of gestation. Experience has convinced them that Dioviburnia not only prevents miscarriage, but also facilitates parturition. To obtain satisfactory results great care should be taken to avoid substitution by always indicating "Dios" and sending your prescriptions only to such druggists as would not be guilty of this nefarious business.

December 29, 1897.

To the Imperial Granum Company, New Haven, Conn.:

Dear Sirs—I have raised my baby on Imperial Granum, and no healthier child can be found in the city. She is three years old, weighs thirty-six pounds, and still has two meals a day consisting almost wholly of Imperial Granum. Her last meal at night is Imperial Granum only. It is soothing, nourishing and satisfying, and gives good sleep and no nightmare, which children so frequently have from improper evening feeding! I always speak enthusiastically for the Imperial Granum, for I know of no food that is as good for babes and children. ———, M. D.

Literature and samples for clinical test supplied only to physicians and trained nurses. Sent free, charges prepaid, on request. Correspondence solicited.

LEINOL.

This preparation is a combination of Ol Lini with Acid Hydrocyanic in the form of perfect emulsion. To each fluid ounce is added four drops of Sulphate of Codeine. It is the modified formula of Prof. Wm. H. Thomson, of the University of New York, and is especially indicated in childhood and old age, and from the numerous letters that have been received by the Norwich Pharmacal Co., who manufacture it, they are almost unanimous to the point that it is extremely pleasant to the taste, that it increases the appetite, and dispels night sweats, and in winter coughs, colds and bronchitis its action is all that could be desired. And in nearly every case there has been a gain of weight and renewed energy following its use.

The preparations of "Pepsin," made by Robinson-Pettet Co., are endorsed by many prominent physicians. We recommend a careful perusal of the advertisement of this well-known manufacturing house.

RHEUMATISM.

There are many cases of rheumatism in its various forms, which otherwise prove most obstinate and unyielding, but which can be cured speedily and thoroughly by the use of Tongaline Liquid or Tongaline Tablets or Tongaline & Lithia Tablets or Tongaline and Quinine Tablets, as the conditions may indicate, all to be taken at short intervals and washed down with plenty of hot water, as hot as the patient can bear it.

This treatment can be supplemented by the local application of Tongaline Liquid; or the disturbing effects of internal medication upon an irritable stomach and sensitive nerves can be avoided by the external use of Tongaline Liquid alone.

The affected parts should be sponged first with alcohol, then with Tongaline Liquid, and cloths saturated with the remedy held in apposition by oiled silk bandages, applying heat by a hot water bag or other convenient method to facilitate absorption. Tongaline Liquid, in like manner, may be given externally by the aid of electricity.

A PERFECT CO-ADJUVANT.

Physicians should not forget that no matter what their preference may be as to the form in which milk should be used for their patients and the babies under their care, whether it is modified, sterilized, Pasteurized, peptonized, treated by some other method, or natural, they can always depend on the perfect co-adjuvancy of that unrivalled dietetic preparation, Imperial Granum. Many years of successful clinical experience having proved this combination of nutriments to be acceptable to the palate and also to the most delicate stomach at all periods of life, being in many cases retained and assimilated when everything else is rejected, though in very extreme cases the Imperial Granum is often prepared with pure water only.

FOOLISH LEGISLATION.

Every medical man, as well as every man of intelligence, will welcome the most stringent legislation to protect the health of the people, whether such legislation is in the form of pure food or pure drug laws; but when the state undertakes to manufacture drugs,—as in the case of New York City, which is said to have spent $60,000 a year in the manufacture of antitoxine which could have been bought for $10,000—or to put into the hands of a political chemist to say what constitutes an impurity, the state makes a great mistake, and the reaction against such folly will be more than all the evils which the law has attempted to redress.

It is no doubt true that there are some proprietary medicines on the market whose sale should be prohibited, as there are substitutes for drugs, and drug compounds, which may often be dispensed by physicians; but the wild charges made by the press and some legislators of wholesale poisoning from such drugs and compounds are utter nonsense. Does any sensible business man believe that such a firm as Parke, Davis & Co., or Scott & Bowne, or Mariani & Co., or Wm. R. Warner & Co., or indeed any reputable firm depending upon physicians for the sale of their products, would put in jeopardy their reputation by selling a dangerous compound under a harmless formula? It is conceivable that a firm without financial standing and with but a single product for sale, might adulterate that product to a harmful extent; but the danger really lies in the other direction; that is, in the direction of inertness of the drug or compound. The intelligent physician will soon discover this fault in what he prescribes; and it is well that all other physicians should not discover it, for in their attempts to get results, the wrong kind may be obtained. We, therefore, think this evil is not an unmixed one, and that it certainly does not call for legislation of a character so general as to produce really grave results.

A WINTER REMEDY.

That Codeine had an especial effect in cases of nervous coughs, and that it was capable of controlling excessive coughing in various lung and throat affections, was noted before its true physiological action was understood. Later it was clear that its power as a nervous calmative was due, as Bartholow says, to its special action on the pneumogastric nerve. Codeine stands apart from the rest of its group, in that it does not arrest secretion in the respiratory and intestinal tract.

The coal-tar products were found to have great power as analgesics and antipyretics long before experiments in the therapeutical laboratory had been conducted to show their exact action. As a result of this laboratory work we know now that some products of the coal-tar series are safe, while others are very dangerous. Antikamnia has stood the test both in the laboratory and in actual practice, and is now generally accepted as the safest and surest of the coal-tar products. Five grain "Antikamnia and Codeine Tablets," each containing $4\frac{3}{4}$ grains Antikamnia, $\frac{1}{4}$ grain Sulph. Codeine, afford a very desirable mode of exhibiting these two valuable drugs. The proportions are those most frequently indicated in the various neuroses of the throat, as well as the coughs incident to lung affections.

ORIGINAL ARTICLES.

SOME PRINCIPLES UNDERLYING THE TREATMENT OF MALIGNANT GROWTHS BY OPERATION.*

By J. Clark Stewart, M. D.,

Professor of Surgical Pathology in the University of Minnesota.

Minneapolis.

It must first of all be confessed that the operative treatment of malignant diseases has lagged far behind other departments of surgery in the rapid progress made in the last twenty years.

Still much has been added to our knowledge of these most fatal and repulsive maladies, and a proper application of the accepted facts will greatly increase our success in this heretofore most unsatisfactory field.

There has been too much of a feeling in the profession, fully justified perhaps by the observed results of surgical interference, that there was little use of attempting anything more than the palliative treatment of these maladies. Then, too, the commercialists in surgery have done a host of unjustified and imperfect operations under the plea of "giving the patient all the chance possible," until it is not to be wondered at that the reputation of the knife in the treatment of malignant tumors has sunk to a very low point among the laity, and that so large a proportion fall victims to the cancer quack with his torturing caustics rather than chance the uncertainties of a cutting operation.

The surgeon has been handicapped in this lay comparison by several factors, some permanent and inherent to the character of the disease, a striking illustration being the secretiveness and reluctance to acknowledge the presence of a tumor which is so often observed in the subjects of cancer, and which by delaying diagnosis is such an obstacle to successful treatment.

Another factor, also permanent so long as the public enjoys hunbug, lies in the dishonesty of the quack, whose successes are quite regularly due to false diagnoses, while here the honest surgeon is doubly at a disadvantage because when he makes a false diagnosis and does an extensive operation for supposed malignant disease, he will have the removed tumor examined microscopically and the findings reported to his patient, while the same tumor in the hands of the quack would count as a cure of cancer by the caustic.

Still it seems to me that if surgeons would agree on certain principles to govern operations upon malignant disease, and abide by them, regardless of commercial interests, lay opinion would soon change, and when it was shown that early and properly executed operations did give curative results in malignant disease in a certain fair proportion of cases, these results would be further improved by the removal, by public confidence, of the greatest barrier to success at present, namely, the early diagnosis of the disease.

You will pardon my running over certain facts and theories probably familiar to you all, but necessary to a proper understanding of the subject. First as to what is meant by a malignant tumor. This would seem perfectly plain, but it is surprising how loosely this term is used by even learned authors. I shall, therefore, define a malignant tumor as one which possesses in se the power of causing death without regard to its location.

This excludes all so-called local malignancy, which is a confusing expression and quite the reverse of useful or sensible, for why should a bony growth within the skull cavity be called locally malignant any more than a fracture of the skull which might cause death by the same compression of the brain? A malignant tumor kills by powers inherent to itself of exhausting the vital powers of the organism, by the drain of its growth, and by the poisonous properties of its secretions, and upon these its malignancy depends.

You may even have the anomaly of a malignant growth causing death not by its malignancy, but by local accident, as in cerebral sarcoma, uterine carcinoma, etc., but such tumors still have their inherent powers of causing death by their direct effect upon the vital economy of their host. Malignant tumors must, therefore, belong to the two great classes of new growths known to possess this power, the carcinomata and the sarcomata, both tumors formed on the type of embryonic tissue, the first being typified by embryonal epithelium and the latter by embryonal connective tissue.

Occasionally other tumors take on malignant features, but in these cases careful microscopic study will generally show either sarcomatous change or the engrafting of carcinoma upon a preëxisting tumor. Chondromata, myxomata and adenomata are most frequently suspected of malignancy. The two former in such cases change to sarcomata, and the latter to carcinoma, or are the seat of carcinoma.

Clinically malignant tumors in their early stages behave like benign growths, but a little later they grow rapidly, infiltrate neighboring

*Read before the Hennepin County Medical Society, January 3, 1898.

parts, infect the nearest lymph nodes, and finally form metastatic deposits in various locations.

Under the microscope the infiltration is marked even at an early period, and the diagnosis is to be made by the cell morphology and distribution. As it would be of no value for the purposes of this paper to go into histological details, I will omit them.

Etiology. Many interesting theories have been advanced to account for tumor formation, and to most of them a certain number of tumor forms can be fitted. The embryonal hypothesis of Cohnheim is the most generally considered, and certainly accounts for many benign tumors quite satisfactorily, but utterly fails to explain the occurrence and life history of malignant growths.

As you know, this hypothesis assumes embryonic defects by which certain cells become displaced and remain quiescent in the body until under unknown stimuli they again assert their embryonal prerogative of growth and form tumors depending for their characters upon the kind of cells originally displaced.

This hypothesis can be made to explain most benign tumors as well as the teratomata, dermoid cysts, etc., although the latter can be even more satisfactorily understood as the results of a blighted twin conception, but much ingenuity is needed to thus account for the malignant tumors.

The occurrence of malignant growths in scar tissue is by itself a bar to the acceptance of Cohnheim's views, unless with Senn you adopt a modification and include embryonal cells of post natal origin as the nidus from which malignant tumors may spring. This theory fails to account for lymphatic infection and metastases, and is entirely inadequate from our present point of view as an explanation of the observed facts. Among the many other hypothesis there is only one that need detain us—that malignant growths are the results of parasitic infection.

This is a most fascinating theory in these days of the exaltation of bacteriology, and while we must still bring in the Scotch verdict of "not proven," many facts lead us to hope that the time is not far distant when we shall know definitely the true causation of malignant growths, and hence be better able to prevent their occurrence, or at least to diagnose them sufficiently early to make radical operation successful.

It would take too long to detail the work already done by hosts of observers along this line, and it will suffice to state that the trend of the work done is to point to an animal rather than to a bacterial parasite being in causal relation to these growths.

The following facts in the life history of malignant tumors point to the probability that these growths will finally be proven to be infectious:

First. The class of small, round celled sarcoma used to include actinomycosis and many syphilitic and tubercular lesions. Now the causes of these latter diseases having been discovered they have been properly classified, but there still remains the rest of the class as sarcoma differing little morphologically from the named lesions above. This remnant will undoubtedly be soon removed from the sarcomata by the discovery of its etiology, and then will probably ensue an entirely new classification of the sarcomata in all varieties and with our new knowledge will come improved treatment.

Second. The life history of malignant tumors partakes much of the character of a chronic infection; a carcinoma, for instance, may be compared with a local tuberculosis as follows: there is always at first a purely local affection slowly spreading in near parts; next an involvement of the neighboring lymphatics with infiltration of the proximal lymph nodes and temporary arrest of the spread of the infection. Thus the process spreads from node to node until it reaches the general lymph stream by which it is carried to the blood, causing a general miliary carcinosis which closely resembles in some points a miliary tuberculosis.

Third. Grafting experiments have been quite successful, and there is no doubt that cancer can be easily transplanted to other parts of the same individual; and as I will note later this is a frequent cause of recurrence after operation. Of course this may prove nothing as to the parasitic character of cancer, as live cells may be often successfully transplanted, but still this proneness to reimplantation in spite of antiseptics freely used is suggestive of some hardy parasite.

Whatever the coming years may disclose as to the nature and cause of malignant tumors, at present nothing known is of any value in prevention or cure and we must turn to their life history for the facts which can improve our ideas of their operative treatment.

All tumors, malignant or benign, are developed by the proliferation of cell elements of the same type as those that form them, and usually all growth proceeds from one small center. However, malignant tumors grow at their periphery, while most benign tumors increase by central growth, which often results in the formation of a capsule, which thus becomes a sign of benignancy.

In all malignant growths there are three stages of extension: 1. Local growth. 2. Regional infection. 3. Dissemination.

Local growth occurs by the multiplication of the original cells with infiltration of the sur-

rounding tissues if soft, or their absorption if hard. There is sometimes what is called discontinuous extension by nodules apparently separated from the parent growth, but this is merely a gross appearance, as the microscope will show direct connection by tracts of cells, and the condition is dependent upon local pressure and cleavage.

While this local stage endures the tumor remains an absolutely local disease, as is agreed by all theorists, and can hence be removed with surety against recurrence, but unfortunately this stage passes imperceptibly into the stage of regional infection, so that the operator is often deceived and his success impaired.

This second stage is marked by lympathic involvement, generally of the nearest nodes only, but sometimes of the lymphatics in toto, as far as and including the nearest nodes. The tumor cells appear to be carried to the nearest node, fix themselves there and form within its capsule a growth in every way similar to the parent tumor. The infection gradually spreads to the next node, and through the whole chain until the thoracic duct is reached, when the third stage of dissemination begins, or in some cases this may antedate the complete involvement of the lymph chain by the occurrence of perforation of a blood vessel by the new growth, and the direct introduction into the blood of tumor cells, with the result of multiple embolism, each embolus being the origin of a metastasis exactly like the parent growth.

You will note that while the above applies to both sarcomata and carcinomata, that in the former class the second stage of regional infection is quite often omitted, because as a consequence of their more vascular character and the peculiarities of their vesseis, metastasis often takes place before distinct regional infection.

Considering the above well established facts, I think that the following rules may be laid down for operations for the cure of malignant disease, and by cure I mean operations where the operator has a right to believe that there will be no recurrence, and any other operation ought, I think, only to be undertaken with the distinct understanding with the patient that the result can only be palliative, and such operations should be strictly limited if surgery is to gain much credit in this neld.

While the tumor is in the first stage it should be cleanly removed with considerable surrounding tissue, and the neighboring lympatics, and without any incision into its substance.

The amount of surrounding tissue removed must be dependent upon the judgment and experience of the operator, but more failures are the result of trying to secure good cosmetic results than from any other cause.

In regard to incising the tumor, an error frequently seen in the operations of first-class surgeons, the results of experimental transplantations show that it is only too easy to graft these neoplasms, and this should certainly be forbidden. Piecemeal removal of malignant tumors is certainly bad surgery. It is far better to carefully clean out the axilla in an operation for diagnosed carcinoma of the breast, and find out afterwards that the tumor was a tense cyst or adenoma, than to cut into a carcinoma or what more commonly happens, separate it from the infected lymphatics, and thus inoculate the wound with a contagion which antiseptics seem powerless to inhibit.

All malignant tumors should, I tnink, be operated upon when seen in the first stage, and where the operation can be completed, without regard to the magnitude of the operative procedure, for nowadays the mortality from even the most heroic operations counts for little compared with the sure and painful death from cancer, and I think that each victim is entitled to this chance.

Unfortunately most of these tumors are not diagnosed in this so-called benign local stage, and regional infection has generally begun before any operation can be performed.

In this state the justifiability of an operation depends entirely upon whether it is possible to entirely remove the tumor with its infected lymphatics. If this can be done it ought to be, no matter how extensive the necessary dissection, but here comes in the same point so often disregarded of avoiding grafting by removing the parent tumor and the infected lymphatics, with the surrounding conective tissue in one uninjured mass.

Doctor Halstead, of Johns Hopkins, was the first to bring this point prominently before the American medical public by his articles upon carcinoma of the breast, and his results then and now are the best that I have seen published. He contends that to do justice to your patient with cancer of the breast, you must remove the skin covering the breast, the pectoralis major muscle, the axillary contents, and after section of the pectoralis minor, the fat and lymphatics under this muscle, all in one mass without section of any of the lymphatics, carrying the dissection high into the neck. He has been abused for this so-called mutilating operation, but his results justify it, and really the disability after removal of the pectoralis is hardly noticeable. I show you here a specimen from what was practically a Halstead operation, and the patient five months afterwards shows scarcely any disability, and that little from the dissection of the axilla.

In this specimen the highest lymph node was

taken from about the junction of the subclavian and internal jugular veins, and the microscope has shown it to be non-cancerous as well as several of the nodes nearest the breast. The main growth was a schirrus of very rapid growth, in a woman of 63, and was operated upon about fourteen days after she first discovered the lump in her breast, and yet you see there was extensive regional infection.

All cases with removable regional infection should be operated upon at once, but the moment the regional infection is irremovable, or there is general dissemination, all operation should be frowned upon by the profession, and the surgeon who disgraces his calling by doing this class of operations for a fee, should be considered the thief that he is.

Now, please understand my position, and I think most of you will agree with me. Many operations may be done honestly during the second stage of the disease which fail because the surgeon has underestimated the extent of the disease and at last finds that he can not remove the whole.

Then many operations of a purely palliative nature are justifiable where there is no possible hope of non-recurrence, if the patients or their friends are informed of the exact facts, and understand that they are paying their money for purely palliative measures, as when a recurrent cancer is operated upon to prevent the pain and annoyance of an open ulcer, or with the hope that metastasis may prove fatal before another local recurrence can take place.

But to take the money of these poor unfortunates, as is so often done by surgeons caring more for their fee than for the honor of the profession, under the plea "that an operation is the only thing that can help them," "giving them all the chance possible," or anything but a frank statement of the facts is, I think, worse than highway robbery, and unfortunately discredits the cause of early surgical treatment of these tumors equally with the unscrupulous operator.

Such methods should be left to the cancer quacks and surgeons who care to associate themselves with them, for a share of the fee extorted from sufferers whom reputable men in the fullness of their knowledge and skill have told, "I can do nothing for you; it is too late."

Let us pity these poor victims, but let them die in peace, and let us condemn utterely anyone who shall deceive them in their forlorn and hopeless condition.

Certain malignant tumors must be discussed separately if accurate rules of operation are to be formulated.

Thus the epitheliomata, i. e., the squamous celled carcinomata, are the least malignant, have the longest period of purely local growth, and consequently afford the greatest numbers of successful removals, both by the knife and caustics. They can be well treated by operations more closely limited to the tumor field than other cancers, as they infiltrate little and infect the lymphatics late, but when they have once passed the first stage they spread rapidly, and soon become past operation.

They occur quite often in scar tissue, and this fact suggests the propriety of covering the site from which an epithelioma has been removed at once by a plastic operation, so as to avoid granulation and scar formation.

Another practical point is that in an ulcerating epithelioma the enlargement of the lymph nodes is at first purely inflammatory, so that what appears to be a severe regional infection is often only apparent, and this is especially true in the lower extremity where epithelioma occurs in the scars of old varicose ulcers.

Bone sarcomata form a field of much debate as to the advisability of any operation, and some authorities claim that only rarely is any sarcoma curable by operation.

In general certain principles exist and are generally admitted: as that the giant cell, periosteal sarcoma is often quite benign, and does not recur when entirely removed. On the other hand the sarcomata originating in the bone itself are very malignant, and give bad operative results.

It is now generally conceded that a sarcoma of a long bone demands the complete removal of said bone, and that after such removal the prognosis depends upon the microscopic findings, the central sarcomata before they have perforated the bone, and the spindle celled periosteal growths giving the most hope of non-recurrence, and the small, round celled periosteal forms the least.

It seems, therefore, eminently proper to amputate at the hip joint for sarcoma of the lower end of the femur, as has been done several times lately in this city, for only by so doing can possible grafting be avoided, and only rarely would any lesser procedure be of avail.

Most sarcomata of the ribs, pelvis, vertebræ and skull are practicably inoperable.

There still remains the fundamental question, can we by any operation, at any stage of the disease, ensure a cure?

Many doubters say no; but I believe that this is because their opinions are founded upon the observed results of late and improperly executed operations. Without doubt many of those present can cite cases where carcinoma or sarcoma diagnosed by the microscope have failed to recur after operation.

As most satisfactory proof in a most unsatisfactory field, I am able to read you a letter

from Prof. William S. Halstead, of Johns Hopkins, giving his results to date from operations upon cancer of the breast, and these I think can hardly fail to be convincing.

1201 Eutaw Place, Dec. 31.

"Dear Doctor Stewart:

"I have just received from my ex-house surgeon, Doctor Bloodgood, our latest cancer statistics, which he has been working at for some days.

"We have performed 139 operations for breast cancer with only six local recurrences, if we exclude four inoperable cases.

"Seventy cases have been operated upon for from three to eight years (over three years); 38 of these lived over three years, 32 cases are dead. Therefore according to the generally accepted rule (three years limit), fifty-four per cent of the cases were cured. Of those that died (32 of metastasis, etc.,) only four had a local recurrence. Seven had regionary metastasis.

"Please observe, therefore, that our present results are even better than those published by me a few years ago in the article which has been so severely criticised by the disbelievers. * * *

"I hope that this letter will reach you in time for your paper, and I am more than glad to have you refer to our results, for the lives of many thousands of people a year depend upon the conscientiousness of the surgeon and the way he operates upon cancer cases.

"Very cordially yours,

"W. S. Halstead."

REPORT OF THE DIRECTOR OF THE BACTERIOLOGICAL LABORATORY OF THE MINNESOTA STATE BOARD OF HEALTH FOR THE QUARTER ENDING DEC. 31, 1897.*

By F. F. Wesbrook, M. D.

Director of the Laboratory of the Minnesota State Board of Health; Professor of Pathology and Bacteriology in the Medical Department of the University of Minnesota.

During the past quarter the routine work has increased, as might have been expected from the experience of last year. The size of the force not having increased to meet the greater demands, makes it difficult to cope with the routine work alone, and daily the opportunities which are afforded of exploring some new and promising field of research of extreme value to this Board have been allowed to go by.

Notwithstanding this, by dint of using the most available materials and occasional moments left from the duties which have now come to be regarded as routine and therefore demanding first attention, some time has been found for research.

RESEARCH WORK.

The interesting work done in connection with the diagnosis of rabies and typhoid fever has been partly presented, in accordance with the permission of this Board, in two papers read before the American Public Health Association, held at Philadelphia in October, 1897.

The titles of the papers read were as follows:

"A Preliminary Report on the Examination of Twenty Cases of Suspected Rabies."

"The Serum Diagnosis of Typhoid Fever from the Public Health Laboratory Point of View."

(These, with the paper on "The Serum Diagnosis of Typhoid Fever in an Epidemic During Which B. Typhi Abdominalis Was Isolated from the Public Water Supply," and another on "B. Diphtheriæ and its Variants Where Diphtherial Is Endemic," which were read before the British Medical Association in Montreal in September comprise the published papers of the laboratory during the year.)

Other matters are not being neglected, and research is being prosecuted in connection with the following:

The epidemic amongst calves, reported by Drs. Reynolds and Brimhall, which appeared to be somewhat similar to cases before described as "verminous bronchitis," has been under investigation for some months by Dr. J. Dice McLaren, Professor of Biology and Bacteriology, at the South Dakota Experiment Station, Brookings, who has been working since last July in the laboratory, and to whom this Board, at its last quarterly meeting expressed its appreciation of work of a routine character so well and cheerfully done by him.

This research upon the calves has involved a huge amount of work, both bacteriological and biological, and has as yet yielded nothing sufficiently constant of occurrence for a report to be made. Dr. McLaren has been compelled, on the expiration of his furlough, to return home and has taken part of the materials with him, with the intention of carrying his researches further. As opportunity arises here, parallel investigation will be continued.

There is also under investigation a highly instructive case of supposed rabies in the human subject, from the brain and medulla of which B. diphtheriæ has been isolated, and proved to

*Presented at the quarterly meeting of the Minnesota State Board of Health, held Tuesday, January 11, 1898.

be pathogenic. It may also be here noted that on two tests during the week before death in the patient, a strong "typhoid reaction" was obtained. Two rabbits, inoculated subdurally from the brain, have developed symptoms which appear to be those characteristic of rabies, in 19 and 20 days respectively. There is still a very great deal to be done in the matter, and the present indications may not be verified.

Systematic tests of five kinds of apparatus, of different makes, for disinfection by means of formaldehyde are being made. This investigation was suggested by the discrepancies of the accounts of different investigators, both published and expressed in discussion at the meeting of the American Public Health Association. It seemed advisable, too, that this Board, through observations in its laboratory, which should later be published, could, upon appeal, give some accurate information and advice to local boards and others requiring them.

Further investigations upon rabies, and especially upon means of protection and a possible cure are in progress. It is also the intention to proceed with the investigation of the use of the serum of immunized animals, both prophylactically and curatively, in the attempt to verify and extend the work done in Europe by Tizzoni and Centanni and Babes. A fixed virus has been promised from the New York City Board of Health, which will be used for comparison and experiment with those made available by material coming in for diagnosis.

The serum diagnosis of typhoid fever is still under investigation ,and the large number of cases occurring in Minneapolis has afforded a very good opportunity for its study.

A quick and accurate method for the isolation of B. typhi abdominalis is more and more needed, and efforts have been and are being made towards solving the difficulties, but apparently hitherto without avail.

Studies on the varied morphology and pathogenesis of B. diphtheriæ are being continued, and it may be mentioned that the conditions existing in one particular locality under investigatsion, offer excellent chances, which are not being allowed to go entirely unutilized.

THE STAFF AND WORKERS IN THE LABORATORY.

The personnel of the laboratory has been slightly changed. Dr. A. W. Miller, Junior Assistant Bacteriologist, has resigned to accept the position of Bacteriologist to the St. Paul Health Department. The vacancy created by his resignation has been temporarily filled by Dr. O. McDaniel, of whose capacity for efficient work the Board has in the past had ample proof, and her appointment is here recommended.

Dr. McLaren has left to resume his duties in the University of South Dakota, to the regret of all the workers in the laboratory.

The official staff of the laboratory is as follows:

Dr. F. F. Wesbrook, Director.

Dr. L. B. Wilson, Senior Assistant Bacteriologist.

Dr. O. McDaniel, Junior Assistant Bacteriologist.

Mr. W. P. Moorhead, Clerk.

Mr. H. M. Charleston, Janitor.

In addition to this regular staff, Messrs. Gray, Magee, Hare and McLeod, students in medicine, are making themselves extremely useful in the making of media and similar routine preparation work.

It is necessary to state that no more work can be undertaken than is now in progress, with the present force, and that being done now cannot be continued without very serious interference with its quality and the satisfactory relations hitherto existing between the laboratory and those availing themselves of its services.

The time has arrived when a settled policy will have to be adopted in regard to the character and scope of the work in the laboratory.

Greater discrimination must be made in the making and reporting of diagoses. The question of limiting the operation to cases coming through local health boards assumes greater importance.

The limitation would cut off perhaps in certain instances opportunities for research and study of many interesting matters, and in this and other respects prove harmful.

Certain improvements in methods, and the desirability of emphasizing certain points, or introduction of new instructions where experience has shown them necessary, would seem to demand a new edition of Circular of Information No. 1.

The proposed changes, questions of policy and such matters, have all been referred to the Executive Committee, which will doubtless be prepared to report.

The following is a table of the examinations made in the laboratory for each quarter of the past year, showing the relation of the amounts for each month, as well as the total number of those done in 1896.

It must be remembered that in each case of rabies examined, from two to twenty-one rabbits have been inoculated and kept under observation for a period of two to six months. In all the cases of rabies to date rabbits have been used.

Likewise water examinations require work every day for a period of ten days to two months or longer.

The examination of materials, tissues, etc., from cases of unknown or undiagnosed diseases of men or animals, requires a time all out of proportion to the results achieved, so that it is difficult to estimate the amount of work done in other examinations than those for diphtheria and typhoid fever (blood).

SYNOPSIS OF EXAMINATIONS 1896 AND 1897.

EXAMINATIONS.	QUARTERS.				Total '97.	Total '96.	Total for both years
	1st	2nd	3rd	4th			
Diphtheria	565	448	515	879	2407	923	3330
Typhoid	394	465	728	821	2408	62	2470
Tubercle	40	47	29	25	141	84	225
Water	8	3	15	3	29	9	38
Glanders	4	6	5	1	16	....	16
Anthrax	5	2	..	1	8	....	8
Swine Plague	....	....	....	....	...	1	1
Hog Cholera	1	6	2	....	9	1	10
Rabies	8	4	5	4	21	3	24
Verminous Bronchitis	....	....	3	....	3	....	3
Parasites in Lambs	....	....	1	....	1	....	1
Infectious (?) diseases of fowls	....	....	....	1	1	....	1
Rabbit Inoculations	38	39	50	22	149	13	162
Guinea Pig Inoculations	13	45	56	12	126	....	126
Rat Inoculations	....	1	3	....	4	....	4
Mouse Inoculations	....	1	1	...	2	....	2
Dog Inoculations	....	....	...	...	4	....	4
Sundry Examinations	4	5	1	3	13	2	15
Totals	1080	1072	1418	1772	5342	1098	6440

As will be seen from the accompanying table, bacteriological examination of diphtheria is being utilized in a greater number of places than ever before.

In the table, in most instances where one or two examinations only are reported from a place, the diagnoses given have been "not diphtheria."

On the other hand, it sometimes occurs that after a positive diagnosis has been sent, and with it Special Notice No. 1, of which for reference a copy is here appended, no further specimens are sent.

DIPHTHERIA.

Synopsis of Diphtheria Examinations for October, November, December, '97.

PLACE.	October	November	December	Total No. Examina's
Adrian	....	....	1	1
Austin	....	1	2	3
Belview	2	11	....	13
Blooming Prairie	....	...	1	1
Brainerd	1	....	4	5
Brownsville	1	...	....	1
Chaska	....	2	1	3
Cromwell	9	10	....	19
Eagle Bend	....	....	3	3
Elk River	....	....	2	2
Fargo, N. D	....	2	....	2
Faribault	2	5	11	18
Farmington	1	....	....	1
Grand Forks, N. D	2	....	...	2
Jordan	...	....	1	1
Lake City	2	3	1	6
Little Falls	1	....	....	1
Long Prairie	3	...	...	3
Luverne	1	...	....	1
Lyle	1	1	....	2
Mabel	2	1	....	3
Maple Lake	2	....	....	2
Mazeppa	....	....	1	1
Millville	....	1	1	2
Minneapolis	77	98	93	268
Minn. Lake	....	10	9	19
Monticello	....	1	....	1
New London	1	....	....	1
Northfield	....	3	....	3
Osakis	....	1	....	1
Owatonna	...	1	....	1
Owatonna State Public School	51	155	223	429
Perham	....	....	2	2

PLACE.	October	November	December	Total No. Examina's
Pine City	....	....	1	1
Plainview	....	1	..	1
Red Wing	1	4	....	5
St. Cloud	....	....	2	2
St. James	1	3	....	4
St. Paul	2	4	4	10
Shakopee	1	....	..	1
Spring Valley	..	2	....	2
Wabasha	2	....	....	2
Wadena	10	5	7	22
Willmar	...	1	1	2
Winona	1	1	1	3
Wykoff	...	1	....	1
Zumbrota	....	2	....	2
Total	177	330	372	879

Minnesota State Board of Health, Bacteriological Laboratory (University of Minnesota), Minneapolis.

Jan. 15th, 1897.

Special Notice No. 1.

When a diagnosis of diphtheria is given, it is requested that on the disappearance of clinical symptoms and before quarantine is raised, second specimens be sent in from all such cases, in order to determine how long the bacillus diphtheriæ remains in the throat.

It is plainly apparent that so long as the bacilli are present the patient, unless quarantined, may be a source of danger to others.

To know definitely of the presence or absence of this danger is of the utmost value to the physician in enabling him to determine the necessity of quarantine.

Where the second examination still shows the bacilli present, quarantine should be rigidly maintained and specimens sent in until bacteriological examination shows the throat to be clear.

It is not to be supposed that between the time of the sending of the specimen and the receipt of the report, the patient is not to be regarded as possibly dangerous to public health.

Letters, too, are often written, pointing out the precautions necessary to secure satisfactory results, and offering to make as many examinations as are desired.

The Secretary has in the past recommended the bacteriological method of diagnosis in all cases in which the knowledge has come to him through correspondence or other sources. It would seem that the Board should take a firmer position in regard to the importance of this method of diagnosing the presence of diphtheria, and that boards of health should be urged to adopt its use exclusively.

In reference to the work at Owatonna, whose magnitude is seen to be not diminishing, it may be said that the large number of examinations recorded has been due to the fact that the Medical Officer has been again going systematically through the cottages, and removing all inmates in whose throats were found B. diphtheriæ, to an isolated ward.

Where such conditions exist as are present in this public school, it would seem that most vigorous methods are demanded, and the necessity of utilizing the recommendations made in the communication entitled "Diphtheria and its Variants, where Diphtheria is Endemic," are made more apparent by further study.

(See paper in Quarterly Report of Laboratory, Oct. 12, 1897.)

It is a matter of such great importance, and one in which the possibility exists of obtaining accurate knowledge upon many points at present in more or less obscurity.

TYPHOID.

The following table gives a synopsis of the examinations of blood for the diagnosis of typhoid infection for the quarter:

SYNOPSIS OF TYPHOID BLOOD EXAMINATIONS.

Place—	Oct.	Nov.	Dec.	Total
Minneapolis	270	250	266	786
St. Paul	1	4	2	7
Duluth	2	2	4	8
Hibbing	1	..	..	1
Dodge Center	3	1	..	4
Winona	1	..	..	1
St. Charles	1	..	..	1
Crookston	1	..	..	1
New Ulm	3	..	..	3
Monticello	1	2	..	3
Lake City	..	1	..	1
Wykoff	..	..	4	4
Ft. Snelling	..	..	1	1
Total	287	257	277	821

The above examinations are merely those which have been done as daily routine for diagnosis, and concerning which reports are sent to physicians. Several hundred other examinations have been made for the determination of the length of time after recovery in which the reaction is to be found, and for the relation, if any, existing between temperature and intensity of reaction.

The paper on the reaction, read at the American Public Health Association, to which reference has been made above (page 1), contained the report upon and summary of the examinations in 1019 cases of suspected typhoid fever, which had been made up to Oct. 21, 1897. (This is the largest number of examinations reported from any one source up to that date.)

A strong plea was made in the communication for the utilization of this method, in the absence of a quick and accurate means of demonstrating B. typhi abdominalis itself, as a guide to the employment of preventive measures by local health officers.

The method devised in this laboratory, of which a note was given in the last quarterly report, was fully explained.

Although this method, even with its later improvements, involves much greater labor, in view of the accuracy seemingly not otherwise to be attained, it has been employed entirely during the last quarter.

RABIES.

Material has been received from four cases during the quarter; (1 human, 1 in horse and 2 in dogs).

The case of the horse is deserving of some mention. The head of the animal was brought in by Dr. Reynolds and received in the laboratory Oct. 18, 1897.

The horse had developed symptoms of rabies some three to four months after a history of an unprovoked bite by a stray dog.

Two rabbits inoculated with an emulsion of the brain died in 13 and 24 days respectively. The former animal showed post mortem a number of coccidium colonies in the liver, which might account for his rather too short incubation period. A diagnosis of rabies was given on these findings. The case in the human subject has been previously mentioned and is still under investigation.

There have been during the past year twenty-one cases investigated and three carried forward from last year. As far as the work has been sufficiently completed, positive diagnoses have been given in seventeen, which shows the comparatively frequent occurrence of the disease in this state.

EXAMINATION OF SPUTUM FOR B. TUBERCULOSIS.

Twenty-five examinations have been made during this quarter. This shows a decrease commensurate with the exercise of the discretionary power given the laboratory. It would seem well to remove that power, as the statement made in the most conciliatory manner "that the routine work of the laboratory does not include anything other than examinations calculated to give the local health board data upon which to take steps to protect the pubilc health, and the investigation of new methods and obscure matters, in the opinion of the laboratory important," seems usually to have one of two effects, viz: causes annoyance to the physician or seems to increase his desire to use the laboratory as a consulting, clinical laboratory, established by the state for his private convenience.

It would appear well to consider at this point the desirability of doing all the work which comes in promptly, and of sending to the local health officer a copy of the diagnosis, as is now done, and to the patient a copy of the diagnosis, and a circular suggesting the proper steps to protect others brought into contact with him. The elaboration of some such plan as proposed in the laboratory's last quarterly report, and in use in New York City, is to be desired. This would mean, of course, that the present force should be doubled.

WATER EXAMINATIONS.

Three examinations have been made during the past quarter. With the exception perhaps of one examination of Minneapolis water, in which B. typhi abdominalis was found, the rest of the 29 examinations made during the year have been for the most part valueless.

It would appear advisable, in a new issue of the Circular of Information, to insist upon the health officer for any district furnishing all clinical and other data connecting a water supply with cases of disease, and details as to situation of supply, slope of rock, possible contaminating sources, nature of soil, etc., in writing to the laboratory. This evidence should be carefully considered, and if of sufficient importance to warwant it, a bacteriologist could be sent out from the laboratory to obtain additional data, with the help of the health officer, and collect samples in a proper manner. Water analyses will mean something accurate and be of value then, and not before. The time taken in such examinations is enormous, and may be considered as wasted unless the samples are properly taken,—as only a trained bacteriologist can do,—and the data absolutely accurate.

Respectfully submitted,
F. F. Wesbrook, M. D.,
Director.

Friedenreich mentions two cases of lethal poisoning with sulphonal. The symptoms were: Paralysis of all the muscles, especially those of the throat, so that patients were not able to swallow even water, and intense pain in the abdomen and extremities. The urine was of a special dark red color; this symptom appears before the more alarming ones.—Hospitals-Tidende.

CONGENITAL CRIMINALITY AND ITS RELATION TO INSANITY.

By Thos. J. Reid, M. D.

Minneapolis.

The statement is frequently made by medical men and penologists that there is a congenital moral degeneracy that carries with it a corresponding lack of responsibility. The individual they say has lost control of his will, and has no correct knowledge of right and wrong. He is not an idiot ,or an imbecile, but a moral degenerate. This state of his moral faculties he has inherited. If his selfish interests and wicked instincts prompt him to commit murder, instead of being legally punished for his crime, he should be adjudged congenitally insane.

The question to be considered is, does such a form of congenital criminality exist? Do the laws of biology and heredity sustain such a theory?

Anthropologists and penologists may take such a position, but medical men should not accept any theory of insanity or genesis that is not scientific. In discussing this question I am willing to give due consideration to the arguments of those who are known to be the special advocates of a congenital criminality.

Lombroso and Manouveier assert that the skull, brain and physiognomy of criminals are of a distinct congenital type. Prof. Benedict went so far as to state that he had discovered the seat of crime in the convolutions of the frontal lobes of the brain. Havelock Ellis quotes statistics tending to show that the size and shape of the skull and brain, the physiognomy and the mental dispositions and special senses of criminals were such as to establish a congenital criminal type.

If the position taken by these authorities is reliable, why have they not been able to outline for us a criminal type? Why have they not given us a composite picture of a congenital criminal? With all their observation and classification of congenital marks and abnormalities they cannot pick out the child destined to be a criminal. They cannot go into a miscellaneous crowd and select the criminal before they have knowledge of the crime being committed.

Morrison tells us that Lombroso was presented, at the Paris Congress of Criminal Anthropology, in 1889, with the skull of Charlotte Corday, and he declared it was an exact criminal type of skull. Topinard and Benedict, equally learned anthropologists, declared that it was a typical female skull.

A large number of murderers' skulls were examined by Manouveier, and he declared that they conformed to the criminal type. Topinard carefully examined the same skulls and could find no difference between them and other skulls. Heger says that the skulls of criminals do not differ from the skulls of the race to which they belong.

There being no recognized normal type of skull or brain, how can there be a criminal type? No anatomist would ever be guilty of asserting that the slight deviations found in the general contour of the skull, or the variations and anomalies found in the convolutions of the brain, were scientific data sufficient to establish a distinct criminal type. Penologists have maintained that the retreating forehead, projecting eyebrows and ears indicated criminality. Phrenologists, following the teachings of Gall and Spurzeim pretend to say that the presence or absence of certain bumps on the skull indicate criminality. Dr. Marro, Lamois, Morrison, Topinard and other learned anthropologists declare that all such supposed differences do not exist, and that there are no congenital marks to be found among criminals by which the most discriminating observer can separate them from others. The brain of the criminal has been carefully examined in all its parts, and no more anomalies have been found than in the brain of the philanthropist. Its weight, convolutions, histological elements, diclose nothing.

Ths physiological researches of recent years have revealed a great many things concerning the human brain and its functions. Nerve centres presiding over the various functions of the body have been located. A ganglionic centre presiding over the moral faculties has not been discovered. If in the future physiologists discover distinct nerve centres for cognition, volition, emotion, and indeed every psychic function of the brain, the problem of immorality and crime will still be unsolved. As far as we know, good and bad thoughts come from the same laboratory. The impulse that prompts the good Samaritan and the highwayman is generated and put into motion by the same nerve cells. The most ardent advocate of congenital crime cannot deny such a statement, until at least physiologists have discovered distinct nerve centres presiding respectively over good and bad impulses.

Being forced to abandon the skull and brain theory of crime, penologists have taken shelter in the physiognomy theory. A criminal type of face cannot be disputed. The pictures in the rogues' gallery and of the prisoners in our penal institutions reveal a criminal type of face. We don't have to resort to heredity to find the cause. The mark of Cain did not exist until he had killed his brother Abel. This criminal expression of face is due to the associations. Penal service sours the disposition, which in turn changes the physiognomy. The prison gives a prison look. Our associations and habits reveal

themselves in the expression of the face. The child has no criminal look. The most that can be said is that the child very often inherits the general features of the parent.

The Hebrews, Greeks and Romans recognized this fact. The nose, mouth, eyes, hair and bodily configuration of the parent are commonly reproduced in the child. The physical constitution of the parent, under proper conditions, is in a measure transmitted to the child. Constitutional peculiarities, such as longevity, fecundity, nervous, vital and phlegmatic temperaments, are generally inherited. The law of biology that "like begets like" does not warant us in taking a more advanced position. It was generally believed that the physical diseases of the parents, such as cancer, rheumatism, gout, consumption and some forms of skin and nervous diseases were inherited. Medical science having learned more about the etiology of disease, does not contend for this old theory with as much assurance as formerly. Today we are told that the child is not born with the rheumatism or consumption of the parent, but with a diathesis. By diathesis is meant that the constitution offers less resistance to the invasion of certain diseases. Some go a little further and say that the constitution of the child has a special affinity for the diseases that afflict the parent. The term diathesis is of very uncertain meaning: it is a subterfuge for lack of knowledge. We know that the child subject to proper precautions and surroundings need not be afflicted with the diseases of the parent. There are a few infectious diseases, such as syphilis, etc., in which hereditary transmission seems to occur. This is accounted for by infecting bacteria finding their way to embryonic life. Insanity, the war-cry of criminal lawyers, and the terror of judges and jurors, is inherited in not more than one-fourth of the cases reported. Mental aberration is not necessarily a taint of blood.

The great trouble with many who write on heredity, is that they proceed with too much certainty and assurance. Their reasoning is all a posteriori. The fact is, we know nothing of the proximate or ultimate causes of a single phenomenon of heredity. We might as well try to determine the ultimate cause of light, heat, gravity, chemical changes, as to understand the forces that are at work and that govern the laws of genesis. We see that in the reproduction of the physical organism the laws of heredity as formulated are unreliable; but when we rise to the higher realm of mind and morals they fail us completely.

History records the fact that the world's greatest philosophers, statesmen, poets, artists, failed to transmit their intellectual endowments to their offspring. Nor did their ancestral history give any warning of their appearance. They suddenly blazed out upon the world, like Minerva from the head of Jupiter, full grown and beautiful. Sir Francis Galton, in his work on hereditary genius, cites certain cases to show that mental traits of character have been transmitted. He fails, however, to establish any law of heredity that can be relied upon with any degree of certainty. The best that can be said is that the intellectuality and general characteristics of the parent in some cases have been transmitted. If the parent is of average mentality, we look for a similar quality of intellect in the child. In this we may be disappointed. We may surround nature by the most favorable conditions and expect corresponding results; but it is then that she fails us.

The intellect of men two thousand years ago was as strong and well developed as today. Homer is still the father of poetry, Aristotle of logic, Plato and Socrates of philosophy. Nature has a fixed limit beyond which we cannot go. Only a few in every century reach the higher notes. The great mass deviate but little from a common level.

If the laws of biology will not help us to breed giants in stature or in intellect, will not warrant us to expect the parent to reproduce a similar quality of mentality, what shall we say of morality? Is not the problem still more complex? Should not medical men and penologists approach the subject with great care and reservation? To assert, as some do, that we inherit by taint of blood the wicked habits, vices and immoral characteristics of our parents is to declare in favor of the baldest kind of fatalism. It is a materialistic philosophy that closes the door against all educational influences. It paralyzes all charitable reform movements, it antagonizes Christianity in teaching that human character is made, not inherited. It assumes that our sense of right and wrong is inherent in our nature. It supports the intuitional theory of morals. Morality is the product of education and environment, as is its corelative immorality. There is no natural bent to virtue or vice only so far as either will give pleasure or pain. Mathematics, philosophy, music, art, language, science, literature, morals, are the product of evolution, each in its own sphere, but as such they have to be taught to the child. The teacher knows that the child is not born with a knowledge of the multiplication table, or of the ten commandments. In the young brain is a potential mass capable of development along the lines that its education gives direction to. By precept and example you can teach the young any theory of morals. One race of men therefore considers murder an honorable act; another regards theft as meritorious, and another prides itself on its

skill in lying. Different races with different environment, give different morals. To believe that the thirst for murder, the aptitude for lying, the passion for theft, the appetite for strong drink is folded up in the embryonic cell, and that subsequent life is but an unfolding of this congenital seed is a doctrine more irrational than the old church dogma that declared the child to be born in sin and shapen in iniquity.

If the child is born with the parents' vices he cannot be a free moral agent, and is not responsible for his conduct. He is as truly crippled and handicapped in his moral nature as the boy born with a hair-lip or club feet. To blame him or punish him for his conduct would be as inhuman as to whip the boy with the hair-lip for not speaking plainly. It may be very good poetry to say that we can "break our birth's invidious bar," but it is not sound philosophy. If the boy is a congenital liar or thief he can never break away from nature's hold. What the child receives as an integral part of his nature remains with him to the end.

Prof. Weismann contends that acquired characteristics are not transmitted. Only that which is contained in the molecular structure of the embryonic cells is transmissible. Zeigler favors the same view. We inherit the natural faculties, common to man, but not those vices, virtues and characteristics which our parents acquired by practice and experience. Heinroth says that no moral characteristic can possibly be regarded as inherited in such sort as to modify either responsibility for evil doing, or credit for well doing. Morrison, an English penologist, says that "the son inherits only the natural faculties of the parent, and that he starts life free from their vicious habits, and that he does not by natural inheritance acquire the parents' criminal propensities."

Miss Martineau and other ultra Darwinian theorists may allege that our moral characteristics depend upon our parents, and that our characters are due to inheritance. These radical statements do not alter the great truth that forms the foundation stone of moral philosophy and Christian ethics, namely, that each individual must take the responsibility of making his own character. What that character will be depends very largely upon three things—environment, education, choice. In proof of this proposition I call attention to the fact that some of the worst criminals had a good ancestry, and vice versa. There is a black sheep in almost every family of any size. Doctors McDonald and Talbot made a careful examination of H. H. Holmes, the notorious murderer, of Chicago castle fame. They found that his ancestry for three generations were upright, God-fearing people. When a boy there was nothing abnormal to be noticed in his disposition.

But we are confronted with statistics to show that the progeny of one criminal has contributed largely to the population of our penitentiaries, jails and brothels. I will acknowledge the fact, but contend that it can be accounted for without resorting to heredity. Education, environment, choice, have been the factors at work in producing such results. It does not help matters to say that the child forms bad habits more readily than good ones. The path of virtue is ever uphill, hence its meritoriousness. Self-interest and personal gratification lead men to do many things that are not written in the moral law.

The doctrine of moral degeneracy on which some medical experts base their theory of congenital insanity is as old as the Hebrew religion. That criminals are in general moral degenerates I will not deny. They are made such by their education and not their birth. Our experts need not be humiliated if we suggest that they learn the cause of degeneracy from the lips of a poor condemned criminal. Moshik, a murderer now under sentence of death in Minneapolis, tells us that it was the influences surrounding his life that made him what he is and not his parentage. Let a healthy child be placed in unsanitary surroundings and what are the results? Do not a large percentage of the criminal classes live in a foul moral atmosphere? When children they are taught by precept and example to do wrong. If proper efforts are made to educate and environ the children of the criminal classes, the results will be most satisfactory. Let them be lifted up and away from their natural habitats, and planted for growth in a good soil, and the result will disprove the doctrine of their congenital criminality.

The horticulturist can take a thistle seed and apply all his ingenuity to produce a rose. In spite of his efforts the little protoplasmic mass in the seed will reproduce its kind. If the child is born a criminal, all the efforts of educators and philanthropists to turn the tide of its destiny will fail. The venom that nature breeds will remain. We know that child-saving societies, associated charities and reform movements reclaim every year from the "submerged class" a large number of so-called incorrigibles. General Booth reveals some sad pictures in his "Darkest England," but the history of his Salvation Army proves that the very worst "corner man" can be reformed. Boies, an American penologist, in a work on "Crime and Criminals," talks about "degenerates, congenital criminals," etc., in one chapter, and in another he takes the churches and society to task for not establishing Sunday schools and missions in the slums of our large cities. He even goes on to show how these

agencies can be the means of lessening crime and reforming the worst classes. The inference of one chapter is that crime is congenital, while the inference of another chapter is that environment or heteronomy makes criminals. Logical contradictions and inconsistencies are found on almost every page of the writings of penologists who favor congenital criminality. Temperance reformers have fallen, unintentionally, into the same error, by stating that the appetite for strong drink is inherited. If the son of a drunken father is born with an inordinate love of the wine cup, then under the operations of the same law we should expect the son of a clergyman to be born with an insatiable thirst for spirituality. The love of strong drink is transmitted in a deficient bodily and nervous energy, and such children, from their weak constitutions, have at times a greater craving for stimulants. If the sons follow in the occupation of the father, the temptations are likely to be greater and, therefore, a larger percentage of them fall victims. When one of these so-called moral degenerates commits murder the plea of congenital insanity is made. The criminal has no appreciative knowledge of right and wrong. Control over the will is said to have been lost.

Insanity in every form must be regarded as a disordered state of mind, due to a diseased condition of the brain. We may not be able to describe the pathological changes; nevertheless, we must concede that some of the ganglionic centers are out of harmony. We must accept this definition, or be forced to adopt the theory of Descartes and Leibnitz, that there is no real intercourse between the mind and the body. With such a definition what becomes of congenital insanity? If it exists it must be shown that the parents suffered from the same diseased state of mind; otherwise it is not congenital. To show that the father was a liar or thief does not establish the fact of insanity in any degree. To prove that an individual is not responsible for his actions, it must be shown that a disordered state of mind exists, involving a loss of control over the will at the time of committing the crime. Freedom of the will, carrying with it a civil and moral responsibility, is the foundation of all law human and divine. To deny this, or to say that sudden emotion or impulse to do wrong is temporary insanity, is to throw society into chaos. Under such an explanation of human conduct who could be legally punished?

The will cannot be considered as a separate entity from the brain. All volition, as far as we know, depends upon brain media. All mentality, cognition, emotion, will, are so intimately associated with molecular action that they cannot exist without it. That molecules are the all of mind is an assertion that cannot be proven. Morality is more than the product of nerve cells. Behind organic life may be spirit. Behind matter may be Deity. We can only judge of mentality through physical media. When the plea of insanity is made, we expect a diseased condition of the brain. If all the symptoms do not show that such a condition exists our plea falls to the ground.

I am convinced that if capital punishment were removed from our criminal code, and condemned murderers had to choose between a lifetime in a madhouse or a workhouse, there would be no more congenital insanity prevalent in Minnesota. It is the shadow of the gallows when all other avenues of escape are closed that inspires insanity pleading in the temple of justice.

228 20th. Ave. North.

HINTS ON THE MEDICO-LEGAL SIGNIFICANCE OF TRAUMATIC DISEASES OF THE NERVOUS SYSTEM.*

By H. O. Scallon, M. D.

Eau Claire, Wis.

The excuse for bringing this subject before a body of medical men is two-fold, viz: To elicit an expression of their views, which must be intelligent, and therefore important, and on account of the frequency of medical men being called upon to testify in courts of law. Moral sense, coupled with law of self-preservation, must dictate to the witness on the stand that he cannot afford to add to or detract from the facts of a case as understood by scientific investigation without exposing himself to just and adverse criticism, the gnawing pangs of reproaching conscience, and the condemnation which the all-seeing eye of omnescience will bring to the bar of spiritual adjudication. True, intentions form the basis of moral responsibility, and when good, tend to exculpation, even though the individual be in error. But they should be coupled with a sense of conscious competency to meet the merits of the case upon the highest plane of scientific truth.

Hence we see the hesitancy with which the average medical man should take the witness stand and pose before court and jury as an expert, lest he become the willing instrument in the furtherance of injustice.

With this advertance to moral status I march into the consideration of cerebro-spinal activities.

* Read before the Inter County Medical Society of Wisconsin, November 9, 1897.

not with the bold and masterly strides which are born of a full and comprehensive knowledge of exact conscience, but with the timidity that comes to him who dares an exploration of unknown seas, and fears entanglements in that mistic vale which has thus far baffled and defied the penetration of human perspicuity.

Man, the noblest creature in the animal economy is the home of contending forces, constructive and destructive, and the battle ground of these is the nerve centers. In these centers of celular activities we find the elements of sympathy, connecting in the most wonderful and complex manner the constituents of man, a judgment which in the exercise of its selective capabilities bespeaks a wisdom before which the genius of man pales into insignificance, and a recuperative force which is ever battling with the destructive tendencies of foreign and effete material for the perpetuation of biological existence.

These centers of vital activities receive impressions from without through the medium of connecting filaments called nerves, interpret these impressions and in response thereto send out appropriate replies, which in turn become the evidence of the presence or absence of normal conditions.

A case is presented to the physician who is expected to make a diagnosis as to its topography, pathology and extent of disability, to take the witness stand and to give the evidence which must guide courts and juries in determining their verdict. That this duty is of interest to the litigants none will question, and that it is of vast importance in the furtherance of justice is equally apparent.

The lines upon which this investigation should be made and the points which serve as land-marks thereto can only be partially considered in a paper of this extent; we will, therefore, attempt a few suggestions.

The nervous system is twofold, cerebro-spinal, or that which has to deal with animal life, and ganglionic, including the vaso-motor, or that which has to do with organic life.

That one of the systems may be involved independently of the other must be apparent to the most casual observer. Witness, for instance, the effect of shock; when all animal life is suspended organic life continues to act as it did prior to the time of animal existence, and if unsuccessful we have death without the least evidence of pathological change. Again, we may have perverted sensation, localized or general, paralysis, limited or diffused, and the same phenomena of ganglionic activities remain intact. And that we may have dropsy of a muscle or set of muscles without improvement of the nerves of sensation and motion is a question which must be answered in the affirmative, and is one which is too frequently observed to require defense. Each case should be considered on its own merits, and because in its symtomotology it does not correspond with those cases of which we have read, it must not be regarded as pretentious.

Abnormalities may be readily observed, but not so readily understood. Disease in its topography and pathology, while always of interest, is not always possible of solution, and this difficulty marks the discrepancy of conflicting interest, while its causation rests largely on hypothesis. We test the sensations and observe the reflexes and note carefully the difference and similarity of response in corresponding muscles, and because there is no discrepancy discovered it does not follow there is no disease; for nerves and tissues similarly affected will afford similar response to the same stimulus.

We should also note that each lateral half of the cerebro-spinal system is the home of reflex centers, and that each of these centers innervates its own area of nervous distribution and controls the vascularity of the parts supplied by it, so that hemorrhage from shock into a particular cavity proves that the nerves controlling the vascular tone of the walls of this cavity have suffered at least a temporary and perhaps a permanent disability, to be determined by the astute and enlightened judgment of the examining physician.

Vaso-motor reflexes are twofold in their action, centripetal and centrifugal, and like the reflexes of the skin and tendons, have their seat in the spinal cord; so that the prick of a needle or of other irritants will under normal conditions show itself in reflex action of the skin and deeper structures, and when this reflex is absent it is positive evidence of abnormal conditions situated either in the periphery, the afferent and efferent filaments of conduction or in the reflex center which innervates the parts examined. And although the area of abnormal entity may be limited, it is just as real, though less appalling, as if it were of extensive distribution.

Touch, for instance, is a compound of four senses, namely, contact, pain, temperature and muscular activity, and the presence of these does not prove the existence of the others; for we may have analgesia and the sense of contact normal. Muscular activity and perverted sense to temperature for heat and cold will sometimes beget opposite sensation. Again, the soundness of a reflex center and its nervous distribution does not prove the soundness of all other centers. For instance, the presence of the patellar tendon reflex, upon which so much diagnostic importance as to the soundness of the cerebro-spinal system rests, according to some investigators proves nothing beyond the fact that the nerves

which supply the quadriceps femoris muscle are normal, and that sensation is conducted centripetally, correctly interpreted and returned cenwords, that the lateral half of the filum terminale and its nervous distribution are unimpaired directly or indirectly. I do not wish to be understood as saying that lesions above the filum terminale will not destroy the patellar tendon reflex; they may, but what I do say is that we may have serious nerve lesions and normal kneejerk, and that whenever we find perverted and abnormal reflexes we should direct our attention to the center and nervous supply which innervate the part affected.

A case recently presented to me for examination with a view to expert testimony presents the following history: A gentleman, aged about 30 years, early in the winter of 1897, was violently thrown against a hard and unyielding substance, striking on his right elbow and shoulder; this was followed by severe pain in the ulnar nerve, which seemed, according to his explanation, to have involved the brachial plexus. The painful condition disappeared at about the end of two months and was followed by atrophy of all the muscles of the shoulder and arm, a weakness which appears to be in proportion to the atrophy and an anæsthesia throughout the entire arm and shoulder which is more analgesic than tactile. In this case we have to do principally with trophic changes. That there is a disability it requires not the testimony of an expert to establish, but is the lesion peripheral or central? is a question wiht which neurologists may grapple. And to the question, may the lesion be central? in face of the fact that the balance of the nervous system appears to be normal, I believe our present knowledge of the cerebro-spinal system warrants an affirmative answer.

Dr. Dercum, in the Medical Record, declares that headaches, if due to pelvic disturbances in the female, are usualy located at the top of the head and are accompanied by soreness of the scalp; if due to digestive disturbance, they are occipital or frontal; if to disease of the pharynx, they involve the entire vault, as though the pharynx were expanded and extended upward; if due to migraine, they are usually one-sided, local and accompanied by soreness at the supraorbital foramen; if to eye-strain, generally superciliary or frontal, sometimes occipital; if to disease of the nares, between the eyes and extending backward.

The discovery made by Dr. Macpherson in Uganda that strychnine is a specific against the effects of the poisoned arrows used in the country is both interesting and valuable. Hitherto it has been supposed that the tetanus induced by the poison generally employed by savages was beyond prevention by any drug known to science. The discovery that injections of strychnine can be used as a prophylactic with almost perfect certainty may, it is said, supply medical men at home with a hint for dealing with tetanus which is induced by other causes.—Indian Lancet.

"Knockout Drops."—A correspondent of the Medical World has been discussing the probable composition of the so-called "knockout drops" with which thieves frequently drug their intended victims: He says: A gentleman in the South writes that the "knock-out" in use there is snuff. Of this a tablespoonful is administered in beer, where the snuff floats between the liquid and the froth. This seems to be a dangerous dose, and I can well believe that a larger has caused death. One would think that the snuff would be detected by any sober man, but I am told this is not the case. A Nebraska physician writes that he knows of a saloonkeeper in Cincinnati buying "fish-berries" for the confessed purpose of robbery. The doctor also says that when a boy he used to make balls of bread and powdered cocculus indicus and throw them in the water to stupefy the fish. These would float on the surface, and if bled at once, could be eaten with impunity. The poison took speedy effect, as the fishing was over in an hour. "The first direct physiological effect is upon the brain, stupefying. Those drugged by it regain consciousness in from three to six hours." This is probably the origin of the term, fish-berry. Another writer says: I was a coroner at one time for three years, and held views and inquests on a number of persons that were found dead in the Delaware river and other places. A number of these persons were supposed to have died under suspicious circumstances, especially those found in the vicinity of Gloucester City, a famous gambling and racing resort. I gave some attention to the subject of "knock-out drops" about that time, and found that the drops were composed of hydrate of chloral and water. A dram of water will very readily dissolve sixty grains of chloral. A two dram homeopathic vial could be readily carried in the vest pocket and handily used without attracting much attention, and could be manipulated and concealed in the hand. It could be poured into a glass of whiskey, wine, beer, or other drink without noticeably affecting the taste or color of the drink.

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BACTERIA AND INFANTILE SUMMER DIARRHŒA.

One of the latest text-books upon the diseases of children says that in spite of the careful researches of several of the best bacteriologists, it has been impossible thus far to connect particular bacteria with particular forms of infantile diarrhœa. That there are an immense number of bacteria in the intestine both in health and in disease is attested by many observers. Booker has isolated as many as forty varieties from the stools of children suffering with the various diarrhœal diseases, the largest number bing found in cholera infantum and the next largest number in catarrhal enteritis. The microörganisms of cholera infantum are principally of the proteus type; in other forms of diarrhœa most of the bacteria belong to the saprophytes, that is the class of organisms that feed upon dead matter and are concerned in the production of the phenomena of decomposition, putrefaction and fermentation.

The investigations of Hayem and Lesage resulted in the isolation of a bacillus from the green stools of infants upon which they believed the color depended, as they found that either its injection into the blood or its direct addition to the ingesta resulted in the production of green stools. Even this promising discovery, however, does not seem to have resulted in any great gain to the knowledge of the cause, prevention or treatment of the trouble, for the discoveries of Hayem and Lesage were announced seven years ago, and but little has been added since then to the bacteriology of infantile diarrhœas. The green discoloration is probably an accident that has little to do with the root of the trouble; in many instances it may be demonstrated that the color is due to an excessive transformation of bilirubin into biliverdin, the former being the bile pigment that is normally present in the intestinal contents. One curious clinical and therapeutical error has prevailed in connection with the green diarrhœas. It was long supposed that this condition was due to an acid fermentation taking place in the intestinal contents and the rational treatment that followed was the administration of alkalies. But Pfeffer's experiments have shown that the ordinary acids of fermentation, lactic ,acetic, butyric, etc., when added to normal yellow stools only turn them deeper yellow, while the addition of an alkaline solution turns them green after an exposure of from thirty to sixty minutes, the length of time required for the transformation and the depth of the color produced depending upon the strength of the alkaline solution employed . Moreover the administration of an alkali such as bicarbonate of soda to an infant, will, if continued for two or three days, result in the production of typical green stools. Giving calomel often produces the same effect, as is well known. This alkaline theory of Pfeffer explains the phenomenon often observed in infantile diarrhœea of a stool at first yellow or brown, becoming green after exposure to the air for some time. Such stools are neutral or alkaline when discharged and are usually mixed with urine, which quickly undergoes alkaline decomposition, thus helping to produce the reaction favorable to the appearance of the green color.

It is not to be inferred from the results of

these experiments that the appropriate treatment of green diarrhœa in children is the administration of an acid. As suggested above, the color may be but an accidental circumstance, in no way connected with the real cause at the bottom of the disease. As a matter of fact, experience has shown that the very drugs which experimentally produce the green color give good results when administered during the disease, calomel in particular holding a high and well merited position in the treatment. A therapeusis that aims merely at the counteraction of symptoms will seldom succeed in effecting real cures.

Although it is impossible to lay the finger upon the particular germ that causes cholera infantum, gastro-enteritis, entero-colitis and the numerous combinations of these diseases that prevail among infants in summer, there can be no doubt that they are in fact germ diseases, and no one can afford to neglect the important moral to be drawn from this, that is, that they are more or less contagious, and that infants so afflicted should be separated from the well, or at least that care should be taken to prevent the spread of the infection through the discharges from the bowels, which are undoubtedly the chief medium of contagion.

CORRESPONDENCE.

EXTIRPATION OF THE STOMACH.

Sir: Since of late we have heard so much of extirpation of the entire stomach, it may be expedient to learn the particulars of the case operated on by Dr. Carl Schlatter, in Zurich.

As I have received a direct communication describing the case, I will attempt to translate the same verbatim:

A patient (female) 56 years of age had suffered for months from daily vomiting, containing biliary matter; considerable emaciation.

At mere inspection of the abdomen, a marked prominence is discernible between the left costal border and the umbilicus.

In the epigastric region a tumor as large as two fists, of hard consistence, easily moveable, could be felt.

In the gastric juice no free HCl. At the operation it was evident that the entire stomach from pylorus to cardia was involved in the tumors. Since not one particle of normal stomach could be found gastro-enterostomy was out of the question. Schlatter determined total resection. After intestinal clamps had been applied to the œsophagus and duodenum and the stomach thus isolated, the latter was severed from its connections.

But since the duodenal extremity could be brought to the œsophageal only with great difficulty, a direct union was out of consideration; the duodenum was closed and a portion of the small intestine some 30 cm. distant from the pylorus was united to the œsophagus.

The portion severed after reposition was drawn strongly to the foramen œsophagenum. Microscopical examination determined, without doubt, that the incisions were made in the real structure of the œsophagus as well as the duodenum.

Recovery was almost without any marked symptoms.

Since the operation the patient gained about 4,400 gms.

In regard to the deficiencies of the various functions of the stomach, it must be remarked that the lack of the reservoir-like function was compensated for by small quantities of food at short intervals.

The temperature regulating effect of the stomach was overlooked only in the beginning.

The work of mechanical activity could likewise be obviated by introducing foods whose digestion depended little or nothing upon the stomach.

Finally it must be remarked that in spite of the absence of HCl and pepsin the digestion of albumoids was excellent, as could be proven from the remarkably small quantities of nitrogenous substances in the fæces and urine.

R. F. Heising.

Menomonie, Wis., Feb. 26, 1898.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

H. Snévé, M. D., Secretary.

Annual meeting, January 28, 1898. The president, J. W. Chamberlin, M. D., in the chair. The annual reports of the Secretary, Treasurer, Necrologist and Standing Committees were read. The Secretary congratulated the Society on one of its most successful years. The Society now has a home of its own with a fine pathological laboratory. Fourteen new members have been elected during the year.

The Treasurer reported a balance in the hands of the Society.

Dr. Taylor, Chairman of the Library Committee, reported that the profession had responded liberally and that we now had a fine foundation for the medical library, which would be of great use to the Northwest. There are 1,823 volumes on the shelves.

The Necrologist reported two deaths.

The annual election of officers then followed; the following being chosen: President, Dr. James A. Quinn; Vice-President, Dr. E. Bœckmann; Secretary, Dr. Haldor Snévé; Treasurer, Dr. Alcinda Pine; Necrologist, Dr. Whitman, all unanimous. Dr. Chamberlin delivered an annual address on

THE PREVENTION OF BLINDNESS FROM OPHTHALMIA NEONATORUM.

Dr. Sweeney made a few remarks upon the subject.

HENNEPIN COUNTY MEDICAL SOCIETY.

Willard B. Pineo, M. D., Secretary.

Regular monthly meeting at the Society's rooms in the Public Library Building, Minneapolis, Monday evening, Jan. 3, 1898. The President, Dr. J. C. Cockburn, in the chair.

Dr. B. M. Behrens presented a specimen of lipoma the epiglottis and drawings of a fibroma of the right vocal cord, fibroma of the epiglottis, tuberculous laryngitis and telangiectasis of the pharynx.

Dr. J. Clark Stewart read a paper entitled

A FEW PRINCIPLES UNDERLYING THE OPERATIVE TREATMENT OF MALIGNANT DISEASES.

See page 101.

This was discussed by Drs. J. E. Moore, A. W. Abbott and F. A. Dunsmoor.

Dr. J. W. Rishmiller read a paper entitled

HYSTERECTORY FOR CARCINOMA OF THE UTERUS FROM A CLINICAL STANDPOINT.

See page 33.

MISCELLANY.

THE MARCH MAGAZINES.

Harper's contains an unusual number of popular articles, such as "An American Army Manœuvre," by Franklin Matthews, with illustrations by Remington and Zogbaum; "Stirring Times in Austria," by Mark Twain, with illustrations by T. de Thulstrup and Harry Fenn; "In the Wake of War," by Julian Ralph, who was with the Turks in the Greco-Turkish war; and "Reminiscences of Eminent Lectures," by Joel Benton.

With its usual interesting features, short stories and departments, the number is one of a high order of excellence; and it shows why our American magazines attain such large circulations, not only at home, but abroad.

The Atlantic has two articles which every American may read with pleasure and not without pride. These articles are "Australian Democracy," by E. L. Godkin, and "The Municipal Service of Boston," by Francis C. Lowell. Mr. Godkin has been a severe critic of all that is bad in democracy, but no one has been more quick to see much that is good, even when some of it lay deep below the surface. He gives a clear view of the only other real democracy in the world today, and he shows what the experiment has accomplished, both in Australia and America.

Mr. Lowell points out, what we so often forget, the great service performed by a city government, showing that we enjoy benfits given nowhere else in the world, in spite of bad municipal government.

"England's Economic and Political Crisis" is a timely and valuable contribution, giving facts, instead of theories, upon a topic now much discussed, but with little evidence of knowledge on the part of men who really make public opinion. The article is by Mr. J. N. Larned, and is by far the best on the subject we have seen within the compass of a magazine contribution.

This number of the Atlantic contains other articles of little less interest and value than those mentioned.

Lippincott's complete novel is by Jennie Bullard Waterbury, who tells the story of an American young lady in Paris who hopes to become a prima donna. The moral is, "Don't."

"The Civil Authority' 'is a powerful story of a weak-kneed sheriff, a resolute captain, and a company of the national guard which attempted to defend a jail against a mob. It is by Henry Holcomb Bennett.

Joseph A. Altsheler tells how a Federal and a Confederate soldier were left together "After the Battle," and what occurred between them.' "Jim Trundle's Crisis," as described by Will N. Harben, came when the Whitecaps proposed to whip Jim for neglecting his family.

George Ethelbert Walsh writes instructively on "The Status of American Agriculture," and its transition from crude to scientific methods. "The Antics of Electricity" are portrayed by George J. Varney. Neith Boyce has much to

say about "Historic Diamonds," and Frank H. Sweet about "Pearl-seeking."

"The Archæology of Nursery Classics" is traced by Agnes Carr Sage. F. Foster, in "Literary Nomenclature," deals chiefly with the titles of novels.

The March number of the American Monthly Review of Reviews is another achievement in monthly journalism. The topics treated in this magazine are such as occupy much space in the daily press, but the Review is able to treat them more deliberately and in a more carefully adjusted proportion. No other illustrated monthly appearing on the first day of March will have so much as a reference to the De Lome letter, the Maine disaster, or the Zola trial in Paris; but these great themes of the hour are fully discussed in the Review's pages. The Review's readers expect to have them discussed there, so accustomed have they become to the essential qualities of timeliness and comprehensiveness in the "busy man's magazine."

The Living Age needs but to be read to be appreciated. Elevating, entertaining and instructive, it embraces every department of literature, including some of the best fiction of the day and poetry, and contains something for every variety of taste.

The following partial contents of its February issues is suggestive of its wide scope and great value.

Most of its articles are of great present interest, as well as of permanent value, yet they can be obtained in no other way except by subscribing direct for the periodicals in which they originally appear, and these are many and various, comprising not only those of Great Britain, but many of France, Germany, Spain and other continental sources. For instance—"The Degradation of Dreyfus," from the French of Adolph Brisson, in Les Annales; "A Session of the Reichstag," from the German of Richard Nordhausen, in Ueber Land und Meer; "The Coming of the Slav," by Geo. Washburn, D. D., in Contemporary Review; "Lewis Carroll," from the Spectator; "The Higher Education of Women in Russia," by Princess Kropotkin; "A Walk thro' Deserted London," by Sir Algernon West; "A Simple Story," from the Polish of M'me. Marguerite Poradowzka; "A Lady's Life on a Ranch," by Moria O'Neill; "Pilgrims and Emigrants," from the French of Emile Bertaux; "A Woman Learned and Wise," by Alexander H. Japp; "Burns," by Charles Whibley—and many others, with fiction, including an instalment in each number of "With All Her Heart," a delightful serial, translated for The Living Age from the French of Rene Bazin, and several short stories, and poetry.

The Living Age is published weekly at $6.00 a year by the Living Age Co., Boston. Send 15 cents for a sample copy and special offer to new subscribers.

NOTES.

FOR FISHING RODS.

The patent office at Washington reflects the inventive genius of America. It has been said that it is a sad commentary on such inventive genius, however, that so few of the ideas patented prove sufficiently practical to even find place on the open market, or even, to the original designer, to afterwards seem to be of sufficient importance to further push in introducing. It is refreshing in contrast to turn to the articles that have originated with the old house of Reuben Wood's Sons' Company, of Syracuse, N. Y. We do not know of a single article of the many that have been originated by this firm that has proven other than practical; in fact, that has had other than a welcome sale among all kinds of sportsmen, and which has not been found by the most experienced to be practical in their application. This was the first house to advocate cork grasps on the butts of fishing rods, and it is now impossible to find a manufacturer of rods that has not adopted this practical invention for his best models. Those having rods that were not so furnished have wished for something similar to it, that could be used and would prevent the hands, when wet from water or prespiration, from slipping, especially in fly casting. This has this year been met by Reuben Wood's Sons' Co. in an especially prepared rubber fabric, which at the small expense of 25 cents can be secured for any rod. It looks like an ordinary piece of rubber; but upon examination is found to be a special fabric; when in use it seems to give an electric effect, not at all unpleasant, and which tends to relieve one of that nervous tension under which all sportsmen are when casting a fly for considerable time. In addition there is that velvety, pleasant feeling to the touch, and, best of all, it makes it absolutely impossible for the hand to slip.

SEEDS, FLOWERS, VEGETABLES.

March is the month in which to lay out, on paper, one's flower and vegetable garden; and having planned every bed, Vick's is the place to buy the seed, because of the assurance which the name gives that every package sent out contains nothing but fresh and pure stock.

In Vick's '98 catalogue announcement is made that next year the house will celebrate the semi-centennial of its business career; and, true to its traditions, it is seeking out its oldest customers, that suitable recognition may be made of their patronage of the house.

When one considers how many million packages of seed this house has sent out, and that probably not a season passes in which they are not obliged to decline orders because of the exhaustion of this or that stock of seed suitable for planting, he sees what temptation to lower the high standard of its product such a firm must ever meet, and he also sees how honorable its record is when he knows that not a single package of poor seed ever bore the name of James Vick.

It is a pleasure to sow seed,—to watch the plant grow, and to gather the flower or vegetable; and this pleasure is enhanced if one knows that there is vitality in the seed, and that perfect flower or fruit will be the reward of his labor. This is the assurance one has when he opens a package from Vick, of Rochester, N. Y.

NOSE AND THROAT AFFECTIONS.

Every practitioner in the Northwest is aware of the great prevalence here of nose and throat troubles, which, however, seem to yield readily to proper treatment. The absence of snow and the consequent presence of much dust during the present winter have largely increased the milder forms of these diseases, and the writer has counted himself fortunate in the use of a cleansing and healing agent which is less irritating to the mucous membrane than anything he has ever before tried. The agent is Glyco-Thymoline (Kress), and its application has been by means of a new douche known as the Bermingham, made by the same manufacturers.

Glyco-Thymoline is a bland alkaline solution, which, in dilution, is exceedingly pleasant when applied to the inflamed membranes of the nose or throat; and its healing qualities are equally noticeable upon all the mucous membranes.

I may cite a somewhat typical case in which the results from its application were so prompt and satisfactory as to show that Glyco-Thymoline is a very valuable addition to the safe remedies in cases which call for extreme caution in their treatment, as do all diseases of the nose and throat—caution, not only as to the remedy, but as to its mode of application.. The case referred to was one of acute naso-pharyngeal catarrh, with marked coryza and injection of the conjuctiva, and tumefaction of the mucosa and turbinates, much resembling hay fever, but occurring in winter. The administration of Glyco-Thymoline (Kress), one part in four, by the Bermingham douche, gave very rapid relief and complete removal of the condition. I am sure no better results could have been hoped for, and I do not know of any other treatment that promises as good.

With so satisfactory a recovery in a case that might speedily have developed obstinate conditions, one may expect good results from this agent in the treatment of the numerous affections of the mucous membranes, especially of the nose and throat and the genito-urinary organs.

The Bermingham nasal douche is a most excellent and inexpensive appliance for the application of a liquid to the nasal passages. It is a small glass vessel shaped like a boat, and is open at one end and in the middle. With the end in the nostril, and one's finger over the middle opening, which acts as a valve, the operator or patient has complete control of the passage of the douche's contents into the nose. The douche is much simpler than this description of it, for it is simplicity itself, and yet perfection in action. Its use removes all such danger as attends the forcing of a liquid, in solid or spray form, into the nostrils with a syringe; and it may safely be placed in the hands of any patient.

Glyco-Thymoline and the Bermingham douche are manufactured by the Kress and Owen Company, of New York.

Chemical Food is a mixture of phosphorus acid and phosphates, the value of which physicians seem to have lost sight of to some extent in the past few years. The Robinson-Pettet Co., to whose advertisement (on another page) we refer our readers, have placed upon the market a much improved form of this compound, "Robinson's Phosphoric Elixir." Its superiority consists in its uniform composition and high degree of palatability.

ORIGINAL ARTICLES.

APPENDICITIS.*

By James E. Moore, M. D.

Minneapolis.

No apology is offered for bringing this subject before you for discussion. The very fact that it is being so much discussed is proof that we have not yet learned all there is to learn concerning it.

When we shall have learned just how to distinguish between the medical and surgical cases, we may cease to discuss the subject. That some of these cases are medical and that some are surgical, most of you will agree; but there are a few who cut the Gordian knot and say "operate upon every case as soon as the diagnosis is made," and there are also a few who say that this is purely a medical affection and that the surgeon is never needed. I do not believe that it is in the interest of the profession to assume such radical views, and I am sure that it is not in the interest of the patients.

The best physicians and surgeons are not extremists, and it seems to me that the surgeon who says that every case of appendicitis must be operated upon, and the physician who says that none should be operated upon, are both extremists, and that neither is truly conservative.

It is, to say the least, mistaken zeal upon the part of the surgeon to say that this is a purely surgical affection and that physicians know nothing about it and are incompetent to treat it, because we all know that a very large percentage of these cases will recover under medical treatment.

On the other hand, the physician who says that this is purely a medical disease, and that the surgeon is never needed, shows that he is not progressive and that he is too prejudiced to be open to conviction, for every surgeon knows (and every physician can know if he will but go to the operating room a few times with his eyes open) that many of these patients can be saved by the surgeon, and by him alone.

The only way to serve the best interests of the patient and of the profession, is for physicians and surgeons to lay aside their prejudices and their extreme views and council and advise with each other, for both have truth upon their side, and each can be helpful to the other.

My personal experience teaches me that the more physicians learn of appendicitis, the more frequently the surgeon is called upon to operate. Many physicians now call upon the surgeon early, who but a short time ago required his services only in extreme cases. While I do not believe in operating upon every case, I do believe that when in doubt we should operate, for the operation per se is not dangerous in skilled hands.

Since the diagnosis of this malady is so familiar to you all, I shall dismiss it with the single statement that in every acute case of inflammation, pain or obstruction in the abdomen, appendicitis should be considered as one of the possibilities, whether the trouble seems to be located in the appendiceal region or not.

The difficulty in deciding when to operate is doubtless responsible for some of the extreme views held, because it is so easy to say always or never; but unfortunately the easiest way is not always the best way.

All surgeons agree that the pulse is a better criterion than the temperature. A pulse over one hundred and increasing, within the first three days, in an adult, is an indication for operation ,regardless of the temperature. An early rise of temperature to 101 degrees and rapidly increasing, is also an indication. After five or six days a decided tumor calls for operative intereference.

It is impossible, however, to be governed by hard and fast rules in this manner. If this were possible, an inexperienced person might apply the rules to his patient and give just as valuable an opinion as one of experience. There is a subtle something which can not be put into words that often tells an experienced physician or surgeon when an operation is indicated.

My experience has taught me that about the fifth day is a dangerous time to operate. When called at this time to see a case that is evidently forming an abscess, but otherwise doing fairly well, I prefer to wait two or three days longer. I have also learned when called about this time to see a patient with high temperature, distended abdomen and evident general peritonitis, to let him alone, for operation under these circumstances is more likely to kill than to cure, and without operation they do not all die. I have seen three cases of this kind within the past year in which I declined to operate. Two of them, strange to relate, recovered. The third one was operated upon by another surgeon, and never regained consciousness after the operation.

It is a serious mistake to look upon a case of appendicitis as a suppurative inflammation in which the only thing to do is to open the abscess and drain. Theoretically, this may seem to be rational treatment, but practically it is not a very great improvement upon nature's method of emptying the abscess through the bowel.

*Read before the Hennepin County Medical Society, February 7, 1898.

The incision to the outer side of the right rectus, or the one farther to the right, parallel with the fibres of the external rectus, should be chosen according to the indications in each case. When abscess is present, the external incision is the proper one. A frequent mistake made when this incision is chosen is going too far to the right. This is particularly true in the male, where the muscles are thick. I know of one instance in which the operator went so far out with his incision that he missed the abdominal cavity entirely.

I arrive at a point now where my preaching and practice differ. When teaching students, I advise them when they operate upon a case of appendicitis with abscess, to clean out the abscess thoroughly, and when the appendix comes easily into view, to remove it, but when it cannot be readily found to be content with draining the abscess. I would give this advice to everyone who has not had a large experience in operating. In practice, however, I almost invariably remove the appendix. At first (about one year ago), I did it with fear and trembling, but with a clear conscience, for I was doing it for the benefit of my patient and I had faith to believe that I could do what Morris, Deaver and others have done so successfully.

A patient who has been operated upon without having had his appendix removed, is worse off than one who has recovered without an operation, for in addition to the dangers of a relapse, which are not lessened by the half-way operation, there is the danger of ventral hernia, and the cicatrix and adhesions of the bowels to it add very greatly to the difficulty and danger of a subsequent operation, should one become necessary.

I did not perform the complete operation originally, but came to it by degrees through my experience in operating upon both acute and chronic cases. In chronic cases, the surgeon's best, and often his only, guide to the appendix is his educated touch. I found by making use of this same touch in acute cases, that in the majority of them it can be located with comparative ease. I found that the oftener I removed the appendix, the easier it became to find it, and now I rarely experience difficulty in locating and removing it. The first few times I broke the abscess wall in my efforts to remove the offending organ, it was purely accidental, and it gave me no little anxiety; but as time passed and experience accumulated, I found that with proper precautions the adhesions can be broken down with impunity, so that at the present time I do not hesitate to deliberately break down adhesions when it is necessary to do so in order to find and remove the appendix. I can honestly say that I have never regretted having done so, for my patients have recovered, and with the assurance that they will suffer no relapse and that they will not be obliged to undergo another operation.

After opening the abscess by the usual incision, I irrigate freely with sterile warm water. The water is not medicated, because it is better without it and because it is only expected to act mechanically by flushing out the contents of the abscess. When the abscess does not reach the abdominal wall, the bowels and peritoneum are protected by sterile gauze before opening it. The abscess is then opened and the contents wiped out with gauze sponges. After irrigation or wiping, the abscess cavity is thoroughly cleaned with peroxide of hydrogen or pyrozone, and finally cleansed with sterilized water.

I shall not inflict a tabulated series of cases upon you, for we see so much of that kind of literature that it has ceased to be of interest, but shall instead cite briefly a few illustrative cases occurring in my experience during the year 1897. I have had but two deaths during that time, one in a delicate young woman who had been ill for five weeks with appendicitis and a general suppurative peritonitis; and another in a man who was almost dead from some chronic liver trouble, the exact nature of which I did not have time or opportunity to ascertain, when he was attacked with appendicitis. I operated upon his appendicitis to relieve an acute obstruction of the bowels, notwithstanding his extreme emaciation and jaundice. His was one of those cases in which there were extensive fibrinous deposits and adhesions without the formation of pus.

Case I. A female, aged about 22, who had been under treatment for typhoid fever for seventy days when I first saw her. She had had alternate rise and fall of temperature, with distended abdomen and constipation. Widal's test had yielded the usual reaction, but the attending physician (Dr. Martha Moorehead) suggests that the reaction may have been due to the fact that the patient had suffered from an attack of typhoid fever previously. The doctor has always questioned the diagnosis of typhoid fever in this case, notwithstanding the reaction, for the symptoms were not typical and could have been accounted for from other causes. She did not have a typhoid countenance.

Upon examination, I found the abdomen distended, with dullness over the lower half. Through the vagina, indistinct fluctuation could be felt. I pronounced the case a surgical one and advised operation, but reserved a positive diagnosis until an anæsthetic had been administered, as the patient was quite sensitive.

May 8, 1897, at the Northwestern Hospital, an anæsthetic was administered, and upon care-

ful examination I concluded that the case was either a suppurative ovarian cyst or an appendicitis. I made an incision to the outer side of the right rectus muscle, and found an ovarian cyst containing about two quarts, and an appendicitis with extensive suppuration. Numerous pockets containing pus were found between the appendiceal region and Douglas' cul de sac. A diseased appendix and a large enterolith, which was found loose in the peritoneal cavity, were removed. The extensive attachments between the bowels and the ovarian cyst were separated and the cyst removed. The abdomen was thoroughly wiped out with gauze, the wound partly closed, and a gauze drain passed well down back of the uterus. The patient's temperature disappeared at once and she made an uninterrupted recovery.

Case II. I have already made a verbal report of this case to the Academy, but since it illustrates a comparatively rare variety of appendicitis, I wish to briefly describe it to you.

April 9, 1897, I was called to a neighboring city to see a patient who had been operated upon three days before for appendicitis, but the operator found what he believed to be malignant disease, and closed the wound without having accomplished anything. The patient was an exceptionally robust young man, and was in good condition when I saw him, except that his abdomen was distended and his bowels obstructed. After studying the history carefully, as given by the attending physician, I concluded that his original diagnosis was correct, and advised that the wound be reopened and the obstruction relieved. I opened the wound, which was healthy, and found a mass of inflammatory deposit and adherent intestines. After extensive separation of the adhesions, I succeeded in finding and removing the appendix. There was no pus to be seen anywhere in this case. Gauze drainage was established and the patient promptly recovered.

Case III. Dr. Cutts was called about twenty miles into the country to see this patient, a female, twenty-two years of age. He found that she had been suffering from an acute attack of appendicitis for several days and had been treated by the local application of "antiseptic mud," so highly esteemed by some of our homœopathic brethren. The doctor promptly brought the patient to the city and to St. Barnabas Hospital, where I operated on Sept. 15th, 1897.

The external incision was made, and a large accumulation of most foul-smelling pus evacuated. Pockets containing pus extended well up toward the liver and down into Douglas' pouch. After irrigating freely with sterile water, injecting peroxide of hydrogen in every direction, and again irrigating, I separated the adhesions freely and removed the sloughing appendix. The patient was in a highly septic condition when we operated, and while she showed some immediate improvement, she had a high pulse and a temperature from 99 degrees to 101 degrees for several days. Large rubber tubes surrounded by gauze were passed up toward the liver and down into Douglas' cul de sac. Large quanties of very offensive pus were thus drained off for a number of days after the operation. The patient made an excellent recovery and left the hospital in three weeks.

Case IV. On December 4, 1897, Dr. Ridgway telegraphed for me to come to Annandale, Minn., prepared to perform a laparotomy. About ten o'clock the same evening we arrived at the patient's residence, a farm house with anything but hygienic surroundings. Five weeks before this the patient had suffered from an acute attack of appendicitis, for which the doctor had recommended an operation, which the patient declined. Twenty-four hours before I saw him he had been suddenly attacked with obstruction of the bowels accompanied by excruciating pain and almost constant vomiting. Every effort had been made to secure a movement of the bowels, but without avail. When I first saw the patient (a German farmer, about thirty-five years of age) he was still suffering intense pains, notwithstanding the fact that he had had morphine hypodermically. There was almost constant retching, and the skin was cold and clammy. The pulse was one hundred, and would doubtless have been much higher had it not been for the morphia. The temperature was not taken, but I am sure that it was subnormal at that time. The abdomen was distended and tympanitic, and it was evident that the patient would die in a few hours unless relieved. He was told that he s urely would die as matters were, but that with an operation he had a fighting chance. He promptly decided to submit to operation.

A neighboring druggist administered the chloroform, the Rev. Father Plante held the lamp, and with the assistance of Dr. Ridgway I proceeded to operate.

An incision was made along the outer side of the right rectus muscle, because we believed that the obstruction was due to adhesions following the appendicitis. A large quantity of bloody serum was found in the peritoneal cavity, and the bowels were as dark-colored as they could be and be alive. Extensive adhesions were found in the appendiceal region, which were broken up and a part of the appendix removed. A loop of the ileum was found twisted half way upon itself and adherent to the anterior abdominal wall. It was torn loose and brought out through the wound and was found very greatly congested, and distended to the size of my arm. At the point where the intestine crossed itself,

an adhesion over an inch in diameter was found, which I carefully separated with my finger nail. Fortunately the bowel was not perforated, for when we attempted to approximate the ragged edges of the peritoneum, we found the tissues so friable that they would not hold a stitch.

The peritoneal cavity was wiped dry with sterile gauze and the wound closed leaving a gauze drain. The whole of the appendix was not removed in this case because it was deeply buried in dense adhesions, and the patient's condition was such that a prolonged operation was out of the question. The patient was put in bed and surrounded by hot water bottles.

Twelve hours later we approached the patient's residence fully expecting to see attached to the door that emblem which has turned many an honest doctor away with an aching heart, but we were agreeably disappointed. The patient greeted us with a smile and a hearty hand shake, and expressed himself feeling very greatly relieved. His temperature was 99½ degrees, and his pulse 82. He made an uninterrupted recovery.

Case V. On July 20, 1897, I was called by Dr. Cutts to see a boy about six years of age who had been suffering from an acute attack of appendicitis for about five days. He had a rapid pulse, an anxious countenance, with a distended and very tender abdomen. I advised against operation, because I believed that his chances of recovery were better without it. He recovered under medical treatment alone.

On November 29, 1897, just four months later, I was again called by Dr. Cutts to see this same boy, who had suffered a second attack of appendicitis just twenty-four hours previously. The doctor had already removed him to the Northwestern Hospital, where I found him with an anxious, flushed countenance, rapid pulse, a temperature of 102 degrees and rapidly rising, and localized tenderness in the right inguinal region.

We operated as soon as we could get him prepared, and found a perforated appendix and pus. The appendix was removed, and the pus wiped out. I intended to close the wound without drainage, but could see that Dr. Cutts did not approve, so I introduced a small gauze drain which was permanently removed forty-eight hours later. The next day the patient's temperature was normal, and on the seventh day he was taken home practically well.

Case VI. On December 7, I was called to St. Barnabas Hospital, by Dr. Nippert, to operate upon a nine year old boy, who had been suffering from acute appendicitis for ten days Aside from an anxious countenance he was in a very fair condition, pulse 102, temperature 90 degrees. The abdomen was somewhat distended and a distinct mass could be felt in the right inguinal region. We found a large abscess extending from the pelvis almost to the liver, filled with foul smelling pus. The cavity was irrigated with sterile water until it returned clear, after which it was injected with peroxide of hydrogen. I then deliberately broke down the adhesions and found the sloughing appendix deeply buried in the abdomen and surrounded by a sloughing mass of omentum and inflammatory deposit. The appendix and the sloughing omentum were removed. The wound was then closed in the usual manner, leaving only a small gauze drain, which was removed in forty-eight hours and was not replaced. The temperature was practically normal after the operation. On the sixth day the stitches were removed, and on the fourteenth day the boy was taken home well.

I had intended to add to this paper something of my experience in operating upon relapsing and chronic cases in the interim, but find that the paper is already too long. I shall, therefore, at the present time, simply state that I have operated upon a goodly number of these cases and all of them have recovered, so that I feel that I am on safe and truly conservative ground when I advise every patient who comes to me after having suffered two or more attacks, or who has never fully recovered, to submit to operation at once.*

*In the discussion of the paper Dr. Sweetser asked: "Why not operate early in every case, since exploratory operations for other ailments are so harmless?" Drs. Cates and Moore both answered that with perfect surroundings and a competent surgeon it would be good practice but that if that were the generally accepted practice incompetent persons would operate, and the mortality rate would be higher than if the course advised in the two papers were followed.

THE EARLY DIAGNOSIS OF TUBERCULOSIS WITH TUBERCULIN.*

By H. Longstreet-Taylor, A. M. M. D.

Member of the American Climatological Association; Laryngologist and Rhinologist to the City and County, and Bethesda Hospital, St. Paul.

In July, 1896, two apparently healthy young men came from the country and asked for an examination, saying they were certain that they had consumption. There was no apparent reason for this dread beyond the fear of this widespread scourge to which most people have become hardened and indifferent, as is the way of

*Read before the Ramsey County Medical Society, February 28, 1898.

the world. No matter how obnoxious or repugnant any vice or disease or condition may be, if it be but wide spread and general it is accepted as inevitable and regarded as a matter of course, but anything not one-tenth as dangerous or annoying will almost cause social revolution if it be but new. So this request for examination struck me as something unique, especially as the investigation went on and developed nothing but slight naso-pharyngeal catarrhs, without, however, any nasal obstruction. They were told that they were in prime condition but advised to take diagnostic injections of tuberculin, in order to make the assurance doubly sure. This they declined to do as it necessitated a stay of several days in the city. Imagine my astonishment when one of them returned scarcely three months later to have the test made, with the intelligence that he had buried his friend who had died of acute tuberculosis. Such a mistake as this shows how far our methods of physical diagnosis fall short of an ideal standard.

These young men were very much in earnest and seemed to have what some people would call a premonition. They were given a thorough and painstaking examination. The one lost a sister of consumption, the other had a good family history, and he it was that died. Both had fallen off in weight, gradually, however, as young men usually do as their age advances along in the twenties.

The chest expansion was three inches for one and three and one-half for the other, equally divided between the two sides.

They had never spit blood nor had night sweats. They did not catch cold readily, nor have attacks of hoarseness. Appetite, digestion and sleep were good. The blood supply was noted as good and the urine as normal. Pulse, temperature and respiration were carefully noted about 9 a. m. and again late in the afternoon. The expectoration was pharyngeal in character both from its gross and microscopic appearance. There was no lessening of the breath motion nor was the inspiration short and feeble. Expiration was not lengthened nor was there any difference, greater than physiologically normal on comparison of the same regions. Vocal and tactile fremitus were tested without reason to doubt of the condition of things within, nor could any dullness be demonstrated nor any rales made apparent by the usual artifices of cough and deep inspiration; nor was there any appreciable retraction of either apex as compared to the position of its fellow, and yet I thoroughly believe that a test injection of tuberculin would have elicited a response from the one and not from the other. This examination was made on July 24, and the younger man died early in September. The lesson to be learned from this mistake is that no one should be pronounced free from tuberculosis without having been tested with tuberculin.

The examination of the sputum, if negative, leaves us as much in the dark as ever, and just at the time when the diagnosis would be of the greatest value this examination is necessarily negative, as there must be tubercles breaking down that are so fortunately situated as to empty their contents into the air passages, if the bacilli are to be demonstrated in the expectoration, and when this happens the diagnosis has not been made as early as it should have been for the best interests of the patient.

This or that symptom is brought forward at times as absolutely diagnostic ,but there is nothing that even approaches tuberculin in accuracy.

Dr. J. P. Arnold (Medical News, March 20, 1897), brings out the old subject of cogwheel respiration, especially under the left clavicle, but we all know people who have had cogwheel respiration for years and who are not tubercular, and unfortunately, all cases of tuberculosis do not begin in the left apex.

Dr. A. M. Holmes, of Denver (Medical Record, Sept. 5, 1896, March 13, 1897, Journal of American Medical Association, Oct. 23, 1897, Feb. 5, 1898), has made a study of the blood of tubercular patients, and in his communications on the subject claims to be able to diagnose tuberculosis from the characteristis of the blood cells, but like most of the recent work in this new field it is far from being within the grasp of all of us, and rests as yet on a very insecure foundation. Neither have Dr. Holmes' observations escaped criticism. Let us hope he may be able to convince the profession and so simplify his procedure that we shall all be able to apply it to our patients and thus arrive at the true appreciation of its value.

In the years that have elapsed since Koch gave us tuberculin and at the same time pointed out its wonderful powers as a diagnostic agent, no one has been able to disprove its action in this regard. The time has come when every doubtful case should be given the advantage of such a safe and accurate means of knowing whether or not tuberculosis is present. The reliability of this method of diagnosis has been demonstrated in the practice of veterinarians by their wholesale injections, condemnations and post mortem examinations of cattle. No reason can be given why these uniform results on cattle and on the numerous small animals ordinarily used in laboratory work should not be equally reliable in man. One objection that has been urged is that the reaction may occur in other diseases, especially, as Prof. Osler points out (American System of Practical Medicine) in actinomycosis and leprosy, but he says, this detracts but little from the value of the tests.

Prof. Whittaker (International Medical Mag-

azine, Oct. 1897), however, says that in those cases there is in conjunction with the actinomycosis or leprosy, tuberculosis as has been demonstrated. We know also that lepers are particularly liable to tuberculosis. Another objection is that there is supposed to be danger of dissemination of the bacilli and consequent scattering of the disease into all the organs of the body. But this is a theoretical not a practical objection.

We find van Jahsek at the Congress fur Innere Medicin, 1891, advocating the use and extolling the efficiency of this test.

Dr. Charles Denison before the American Climatological Association in 1892, the first Pan American Congress in 1893, and in numerous publications since, recites his cases and urges the general adoption of such an aid in the recognition of this exceedingly obscure condition. He says (New York Medical Journal Feb. 3, 1894): "In these uncertain and doubtful cases tuberculin has the power to bring to our knowledge their true nature and extent with precision and gratifying certainty."

Dr. von Ruck too, has pointed this out in his frequent contributions to the literature of this subject.

Dr. Krause (Deutsche Medical Wochenschrift, 1895), wonders what succeeding generations will think of a profession that refuses to use a scientific test to aid them in the proper understanding of their cases.

Dr. Sandberg, surgeon of the Bergen Hospital, (British Medical Journal, 1896), concludes that tuberculin is a reliable diagnostic agent in surgical tuberculosis, and with regard to this, he says, "there has been heretofore no difference of opinion."

Prof. Jas. T. Whittaker recited his extensive individual experience to the Congress of American Physicians in 1896, and in an article in the International Medical Magazine, Oct. 1897. He says: "The highest value of tuberculin is the diagnostic value which is supreme, and which enables us to distinguish the disease at the start as a tuberculosis before the development of sepsis and the other complications which go to make up that composite picture we call phthisis."

Dr. Trudeau urges its adoption in an article in the Medical News, May 29, 1897, with the report of the cases on whom he has used it at the Saranac Lake Sanitarium.

Prof. Koch says (Deutsche Med. Wochenschrift, April 1, 1897): "The most valuable property of tuberculin is, that injected subcutaneously in very minute doses it gives rise to a characteristic reaction in persons and animals affected with tuberculosis. The use of tuberculin as a diagnostic agent, a fact which I emphasized in my first publication on tuberculin, has more and more held true in the course of time. The apprehension that, following the reaction, the tubercle bacilli might become unfettered and transplanted into healthy parts of the body, has proved to be futile in the many thousand injections into cattle made for the purpose mentioned. This fully agrees with my own experience in more than a thousand cases, in which tuberculin was used for an early diagnosis of tuberculosis. Here, too, in not a single case the slightest indication pointing to an unfettering and transplanting of tubercle bacilli could be observed. With such experience at one's command, one ought to abandon the silly prejudice of the unfettered bacillus and make use of the diagnostic value of tuberculin."

This test is particularly sensitive at the very time when the diagnosis is most valuable, that is in the condition of latent tuberculosis or in the pretubercular stage; it is not very sensitive in advanced tuberculosis, when however it should never be necessary to make use of it, or in an old local tuberculosis. An instance of the latter condition occurred recently in my practice. A case of laryngeal tuberculosis with such swelling of the false cords as to cause distressing dyspnœa most effectually prevented any view of the larynx. No tubercle could be found in the scant expectoration, nor on cotton wrapped probes passed into the larynx beyond the obstruction. There was no reaction to two mgrs. of tuberculin. Tracheotomy was performed and laryngotomy which at once showed an old, deep tubercular ulceration where the left cord had been, extending up into the ventricle of the larynx. Probably a large dose would have caused a reaction in this case, but to relieve the distressing dyspnœa an immediate operation was decided upon.

In another case no reaction was produced by the same dose. This was a case that a year or so previously had been given tuberculin for a long time in therapeutic doses for tuberculosis of the lungs after an extirpation of tubercular glands. She was suffering with pelvic trouble and her ovaries and tubes were to be removed. She was given two mgrs. of tuberculin without reaction. An old caseous focus was found, with, as the pathologist reported, "one or two tubercles in the submucosa of the tube" (Dr. Rothrock). Here again the dose was too small. The general opinion seems to be that the diagnostic dose should be rapidly increased until the limit is reached which can be given to a healthy individual without producing fever. Even if fever should result from an over dose and no local reaction take place, the physician should not be led astray. Before giving tuberculin for this purpose, it is indispensable to have an accurate two-hourly temperature chart made for two or three days, in order not to be misled by any daily rise in the temperature. The first dose should be one mgr.; after the lapse of several days two

and one-half mgrs. should be given. The third dose should be five and the fourth dose ten mgrs. When no reaction occurs, or with the largest dose slight fever without any local reaction, the patient can very safely be declared free of any tuberculosis.

By local reaction is understood those changes which take place in tubercular tissue under the influence of a large dose of tuberculin. In the larynx the increased congestion and swelling can be seen; in the joints it is at once apparent; in the lungs there is an exaggeration of any previous roughness in the vesicular murmur, and often the area of roughened breathing increases in extent, mapping out clearly the limits of the infected area. The general reaction is shown by a rise in the temperature of a degree or more, by headache, sense of constriction in the chest, rapid pulse, nausea and at times diarrœa. The local reaction should always be detected and its extent carefully noted.

Dr. Malm, of Norway, who has studied tuberculin very thoroughly and written an authoritative work upon the subject says that the first diagnostic dose should be one mgr.

Drs. Grasset and Vedel (Semaine Medicale, 1896), use from one-fifth to one-half mgr. While they obtain reactions, yet they are very apt to miss some cases, as shown by the writer's experience narrated above.

Prof. Whittaker begins with five mgrs. and pushes the dose to twenty-five mgrs., as does also Prof. Maragliano (Berliner Klin. Wochenschrift, 1896). Unless very careful to look for local reactions, such doses might mislead by causing fever in healthy subjects. Dr. Denison begins with one or two mgrs. Dr. Trudeau begins with one mgr. and believes ten mgrs. to be sufficient for the maximum dose.

The most radical dose is that suggested by Dr. Head, of Minneapolis, in the Northwestern Lancet, Jan. 15, 1898. He uses Bureau tuberculin, which is merely a ten per cent. solution of Koch's original tuberculin, and the dose he urges, expressed in mgrs. of Koch's tuberculin, is the rather startling quantity of 24 mgrs. There is as stated above some authority for gradually arriving at a dose of this size, but in the determination of a vital question the loss of a few days incurred by using a small initial dose should not be taken into account, and other things being equal, we should aim at obtaining characteristic reaction with as small a dose as possible. Between Dr. Head's dose of 24 mgrs. and Drs. Grasset and Vedel's dose of one-fifth mgr. there is a wide range. Probably the truth, in this as in other things, lies somewhere between the extremes.

The writer's case book contains the accounts of forty-two cases to whom diagnostic injections have been given. The youngest was an infant in arms, to whom two small doses were given without a reaction. The condition proved afterward not to be tubercular. The result was positive thirteen times. The negative cases have not developed tuberculosis except in the two failures recorded above, and as stated, the dose given to these two was too small to be final. One of the negative results was in case of tarsal inflammation in the practice of Dr. Gillette. The operation showed it to be non-tubercular. Six of the thirteen positive cases reacted to the first dose of one mgr., five reacted to doses of between two and three mgrs., one reacted to the five mgr. dose and one to the ten mgr dose.

The greatest triumphs of medicine are achieved by means of exact diagnosis, and any scientific test which tends to make medicine more accurate should be embraced, especially when it is so simple, so easily applied, does not require costly apparatus or special instruction, but above all, does not in any way harm the patient.

DISTURBANCES OF THE BRAIN IN RELATION TO INJURIES OF THE HEAD.

By J. G. Engstad, M. D.

Grand Forks, N. D.

Hippocrates describes in a very lucid and exact manner the indications for and mode of trephining the skull, made necessary through injuries. We cannot but admire the wonderful tact, close observation and boldness of technique in cases where extreme measures were indicated.

Outside of the medical profession it is the general belief that the brain is an extremely delicate organ, and that the slightest injury to it will be followed by disastrous results. This belief is unfounded, as Keen, Horsley, Lanpher and others have proved.

The brain may be likened to dynamite in its character. This powerful explosive can be cut, pressed, punctured and molded into almost any form without danger; but a slight jar or detonation may explode the whole mass.

The brain may be cut and probed without any great danger of causing violent reaction, but a jar or slight shock may suddenly cause an explosion of its functions, so to speak, and we have death as the result.

The time is not far distant when the surgeon will explore the brain by an exploratory craneotomy with as much certainty as modern surgeons now explore the abdominal cavity by exploratory cœliotomy.

The following cases operated on during the past year show a wide diversity of injuries to the head, necessitating operative measures:

In January, 1897, I was called to Warren by Dr. McGillan, to be prepared to perform craniotomy. The patient had been confined in bed for a period of about six weeks with a fever that had all the symptoms of typhoid. The young man gradually sank into a coma, and on examining the patient's eyes, the doctor discovered one pupil widely dilated, the other contracted. He made a careful examination of the scalp and found a slight scar on the posterior inferior margin of the right parietal bone. A history of an injury to the scalp three months previous was elicted. Dr. McGillan concluded that the young man was suffering from a combination of injury and compression with septicæmia. I agreed with him in the diagnosis and advised operation. A three-quarter inch trephine was used. On removing the covering of the bone a minute fistula was discovered in the cranium immediately communicating with a pus accumulation inside the bony cavity. The dura was incised and about 125 grammes of thick pus evacuated from the arachnoid space. I dropped a probe into the opening and it sank nearly 7 cm. into the pus cavity. No irrigation was employed but drainage provided and daily dressings. Complete recovery in five weeks.

Case II. An N. P. railway employee while performing the duties of his vocation, sustained an injury over the eminence of the frontal bone, through being struck by a moving train. He soon developed all the symptoms of compression, such as dizziness ,difficulty of speech and later almost total loss of memory. On admittance to St. Luke's Hospital, three weeks after the injury, a distinct fluctuation could be felt under the scar tissue. An incision was made over the old scar and some granulating tissue removed. I found a fracture diagonally across the eminence and a shorter one at right angles to it. A three-quarter inch trephine was used and a button removed from one of the fractured edges. The periosteum had not united and a number of spiculæ were found, one of which had penetrated the dura. Some bloody exudate was removed and the dura incised. About 30 grammes of dark, partly coagulated blood was evacuated from the subarachnoid space. The usual drainage was employed and the result was almost complete recovery in three weeks.

Case III. Mr. A., age 38. At the age of 15, had sustained an injury to the upper border of the right parietal bone. The attending physician dressed the wound without examination. About three years ago the right side of the body became partly paralyzed. Convulsive attacks lasting from a few minutes to one hour became frequent. A moral degeneration gradually manifested itself. The patient was willing to resort to surgical measures, and the operation was performed. On removing the periosteum a small cyst was found at the seat of the old scar. Both plates of bone had been fractured and a piece, the size and shape of a silver half-dollar had been driven down into the brain without injury to the pia mater. A cartilaginous union had formed between the skull and the fractured and depressed piece of bone. The depressed bone was removed with a chisel and hammer and the wound dressed. All the functional disturbances immediately disappeared. The moral precepts also improved rapidly. The difference between right and wrong was clearly defined in his mind a few days after the operation.

Case IV. Mr. L., was referred to me by Dr. Onsgard of Halstead. The history given was that the limb of a tree fell and struck him over the right frontal bone with so great a force as to crush almost one-half of the bone into minute fragments, causing a depression nearly one inch in depth in the center. An incision was made extending from the upper edge of the nasal bone upward about two and one-half inches, then in a curved direction outward an inch and a half, following the ridges marking the edges of the fracture. The periosteum was separated from the small pieces of bone and turned back. The pieces were wedged so firmly inward that the trephine had to be used to loosen the wedged part of the bone. The dura was torn. The bones were so small that their removal was the only resort. The bones included the frontal sinus but the wound was not infected. The area covered the part extending from the nasal eminence upward two and one-half inches and sideways one and one-half inches. Most of the dura mater was removed. The outer edge was depressed, for there was a fracture at the temporal ridge. It was elevated to its normal position. The dura was united across the wound in one place where it reached across to the opposite edge. The periosteum was united by catgut sutures and gauze drainage inserted in the upper angle of the wound. Patient was discharged from the hospital in 10 days entirely cured. Before operation he was in a semicomatose condition.

Case V. Mrs. R. A great many years ago she sustained an injury to the head causing a slight depression on the upper border of the temporal ridge of the frontal bone. Had been an inmate of the asylum for the insane at Jamestown during the last three years. She was paroled and brought to St. Luke's Hospital to undergo craniotomy to remove any possible depression of the bone and consequent pressure. A number of one inch buttons were removed in a direct line from the frontal eminence upwards and backwards for four inches. The skull was

enormously thickened, more than usual in the insane, measuring one cm. on the average and in one place nearly one-half an inch. The improvement in her mental condition was marked.

Hippocrates mentions the fact that the trephine will become heated under the pressure of trephining. I have passed this over somewhat incredulously, but in this case the instrument became hot.

In addition to these cases I assisted Dr. Campbell of this city in a case where he operated for symptoms of compression. This patient fell from a loaded wagon striking on his head and causing quite a number of fractures of the skull. There was a copious discharge of cerebral fluid from the ears for a few days; almost complete paralysis of the body and mental action was very much retarded. A large semilunar incision over the motor area was made by the operator, and on paring loose the periosteum quite a number of fractures were discovered. The skull was extremely thin and brittle. A number of buttons were removed, the brain was thoroughly explored but no pus or blood clots were found. Patient rallied well and the wound healed; but he eventually sank into a coma ending in death. At the autopsy a small abscess was found near the third occipital lobe on the right side and marked inflammation of the pia mater.

THE EXAMINATION OF SCHOOL CHILDREN'S EYES.*

By Frand C. Todd, M. D.,

Clinical Professor of Ophthalmology and Otology, University of Minnesota. Eye and Ear Surgeon to Asbury Hospital, Minneapolis.

It is a fact evident to all progressive physicians that many nervous affections, headaches and other derangements, are dependent upon some ocular defect which can be relieved by appropriate treatment. It is also equally apparent that many cases of partial and total blindness can be prevented by timely intelligent aid.

The time was when these facts were not known and no one could be censured for allowing children to attempt the acquisition of an education handicapped by poor vision and defective eyes; but now that we have reached our present state of progress there is no reason why the public should not be given the benefit of this knowledge. Indeed, it becomes our duty to those in ignorance of their deficiency to raise them to an equal footing with their fellow creatures. In illustration of this point I will narrate the case of a locomotive engineer whom I examined while testing the eyes of railway employes. The man was forty-five years old and had been following this occupation for twenty years. His vision was only 20-200 in each eye, and he stated that he had never seen better. The fact that he did not realize that his vision was so far below the standard was made apparent by his exhibition of delight when his vision was improved to normal with —4.50 cylinders. He has since returned to express his great happiness at having had a new world revealed to him, his only regret being that his eyes had not been attended to years before. Does not his case, which is only one of many that could be cited, demonstrate the need of some provisions to prevent the neglect of this most essential sense?

Most children, like the engineer, do not realize that their eyes are different from others, and parents do not always discover the fact that their children are handicapped by ocular defects; therefore, as we provide sanitary rules for the prevention of various germ diseases, so should a system of ocular prophylaxis be established in every community, which would require that the eyes of every school child be tested. Recognizing these facts, a plan for the examination of school children's eyes has been devised by Dr. Allport, which has been put into practical application in several towns and cities throughout the United States, and lately in Minneapolis. The examinations are made by the school principals, who are instructed by lectures and a clinic given by the supervising oculist. One child is examined at a time, being placed twenty feet from a Snellen test card and each eye tested separately, a card being held over the other eye. If the child is unable to read the letters on the twenty foot line, with either eye, or complains of habitual headache upon use of the eyes in studying, a card of warning is sent home stating that the eyes are defective, and advising the parents to consult their physician. It will be observed that this notice is simply advisory and not compulsory.

In the Minneapolis public schools during January, February and March, 1897, 23,049 children were given this test, and warning cards were issued to 31 per cent. of this number.

As this was the first time the test was made here, and as the teachers were inexperienced, necessarily some were given cards whose eyes needed no attention. This last fall the child was only expected to read a majority of the letters on the twenty foot line, and first grade pupils were not examined. This materially lessened the number of those who would otherwise have been directed to an oculist. It is probable that not one-half of those classed among the defective

*A report of 411 cases who were advised to consult an oculist, as a result of the preliminary tests made by the school principals in the public schools of Minneapolis in January, February and March, 1897.

followed the advice, but most of the worst cases were attended to.

Of those advised to consult an oculist, as a result of the tests in January, February and March, 1897, I examined at the free dispensary at the medical department of the University of Minnesota, at the Asbury Hospital free dispensary, or at our office, 411 children ranging in age from six to twenty. Cases of pronounced myopia were tested without atropine. Cases of astigmatism and hyperopia were examined under atropine by the various tests.

My records show that out of the 411 there were 39 who needed no attention. There were 18 whose vision in both eyes together was less than 20-200, 16 of whom were improved to normal or nearly normal vision. There were 31 whose vision in both eyes together was 20-100 to 20-200, all but one of whom could be improved to normal or nearly normal vision. Forty-nine had a vision in both eyes together from 20-50 to 20-100, all improved to normal or nearly normal. Two hundred and eighty-three suffered from asthenopia (eye aches, headache due to eye strain and blurring of vision after use of eyes, etc.) There were 35 cases of blepharitis marginalis and other lid diseases which would interfere with school work. There was one case of an eight year old child with double congenital cataract, 5 cases of choroiditis, 19 cases of strabismus. Two cases of epileptiform convulsions were cured by attention to the eyes (have had no attack since treatment, twelve months ago), and two others which could not be followed. Of these cases above cited there were 165 cases of hypermetropia ranging from one to three dioptres with or without astigmatism, and 51 cases from three to eight D. One case showed the following remarkable record: R. + 8 D. sph. + 1.50 D. cyl. ax. 10, and L. + 7.50 D. sph. + 1.00 D. cyl. ax. 180. This child was wearing + 1.25 D. sph. in each eye. There were 43 cases of myopia with or without astigmatism. There were 247 cases of astigmatism causing either asthenopia or poor vision, 108 of which were from .50 to 2.00 D. and 49 of which were from 2.00 to 5.00 D.

These cases were treated, fitted to glasses or operated upon as each required. Many others were provided for by other oculists, and we may judge of the vast service to hundreds of struggling children who have been feeling their way through life, not even realizing their deficiency; of the great amount of physical suffering prevented by relief of eye strain, and of several cases in which future blindness was prevented.

Perhaps the most conspicuous immediate result of the execution of this plan is the greater facility with which children formerly supposed to be stupid acquire knowledge. One instance of this character comes to my mind in particular. The child was a boy of twelve, one of a family of five children, and "the only dull one of the lot," the mother informed me in his presence. The facts are that the children were unusually bright, and with the exception of Tom made rapid progress in school. Tom had only entered the fourth grade, while his sister, two years younger, was in the fifth. The cause of Tom's "lack of diligence" was evident upon examination of his eyes. His vision for distance was poor and the defect such that he could not read even large type five minutes without blurring of his vision. Strong astigmatic lenses set at the correct axes gave him normal vision, produced diligence, and caused his stupidity to vanish, much to the surprise of his family and gratification of his teachers. Thus was this lad given a chance to gain an education and to demonstrate his intellectuality. Another boy of eight years, who fell below the standard in the preliminary test, proved upon ophthalmoscopic examination to have a congenital cataract in each eye. An operation that could have been performed in babyhood was necessary to produce good vision. Another case which demonstrates the usefulness of the plan was that of a girl fourteen years old who was blind in one eye, caused by a detached retina and choroidal atrophy, while the other eye, suffering from choroiditis, gave poor vision and was fast retrograding under the strain of school work. To prevent absolute blindness this child was taken out of school.

Thus might I go on reciting case after case to prove the efficacy of these hygienic measures, and outweigh the criticisms of those who have, without investigation, thoughtlessly condemned them.

Notwithstanding the added labor which has been allotted to the principals, who with commendable patience carried out so successfully the instructions given by the supervising oculist in our city, we find them all enthusiastic in their praise of the scheme. Nor is this to be wondered at when we consider that they are in a position to see the great benefit derived by the scholars, and realize that in the end their teachers are relieved of much extra wearisome and trying toil with many backward children.

The plan has proved so satisfactory that many cities have since taken up the idea, and it seems only a question of time when every school board will provide similar provisions for the care and preservation of the eyes of the scholars entrusted to their supervision.

304 Dayton Building.

Wyeth mentions a case of stricture of twenty years' standing, that was impenetrable to the smallest bougie, and on making a perineal section he found an inch and a half of urethra so hard and cartilaginous that he dissected out the entire stricture and obtained an excellent resul

APPENDICITIS FROM A MEDICAL STANDPOINT.*

By A. B. Cates, M. D.

Minneapolis.

In all the discussions concerning appendicitis to which I have listened there has rung forth the fiat, "as soon as you make a diagnosis of appendicitis, operate." With this very broad and sweeping dictum many prominent surgeons concur. It is the object of this short paper to enter a protest against such an absolute rule, and to contend for the variable conduct of varying cases.

In this discussion I am willing to go farther than most physicians and concede to the surgeon every case of chronic appendicitis for operation, preferably between the acute exacerbations. A large number of acute so-called "fulminating" cases belong to the surgeon at the outset. Any case treated expectantly may become surgical when late in the attack a localized collection of encysted pus is evident from physical examination. When, during the course of the disease, there is an attack of acute lancinating pain evidencing perforation, or when the pulse becomes more rapid, or the temperature falls, or vomiting begins and continues, surgical intervention is required.

The rule which applies in the city may not be satisfactory in the country. More cases in the city can be treated successfully medically than in the country. In the city, too, our chances are greatly enhanced by careful hospital supervision, because of the attendance of intelligent observers who can be taught to quickly recognize conditions demanding an operation. In the country an early operation in all severe cases is advisable because the patient cannot be so closely watched for the development of symptoms demanding surgical aid, and because a delay of several hours is very liable to result fatally, from the rapid extension of a beginning localized peritonitis. On the other hand the statistics of the surgeon cannot be so satisfactory on account of the lack of conditions favorable to perfect asepsis and often on account of the inferior dexterity of the operator, whose opportunities for perfection of detail have not been so extensive as those of his metropolitan confrére.

The class of cases which I shall claim for the medical or expectant treatment is those of simple catarrhal inflammation, such as are most cases of appendicitis at the outset, with localized pain, tenderness on pressure and rigidity of the abdominal walls, without vomiting, or with vomiting at the first, but subsiding after the localization of the pain, with a moderate amount of fever. When these ordinary catarrhal cases present no alarming symptoms they are as a rule amenable to thorough medical treatment. This must not, however, be half-hearted, but must be undertaken with confidence in ultimate success.

Unless physicians are willing to be extremely painstaking the medical phalanx will be repulsed and surgeons will become more and more convinced that their extremely high ground is perfectly tenable.

As soon as the physician is called to a case already developed, or as soon as a diagnosis can be made in a slowly developing case, the abdominal rubber coil should be applied and ice water, or what appears to me better, hot water maintained continuously at a temperature as high as the patient can endure should be kept in circulation. The hot water can be supplied from a large pail considerably elevated and heated by the parlor stove, gasoline stove or gas burner. This should be kept up as long as there is pain and fever or tenderness with fever. Under its use the inflammation gradually subsides. There may be no exudate noticeable. In other cases we shall find by palpation the protecting exudate gradually forming and then as gradually disappearing. Sometimes instead of the gradual melting away and resolution of the exudate we have the formation of an abscess well walled in, which may be easily evacuated. Those who use flax seed meal poultices need not expect as good results as those obtained from the coil. The heat is less intense and is uneven and irregular.

Cathartics should be used only at the outset. Castor oil is the best. After that every endeavor should be made to limit peristalsis. Enemata containing turpentine and sometimes suppositories of asafœtida, should there be much discomfort from distension, are advisable. Never use forced enemata in cases of paralysis of the intestines with obstruction, as there is danger of forcing fluid and fæces into the peritoneal cavity by causing a break in the attachment of the appendix or by opening an ulcer. Codeia in half grain doses by the mouth or in one grain doses by the rectum, should be pushed to the entire relief of pain. Notwithstanding the objections urged against the use of aconite I am accustomed to give it in one grain doses every hour in cases where the fever is considerable, stopping it as soon as the temperature falls to 99 degrees or thereabouts. I have never seen any unfavorable results from its use.

During the past nine years, since Dr. Fitz, of Harvard, gave to appendicitis a name and an entity, I have had, in an ordinary family practice, eleven cases of well marked primary attacks treated essentially as heretofore outlined, with only one death. Of these but two cases re-

*Read before the Hennepin County Medical Society, February 7, 1898.

quired an operation, one where, after a considerable period, pus formed, which was localized by the limiting adhesions and another in which what was understood by all parties concerned to be an ante mortem post mortem was held several hours after perforation, upon a man who had stercoraceous vomiting, extreme restlessness, notable tympanites, a running pulse and a leaky skin, all pointing to a general septic peritonitis. In connection with these there was a complication of mitral disease sufficient of itself to make the prognosis very unfavorable in any acute disease. This makes a mortality of 9 per cent, and while statistics are very variable and very unreliable, and this is a small number, I doubt if any surgeon who operates upon all cases as soon as a diagnosis is made can show better results. Of all these patients only one has had a recurrence and in that case recovery soon followed. The most of these cases evidently were arrested during the first stage of endo-appendicitis, or at the most during the stage of parietal appendicitis.

In conclusion, let me say that I believe there must come a reaction against the tendency towards operation in all cases, in some of which the diagnosis may be doubtful. Not unfrequently comparatively healthy appendices are removed because the surgeon concludes after opening the abdomen that the patient is better off without an appendix than with one. The time is fast approaching when the surgeon will abandon his extreme position and the physician will be less liable to extend his expectant treatment too near to the danger limit.

PUBERTY.—From advance sheets of Dr. Dudley's book, "The Diseases of Women": Although the appearance of menstruation indicates that maternity is possible, it by no means follows that the development of the individual is complete or that she is capable of fulfilling the requirements of maternity. Until about the twentieth year the nervous system is unequal to the strain of child-bearing and child rearing, the muscles are inadequate to the carrying and expulsion of the child, and the pelvis is often too small to give it safe exit. The period of puberty should therefore be taken as extending not only over the few months required for the establishment of menstruation, but always as including the time necessary for full physical development.

During this period the energy of the girl is taxed by the rapidity of the sexual development, by the great liability to circulatory disturbances, by the physical and mental strain of education, by the conventionalities of society which may require injurious changes in dress and personal habits. The necessity therefore for great care is apparent. Nutritious and simple diet, frequent rest, moderate amusements, and adequate exercise are essential. Study, especially during menstruation should never be pressed to the point of fatigue. Inasmuch as passional life now begins and the whole nervous organization is therefore subject to new impulses and requirements, reading and associations should be carefully selected and should exclude whatever may unduly excite the emotions. Errors committed now may leave impressions which can never be effaced and may have grave consequences. Malnutrition, psychoses, sterility, menstrual and other functional disorders are possible results and may make the woman a hopeless invalid. For reasons already given, one of the most serious errors is premature marriage.

According to prevailing ideas, the higher education and civilization strongly tends to check and to prevent development of the woman, to cause numerous weaknesses, to increase the burdens of maternity and to lessen the vigor of the offspring. We are told that the Republic is in danger from the deterioration of our women. The limits of this work cannot include an adequate discussion of the question nor are sufficient facts known upon which to base a valid conclusion. These pessimistic forebodings however have arisen and gained headway rather upon assertions than upon fact. The ability of the squaw immediately after parturition to resume the march is often urged as an argument against the higher education of women, but this proves nothing. Observation among Indian women has abundantly shown that want of care, during and after labor, is the constant cause of complete prolapse of the uterus, vagina and bladder, and of numerous other diseases which are relatively much more prevalent among them than among the higher classes of civilized women. The educated woman could "resume the march" if it were necessary and history has shown many heroic examples; but education has taught her that this is unsafe. The savage woman looks old and withered at thirty, the high class civilized woman preserves something of youth until after the age of fifty. The highest civilization and its resultant heredity, notwithstanding its artificial and social requirements, does not reinforce but more than offsets any deteriorating influence which may come of a departure from primitive conditions. This is the reason why the vitality of a civilized race is much greater than that of a savage and why civilized woman has a power of resistance, which if properly trained and directed, will enable her to endure and to survive many trials to which a ruder organization would succumb. To make the deterioration of woman, and through this the enfeeblement of the race, a price which must be paid for the higher education and civilization, would be to reverse the law of evolution and to put in its place the law of the survival of the unfittest.

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HEADACHE.

When it happens that the same condition is sometimes a symptom and at others a disease of itself, it is usual to find great difficulty in drawing the proper line between the two. This is particularly the case in dealing with such a condition as headache, which is perhaps the commonest of all symptoms met with, fever alone making a possible exception. Confronted with a headache the medical man just looks for its cause, and if he cannot find a satisfactory explanation he may be driven to rest with the diagnosis of an essential headache, doing so with the same feeling of dissatisfaction he has when obliged to content himself with the diagnosis of fever without further qualification, feeling sure that the fever probably belongs to some recognized class and that he has failed to discover exactly where it should be placed.

Headache is admitted to the list of diseases only under one form and that goes by several names, the commonest of which are migraine, hemicrania and bilious or sick headache, all used to describe the same affection, and all unsuitable; for the headache is by no means always attended with sickness, that is nausea, nor is it always limited to one half the head as indicated by the word hemicrania and its abbreviation, migraine. The proper descriptive name of the disease is chronic paroxysmal headache; to call it nervous headache is not far out as it is unquestionably a disease of the nervous system, probably of the sympathetic and that part of the sympathetic that controls the calibre of the blood vessels, although it seems likely that the vessels are not always affected in the same way but sometimes dilated and at others constricted, causing two types of headache, known respectively as the angeio-spastic and the angeio-paralytic.

The name migraine or sick headache has been loosely applied to a great many cases of headache, that were not at all the typical disease, but that depended upon some temporary disturbance such as derangement of the digestive organs, eye strain, unusual excitement or fatigue or some mechanical cause, like a prolonged jarring. This confusion of entirely different forms of headache is due in part to an incomplete study and understanding of the disease because of its trivial nature as far as danger to life is concerned, and in part to the fact that the typical headaches as well as their imitations may be occasioned by disturbances similar to those mentioned above. The real chronic paroxysmal headache has a natural history quite as fixed as that of typhoid fever; often preceded by an aura or premonition it may begin at any time of the day but is most frequently first noticed on awakening in the morning. Often the victim wakes before the usual time to find that his headache has begun and falls asleep again with the knowledge that he is in for it. The class of cases beginning thus, in the morning, form the truest type of this headache and are as a rule the most inveterate and least amenable to treatment. As the day wears on the headache increases, reaching its greatest intensity during the afternoon or evening, when, if the attack be a severe one, the sufferer must give up to it, especially if he be liable to attacks of nausea and vomiting with it, for these are almost uncontrolable excepting by rest and quiet. On the second day the headache, although present is usually quite

bearable; by the third day it is gone or only its shadow reamins, although often for several days any unusual jar will cause a temporary ache. showing that normal conditions are not wholly restored.

To these main features of an attack certain by-phenomena are more or less constantly present, such as general chilliness, a slow, strong pulse, dilatation or contraction of one pupil, paleness or flushing of one side of the face, these one-sided phenomena belonging to the form of attack where the pain is felt principally or entirely upon one side of the head. Nausea and vomiting occur quite frequently, especially if the patient eats freely in response to an appetite that is often unimpaired. A very striking phenomenon often observed is the passage during the height of the attack of large quantities of limpid urine of low specific gravity, a feature that points strongly to the nervous origin of the disease and suggests the like phenomenon in hysterical attacks.

No near approach has been made to the discovery of the minute pathology of this disorder and as it is probably a functional disturbance it is unlikely that the exact changes upon which it depends will soon be discovered. Certain facts bearing upon its etiology are, however, well known. It is markedly hereditary, or rather it prevails in families where there is a neurotic taint as shown by the prevalence of neuralgia, hysteria, epilepsy, inebriety and perhaps hay fever in the family history. There are observations on record of cases where these headaches have existed in an individual for years and then ceased, to be immediately succeeded by epileptic attacks. The attacks seldom begin before the age of puberty and with men as well as women, frequently disappear after the prime of life has passed, indicating that in women this disappearance is due quite as much to age as to the menopause. No constant relation can be traced to any one exciting cause. Although the attacks often follow some indiscretion of diet or some extra mental stress or excitement, this is only when the usual interval has elapsed since the previous attack, and the headaches often come on without anything having occurred to which they can be attributed. It is well attested that the subjects of this disease are almost without exception organically sound.

The treatment of this affection is a short chapter and was a shorter one still before the discovery of the so-called antipyretics, for up to that time there was no remedy that could be relied upon in the least to palliate or much less cure, and morphia had to be called upon when the suffering became unbearable. From antipyrin, antifebrin and phenacetine, however, is to be found in the majority of cases an effect as specific as that of quinine upon malaria. Sometimes the choice among these drugs is a matter of indifference; oftener one of them alone is successful, but that one in full doses will produce an effect that in many instances is little less than marvelous, controling the pain with the greatest promptitude and certainty. Moreover it is often the case that as the attacks are brought under control they diminish both in frequency and in severity and finally become practically extinct, to the immense relief of their victim, of whose life they have often been the greatest trial.

REPORTS OF SOCIETIES.

MINNESOTAA ACADEMY OF MEDICINE.

R. O. BEARD, M. D., SECRETARY.

Stated meeting, Wednesday evening, February 2, 1898, at the West Hotel, Minneapolis; the President, Dr. J. W. Chamberlin, in the chair. Dr. J. Warren Little, of Minneapolis, presented a speciment of a

GALL STONE.

impacted in the cystic duct and a gall bladder, filled with stones, which he had discovered post mortem in the course of a dissection.

Dr. Thos. S. Roberts, of Minneapolis, presented a report of a case of

TUBERCULOSIS OF THE KIDNEY,

accompanied by sections which he exhibited microscopically. The point of diagnosis in the case had been one of especial interest. It had come under observation late in its course. Many tubercle bacilli were to be found in the urine. Several specimens had been examined and the discovery was made of bodies believed, at first, to be casts, but which proved, under close observation and appropriate staining to be cylinders consisting of fetted masses of bacilli. Some question had arisen as to the correctness of this

observation. One or two eminent specialists in the East had examined them and doubted their character. Upon subsequent removal of the kidney, slides had been prepared with sections cut from the pelvis of the organ and these showed the same peculiar masses of bacilli, proving their origin in the kidney.

Dr. Jas. E. Moore, of Minneapolis, reported a case of

SUPPOSED STRANGULATED HERNIA.

The patient exhibited a swelling in the inguinal canal, which proved upon operation, to be constricted at the internal ring, and to contain a piece of gut, recently strangulated, a piece of omentum and an undescended testicle. He returned the gut and removed the portion of omentum and the testicle. He presented the hernial sac. Dr. Moore also reported as follows, a case of

CŒLIOTOMY FOR TYPHOID PERFORATION.

On Jan. 27, 1898, was requested by Dr. Cutts to see a case of typhoid fever in which he had diagnosticated a perforation. The patient was a woman about thirty years of age and was in the third week of typhoid. She had been doing very nicely, with comparatively little bowel trouble and about the average fluctuation in temperature up to the day before that on which I saw her. The day before the perforation her temperature had run up to 104°, and could not be reduced by baths as had been done previously. The night before perforation occurred the patient complained of very severe pain in the abdomen. On the morning of the day I saw her, between seven and nine o'clock, her pain increased, her temperature dropped from 104° to 101°, her pulse ran up to 140, her abdomen became decidedly tympanitic and a dignosis of perforation was made by Dr. Cutts. Although the woman was in St. Barnabas Hospital when the perforation occurred, we did not get her into the operating room until one o'clock on account of delay in obtaining the friends consent. I made the median incision, immediately located the ileocæcal valve and began to follow the ileum. We found the perforation about a foot and a half from the valve. It was not over two minutes from the time we began the incision until we had the perforation in view. The bowels were not congested, and at the seat of the perforation there was no redness. The opening looked as if it had been punched out. It was closed by Czerney-Lambert sutures of fine silk. It was so close to the mesenteric attachment that in making a second row of sutures it was necessary to put them through the peritoneum covering the mesentery. The abdomen was full of liquid fæces, so that most of the time consumed in the operation was spent in washing out the peritoneal cavity. We passed a large rubber tube to the bottom of the abdominal cavity and flushed it with warm salt solution. We also poured large quantities of the same solution from a pitcher into the abdomen until it came away clear. The patient was quickly returned to bed and surrounded with hot water bags. She had no radial pulse when we began to operate. After the operation she had a better pulse and countenance than before. About five o'clock p. m. when I last saw her she was about the same as directly after the operation. She began to fail in the night and died at 3 a. m.

This was only one case and not a successful one, but those connected with it feel that we have learned much from it and that this brief report may be helpful to others. This case demonstrates that the diagnosis can be accurately made, that without operation the patient has absolutely no hope, that the perforation can be readily found, that the technique is not difficult, that the operation per se does the patient no harm and that every minute of delay adds to the patient's danger. I believe that we might have saved this patient had we been allowed to operate four hours earlier.

We believe that physicians should bear in mind that when a typhoid patient begins to complain of severe pain in the abdomen this may be preliminary to perforation, they should be prepared to operate promptly when perforation occurs, for in this lies the only hope in the vast majority of cases. It is true that in cases reported but a small percentage have been saved, but that small percentage justifies the procedure and leads to a hope for better results in the future, for just so soon as this is generally accepted as a legitimate field for surgery we can operate earlier.

Dr. H. B. Sweetser asked what anæsthetic had been used. Dr. Moore said that chloroform had been employed.

Dr. J. C. Stewart asked if the whole tract had been looked over.

Dr. Moore answered in the affirmative and said that no other perforation had been found.

Dr. A. W. Dunning, of St. Paul, read a paper entitled:

A CASE OF MELANCHOLIA ATTONITA.

See page 89.

Dr. H. B. Sweetser, of Minneapolis, asked about the prognosis in this case. Should relapse be expected?

Dr. Dunning said that the prognosis varies with the etiology. A neurotic family tendency, as discovered in the case reported, renders it grave; such cases have usually the history of recurrence.

Dr. W. J. Mayo, of Rochester, read a paper entitled:

OBSERVATIONS UPON THE DIAGNOSIS AND SURGICAL TREATMENT OF CERTAIN DISEASES OF THE STOMACH, BASED UPON PERSONAL EXPERIENCE.

Dr. J. E. Moore opened the discussion. He said that he had had the most experience in the last class of cases referred to, viz: ventral hernias. He was still under the impression that they usually contained omentum. The suggestions offered by Dr. Mayo he thought valuable. He considered that these persistent gastric disorders justify exploratory operations. Dr. Mayo's experience teaches us that sometimes, when we think the diagnosis tolerably certain, an incision may agreeably surprise us, while the fact that improvement sometimes follows exploration is hopeful.

Dr. F. A. Dunsmoor said that he had listened with interest to the account of the technique. It was at least novel. Regarding the point of complications arising from adhesions of the stomach to other viscera, he believed that in all cases except tumors, such adhesions followed previous operations. What the author had said of the introduction of the Murphy button by enclosing the mucous and peritoneal surfaces and omitting the muscular coat was of value. As to the question of harm resulting from the retention of the Murphy button, he though that in many cases the button passed without knowledge. He inquired where the redundant portion of the omentum derives its nutrition after the dissection proposed by Dr. Mayo?

Dr. Moore asked as to the relative values of the seidlitz powder method, and that of pumping air into the stomach.

Dr. Mayo, in closing, replied to Dr. Dunsmoor that the gastro-colic omentum has its own system of blood vessels which are uninterfered with in the dissection of its anterior surface. Dr. Mayo thought that if the separate administration of seidlitz powders were once tried by the patient, he would usually give the preference to the stomach tube the next time.

Dr. Hoegh inquired if it were not sometimes dangerous to dilate the stomach by the introduction of seidlitz powders. He said that he had never had any difficulty with the stomach tube.

HENNEPIN COUNTY MEDICAL SOCIETY.

Willard B. Pineo, M. D., Secretary.

Regular monthly meeting at the rooms of the Society in the Public Library Building, Monday evening, February 7, 1898. The President, Dr. J. C. Cockburn in the chair.

Dr. Chas. Nootnagle presented a specimen of carcinoma of the heart and another of carcinoma of the stomach.

Dr. J. W. Little presented a specimen of ovarian tumor.

Dr. J. E. Moore then read a paper entitled:

APPENDICITIS FROM A SURGICAL STANDPOINT.

See page 121.

Dr. A. B. Cates also read a paper,

APPENDICITIS FROM A MEDICAL STANDPOINT.

See page 131.

Dr. Head: The papers and the discussion I would not ask to be heard at this time were it not to call your attention to a laboratory aid in the diagnosis of appendicitis. By this, I mean the count of the white corpuscles of the blood. Knowledge gained from this procedure is of value not only as a help in the differential diagnosis between appendicitis and other simulating diseases such as typhoid fever and acute obstructions, but when the case is first seen it aids us in determining whether the process is catarrhal or suppurative.

We are also able by the white blood count to follow along the process from day to day and can determine when the inflammation is localized and when it is spreading to surrounding tissues. As you know the normal number of white blood corpuscles in an adult is 5,000 to 7,000 to the c. m. m. If the appendicitis is catarrhal the count may reach 10,000, but rarely exceeds that figure. If a pyæmic infection has taken place and the appendicitis is accompanied by pus formation the leucocyte count reaches 15,000, 20,000, 30,000, 40,000. There is no exception to this rule, except in a few cases of general septic peritonitis and in some long standing inflammations where the pus has been well walled off from the general peritoneal cavity. In Cabot's series of 72 cases less than ten per cent. are included under this category. All other cases where a pyæmic infection was present, showed a marked leucocytosis. It would then appear that in nine per cent. of cases by a count of the leucocytes we have a means of establishing the presence or absence of pus.

It seems to me that all medical men and particularly the surgeons, ought to take advantage of so valuable a means of determining the nature of a pathological process involving the appendix.

My series of patients in which a white blood count has been made in appendicitis includes twelve cases. In six cases a diagnosis of catarrhal appendicitis was made. In all of these the white count did not exceed 10,000. Only one came to operation. The appendix was catarrhal. The other five recovered from the attack without operation. Of the other six cases, the lowest count was 11,000. This was a case of an abscess in the abdomen of twelve years'

standing. The counts in the other cases were 16,000, 20,000, 22,000 and 17,000, respectively. All came to operation and all had pus evacuated. In one case a count of 11,500 was made and an operation advised against. The attending surgeon thought differently. The case was operated upon. No pus was found and yet the patient died. In one of the cases diagnosed as appendicitis with an abscess, the white count was 3,300 to the c. m. m. The count not only negatived the presence of pus but pointed to typhoid fever as the probable character of the illness. The case came to operation. No pus was found. The appendix was only slightly inflamed. The patient afterward developed a run of fever with rose spots, enlarged spleen and Widal reaction, finally recovering. In one of the cases the diagnosis lay between acute obstruction and appendicitis. The white blood count showed 20,000 leucocytes to the c. m. m. As there is no leucocytosis in acute obstruction, appendicitis with a pyæmic infection was decided upon. The operation revealed a necrotic appendicitis with a general septic peritonitis. One case in particular which is still under observation, has been of great interest. The patient, a boy of twelve years, gave a typical history of appendicitis with the point of tenderness localized in the left lower abdomen. Three white blood counts were made. The first gave 14,000, the second 22,000, the third 14,000. An operation was advised when the count reached 22,000, but the parents refused. As the boy got better the leucocyte count dropped back toward normal. Whether pus was present in this case I can not certainly say, as there was no palpable tumor and the case did not come to operation. The white blood count would however, certainly indicate a pyæmic infection.

Dr. Moore: Dr. Head's remarks are interesting and instructive and are in the right direction, viz: toward scientific exactness in diagnosis. From a practical standpoint, however, I can find fault with the doctor's position. It is not the presence or absence of pus that decides a surgeon's course. In a recent acute case demanding operation, there may or may not be pus, and the indications for operation are the same regardless of the presence or absence of pus. A simple catarrhal appendicitis, so-called, may result in gangrene and perforation without the presence of pus, and in such a case the blood count would be misleading rather than helpful, for if we depended upon it we would delay and probably lose our patient.

INTER-COUNTY MEDICAL SOCIETY.

J. J. Selbach, M. D., Secretary.

Regular meeting, March 8, 1898, at Cumberland, Wis. The President, W. T. Rinehart, M. D., in the chair. The morning session was devoted to the report of cases and to a general discussion upon cystitis, tuberculosis of bones and the treatment of fractures and lacerated wounds. In the afternoon the following papers were read:

GENERAL OBSTETRIC PRACTICE,

by W. B. Hopkins, M. D., of Cumberland.

MEMBRANEOUS CROUP AND DIPHTHERIA —HOW LITTLE I KNOW ABOUT EACH,

by F. W. Epley, M. D., of New Richmond.

TREATMENT OF GONORRHŒA BY IRRIGATION,

by W. E. Ground, M. D., of West Superior.

ENDOSCOPY AND CYSTOSCOPY,

by J. L. Rothrock, M. D., of St. Paul.

PATHOLOGY IN TRAUMATIC BRAIN LESIONS,

by D. W. Day, M. D., of Eau Claire.

The evening session was devoted to a general discussion of the subject of obstetrics with a report of unusual cases.

At half-past six the Society was entertained at a banquet at the house of Dr. W. C. Pease, of Cumberland. Twenty-one guests sat down at the table and the occasion was universally enjoyed.

RAMSEY COUNTY MEDICAL SOCIETY.

Haldor Snévé, M. D., Secretary.

Special meeting was held at the Society's rooms at 12:30 p. m., Feb. 14, 1898, to take action on the sudden demise of Dr. Rob't. A. Wheaton, with Dr. Quinn in the chair and 48 members present. The dead was eulogized by the President, Drs. O'Brien, Foster, Ohage and A. F. Senkler. On motion of Dr. O'Brien the President appointed a committee of three, Drs. O'Brien, Ohage and Foster, to draw up proper resolutions and attend to the floral decorations.

On February 17, 1898, the entire Society attended the funeral services at House of Hope Church in a body. The resolutions passed have already appeared in the LANCET.

Regular monthly meeting February 28, 1898, at the Society's rooms, with 54 members present and Dr. Quinn in the chair. The minutes of the annual and special meetings were read by the Secretary and stood aprpoved. The Committee on Resolutions relative to the death of Dr. R. A. Wheaton, reported what action had been taken through its Chairman, Dr. H. J. O'Brien, and upon motion of Dr. A. Sweeney, a special assessment of $1.00 each was made to

defray expenses incurred. The Society then listened to a paper

THE EARLY DIAGNOSIS OF TUBERCULOSIS WITH TUBERCULIN,

By Dr. H. Longstreet Taylor.

See page 124.

Dr. Denny: In opening the discussion on the paper just read, I do so with considerable embarrassment, feeling there are others much better fitted for this duty. The subject is one the importance of which cannot be emphasized too much and I am heartily in sympathy with the teachings of Dr. Taylor's paper. On this one fact alone hangs the chances of care or benefit to the patient and our own reputation in the treatment of these cases.

Long before physical signs disclose the trouble and before the sputum shows bacilli, the germ is present and may be latent only waiting for the proper stimulus to become active. In one of the most recent articles that has come to my notice, Dr. A. C. Klebs in the Boston Med. and Surg. Journal, February, 1898, very plainly agrees with Dr. Taylor. He says: "The practical application of tuberculin in bovine tuberculosis, especially developed in Massachusetts, has been rigidly carried out; and the almost unanimous opinion of all observers has established its immense value to the cattle growers as well as to humanity at large."

"The possession of a reliable method by which to diagnosticate tuberculosis in its earliest stages is of the greatest importance."

Dr. Taylor has cited us an instance of how obscure tubercular trouble may be and how readily we may be deceived. Klebs mentions the case of a laboratory servant who seemed in perfect health and offered himself for inoculation with tuberculin to show its harmlessness to those in health. To the surprise of all he reacted strongly, and several warts on his hands became inflamed, and showed on examination distinct evidence of tuberculosis.

Among the earlier manifestations of tuberculosis is one that I find but little attended to with a few exceptions in the books, and that is the temperature. If you will take a careful chart of a beginning tubercular case you will find a slight rise of temperature towards night—99° to 100° in almost every case. It is in my opinion a warning sign that should not be overlooked. Many a case comes to us with bad feelings which are attributed by us to hepatic and gastric disturbance, where a more extended study would show the underlying cause was tubercular disease. These cases are the very ones tuberculin is of value in. In using test tuberculin, before so doing it is very essential to get the normal range of temperature for several days in the subject to be tested. Then the test is made and the comparison of the two registers is taken. The essential point is the temperature curve in the test chart, which should show a steep descent and then becomes normal or even subnormal. No reactionary temperature under 102° F. should be considered as positive. The reactive symptoms are those of an acute fever. A pure tuberculin should be selected, and Dr. Edwin Klebs' preparation is probably the best. Cultures of equal age and virulency are evaporated in vacuo at a low temperature and of this extract a one one-hundredth per cent, to one per cent. solution in sterilized water is used.

We could discuss this subject indefinitely, and find many different views on the matter of test injections, but were the statistics taken, I am sure the believers in this method are largely in the majority and have been placed there by the hard study and conscientious labors of scientific investigation.

Dr. C. L. Greene said that he felt some hesitancy in discussing the paper since his views were so diametrically opposed to those advanced in that he was skeptical as regards both the diagnostic and curative value of tuberculin. The speaker referred to some experiments on animals conducted by veterinarians, in which reaction had occurred from injection of tuberculin without any demonstrable lesions upon post mortem. From these and other considerations he does not believe tuberculin to be infallible. We are familiar with the German saying, "Ein Jeder hat am Ende ein bischen Tuberculose," and since the disease is so universal, he does not believe it safe to use tuberculin for diagnosis, because the lesions it produces locally are the same as those observed in the beginning of this terrible disease.

Dr. Taylor closed the discussion. He was very much astonished to hear anyone question the diagnostic accuracy of tuberculin in cattle, and would like to ask Dr. Greene if the percentage of failures he referred to exceeded the two or three per cent. which the records showed.

Dr. Greene replied: "Yes. From two or three up to ten per cent."

Dr. Taylor thought that the fact that the state of Massachusetts had ordered the test applied to every cow within her borders was conclusive evidence that no such margin of failures existed, or the farmers, many of whom lost valuable imported animals, would have appealed to the supreme court for protection, and their appeal would have been heard if the test was as inaccurate as the gentleman claimed. The fact that the law has withstood the attack in the courts was a complete refutation of any such statements.

Dr. Taylor was interested in the quotations from Dr. Klebs' paper as he had not seen it.

Dr. Arnold Sweetser showed a specimen of

a mummified arm following embolism of the brachial artery, with subsequent local death and amputation just above the elbow.

NOTES.

Dr. S. S. Bishop, of the Chicago Post-Graduate Medical School and Hospital, has written a very interesting article on sprays and inhalents, appearing in the February number of the Laryngoscope.

He recommends the use of nebulized fluids in the treatment of respiratory and aural affections, because on account of the extreme fineness of the spray or nebula, applications may be made to all parts of the respiratory tract and middle ear, and at the same time in much more concentrated form than by ordinary sprays. By comparison they are like the alkaloid preparations, as compared with the grosser forms of medicines for internal medication.

In the doctor's opinion, the nebulizers manufactured by the Globe Manufacturing Company, of Battle Creek, Mich., stand at the head in perfection of design, construction and finish, special mention being made of the device originated by this company for the application of vapor massage, which has been found of great value in the treatment of all respiratory and aural affections.

Pain in Otitis.

Dr. George H. Powers, professor of ophthalmology and otology in the University of California, San Francisco, in an article in The Medical News, writes as follows, in reference to the treatment of pain in otitis: "At my first visit I found a copious discharge of bloody serum from the ear with hardly a trace of pus. He suffered from severe cephalalgia, but there was no special tenderness in or about the ear, and no swelling. Thorough cleansing of the meatus with dry cotton relieved the pain in the head remarkably, and with a dose of antikamnia, 10 grains, he slept some hours."

Special Course.

The Chicago Policlinic anounces a special course in surgery, gynæcology, and skin and venereal diseases to begin April 11, and continue three weeks. The course is a very complete one, and the facilities thus offered for special study are unsurpassed in the West. The faculty of this school embraces names eminent in every department of medical and surgical work, and the facilities for clinical work are equal to all demands. A detailed schedule of the course can be had upon application to Dr. Ferdinand Henrotin, secretary, 174 and 176 East Chicago avenue, Chicago.

The One of Many.

Among the testimonial letters received from physicians by the manufacturers of Imperial GRANUM, is one in which they take even

more than usual pride, and from which we quote as follows: "I am sending you a photo of my little two-year-old boy, who has been raised nearly altogether on Imperial Granum. He was very delicate, and we had a great deal of trouble with him owing to his weak digestion, and I feel that your Imperial Granum saved his life. He never tires of it, and it is the only one of the many prepared foods that seems to agree with him."

Samples of this justly celebrated dietetic preparation are sent to physicians on request.

A Pre-Antitoxin Mortality of 40 Per Cent. Reduced to 3.6 Per Cent.

Prior to the introduction of Anti-Diphtheriatic Serum, the mortality from diphtheria at the Harper Hospital, Detroit, averaged for a number of years 40 per cent. According to the 34th annual report of the Hospital authorities, as published in the February number of the Harper Hospital Bulletin, page 73, 141 cases were treated at the Hospital during 1897, with the following results:

	Cases.	Deaths.
Ordinary diphtheria	115	1
Laryngeal Diphtheria	26	6
Excluding two cases Moribund on admission	2	2
	139	5

Mortality under Antitoxin Treatment.....3.6 per cent

The antitoxin employed exclusively in Harper Hospital during 1897 was the Anti-Diphtheritic Serum of Parke, Davis & Co.'s Biological Department, and the remarkable reduction displayed in the death rate reflects the highest credit on the efficacy of this matchless product.

"* * * * Some manufacturers, like the Antikamnia Chemical Co. and The Imperial Granum Food Co., are making conscientious efforts to keep the people from buying their products except upon the advice of physicians, are rigidly excluding their advertising from the general public—and so deserve the hearty support and encouragement of the medical profession. Of some others, who are reaching out for the "dear public" as well as the "dear doctor," as much cannot be said. * * * "—American Journal of Surgery and Gynecology, February, 1898.

Dr. A. M. Ritter, of Milo, Ohio, Jan. 29th, 1898, writes:

I wish to speak especially of the merits of Papine, as an analgesic and sedative. I have had success with it when all other remedies of like character had failed. One case in particular of intestinal indigestion, in a child twelve months old, attended with a great amount of pain, and extreme nervousness, and insomnia. The remedy worked like a charm in relieving pain, and giving rest. The remedy was given in five-drop doses to begin with, as required to give rest and relieve pain. Papine was used in this case for a least six months, in increasing doses, without doing the least harm. It has now been three months since Papine has been discontinued, and the child is in perfect health. I consider Papine one of our most valuable remedies as a pain reliever and nerve sedative in well-selected cases.

In
Cuts,
Burns,
Bruises,
Blisters,
Eczema,
Chilblains,
Abrasions,
Bromidrosis,
Circumcision,
Indolent Ulcer,
USE UNGUENTINE.

It would be a work of supererogation to undertake, at this late day, to prove the great and permanent value of the salicylates in the treatment of rheumatism in its various forms. For over twenty-five years salicylic acid and the salicylates have been recognized as standing at the very head of remedies in this class of diseases.

There are, however, very many grave drawbacks to the use of either the acid or any of its salts alone in a treatment which may last, as in rheumatism, gout and neuralgia, for a long period of time. Being a powerful antiferment and sharing this property with most of its salts, salicylic acid impairs digestion and soon sets up a dyspeptic condition, almost as intolerable as the pains which it is intended to overcome. Its after-taste can be covered and concealed in no manner yet discovered, so that very soon the patient takes it only with great difficulty.

In Tongaline the salicylates are so combined with corrigents that there is no reactionary rebellion against them by the organs of digestion and assimilation, while their efficacy is not affected in the least. The experience of thousands of physicians corroborates this statement and concurs in the fact that Tongaline affords the very best method of administering the salicylates.

ORIGINAL ARTICLES.

INFANT FEEDING.*

By Chester M. Carlaw, M. D.,

Consulting Physician to the City and Asbury Hospitals, Minneapolis.

Infant foods and infant feeding are equally important, a knowledge of the former being necessary for the proper appreciation of the latter. The question as to whether a child shall be strong and robust, or a weakling throughout childhood, or even throughout life, is often dependent upon the character of its food and the method of feeding. True, some infants appear to live and thrive upon mixtures which are far from being adapted to infants as a class, while others will not thrive upon the food which nature has provided for them; but a method of feeding is not to be judged by the few exceptional cases which may do well, but by the results obtained with the majority.

Infants may be fed by one of four methods:

1st. From the mother's breast.

2nd. From the breast of a wet nurse.

3rd. By the method known as mixed feeding.

4th. From a bottle (artificial or hand feeding).

MATERNAL BREAST FEEDING.

This is the most desirable, as it is the natural one, and every mother whose health permits should nourish her child solely from her breast until it is at least eight months of age, provided her mammary function is sufficient to meet the demand, and partially from that time until the end of the first year. Unfortunately, this method of feeding is not always possible or advisable. There are many conditions in the mother which forbid maternal nursing. The following are the most common:

1. Chronic disease, such as tuberculosis, insanity, syphilis (when the child has itself escaped infection), chorea and epilepsy.

2. Marked anæmia.

3. When labor has been complicated by convulsions or severe hemorrhage.

4. A faulty development of the mammary glands, preventing nursing, which can not be overcome or remedied.

During the period of lactation, weaning is required when any of the following conditions occur:

1. Acute disease, such as septicæmia, double abscess of the breast, typhoid fever, erysipelas, diphtheria, etc.

2. The continuance or reappearance of colostrum corpuscles in the milk after the second week of lactation.

3. A highly emotional temperament. The milk of emotional mothers contain less fat and more proteids than normal, and children nourished by such mothers are often subject to frequent attacks of indigestion and colic, and are generally quite nervous. After a very marked emotional seizure the milk may even become poisonous.

4. The occurrence of pregnancy.

5. The return of the menses, when the flow is so frequent and excessive as to produce marked anæmia in the mother, and change the composition of the milk to such an extent that the child's condition clearly indicates that it is not thriving.

6. The occurrence of excessive and prolonged grief.

7. Continuous loss of strength and flesh, which does not improve under proper treatment.

RULES TO BE OBSERVED IN FEEDING.

Children are creatures of habit, and good habits of nursing and sleeping are as easily formed as bad ones, provided training commences at birth. If regularity be observed in the hours of nursing, the digestion is much more likely to remain normal, and children sleep and thrive better. A little firmness and determination on the part of the mother will soon be rewarded with regularity on the part of the baby, and comfort to herself. Irregular habits are always productive of evil results. The more the crying, the more the feeding, and the more the infant is fed the more it cries, and between crying and sucking the days and nights are spent in misery. Regular habits of feeding and sleep are of the utmost importance in infant hygiene. No mere sentiment in these matters should be allowed to interfere. The physician should be explicit in his directions, and insist upon their entire enforcement.

Too frequent nursing may lessen the water and increase the solids of the milk beyond the infant's ability to digest, and thus produce attacks of indigestion and colic. Too prolonged intervals between nursing result in a decrease of the solids and increase of the water in the milk, and it may be thus rendered too deficient in quality to support the demands of growth.

During the first three days the child should suckle the breast, although this is contrary to the belief of many, who think the child should not be put to the breast until lactation has been established. Nature surely intended the flow of colostrum for some purpose to the child, and we

*Read before the Hennepin County Medical Society, March 7, 1898.

must not be too wise and discard its use. The common practice of giving the new born infant all kinds of "old women's decoctions" in place of nursing cannot be too strongly condemned. The child had better be put to the breast as early as convenient after birth, provided the mother be not exhausted. This early sucking of the child benefits the mother by stimulating uterine contraction and thereby lessening the liability to hemorrhage. It likewise stimulates the flow of milk and draws out the nipples into better shape for the baby's future use. Depressed nipples are much easier for the baby to suckle while the breasts are still flaccid than after they have become full and tense with the contained milk.

For the first three days, or until the milk secretion is established, the child should nurse every four hours during the day. After the milk secretion has become established the child should not be nursed oftener than every three hours, prohibiting nursing from 11 p. m. until 5 a. m., thereby allowing six hours for sound sleep for both mother and child. Generally from fifteen to twenty minutes is long enough for each nursing. Under no circumstances should the child be allowed to sleep with the nipple in its mouth. If the child be asleep at nursing time it had better be awakened and put to the breast.

After the second month the interval between feedings should be gradually lengthened. By the seventh month of age once every four or five hours, and not at all between 10 p. m. and 6 a. m.

Abnormalities of Lactation Which Cause Disturbances of Digestion and Nutrition in the Infant.

When an infant fails to thrive, and no physical cause within the child can be discovered, we should look to the milk, endeavor to find wherein it is at fault and apply appropriate treatment. It is here, of course, that an examination of the milk is of much importance, likewise a careful consideration of the clinical history of the little one's difficulties. But too much time should not be lost in endeavoring to correct the various abnormal conditions of the milk. Such delays may seriously impair the child's health and render the chances of a successful artificial feeding unfavorable.

The more common variations of the lacteal secretion are as follows:

(1) An insufficient quantity of milk, poor in quality.

(2) An overabundant quantity of excessively rich milk.

(3) A milk poor in quality, but sufficient in quantity.

(1) An Insufficient Quantity of Milk, Poor in Quality.—During the early days of life insufficient food is generally indicated by a rise of temperature, "inanition fever," as it is termed. The temperature may even run as high as 106 degrees F. Irregular bowel movements, sometimes diarrhœa, with green, watery stools containing undigested curds, or sometimes constipation, with hard, dry stools. Failure to gain in weight is a reliable sign. There should, after the first week, be a weekly gain of at least five ounces. During the first few days of life there is a loss of weight, and if the child is as heavy at the expiration of one week as when born, it is doing well. If the child habitually nurses half an hour without being satisfied, it is almost certain that the milk is scanty. The mother's breasts are generally flaccid, seldom becoming full and tense. A gradual diminution of the amount of milk coming on shortly after the commencement of lactation, which was at first normal in quantity, is very common, particularly in those who are of advanced age or in feeble health; also common among mothers who have a large surplus of adipose tissue. Scanty, poor milk is the rule in delicate, anæmic women who are emotional, anxious and careworn, and in these cases the child would be better weaned at once, as it is useless to continue lactation.

Treatment.—Remove the cause, if possible, and endeavor to put the patient's health in a normal condition. A change of air and scenery, with freedom from care and overwork, is the most important. A nutritious diet. A reasonable quantity of fluids should be drunk, and gruels and meat broths given liberally. Some preparation of malt liquor may be given to advantage with the meals. Particular attention should be paid to the condition of digestion. A combination of nux vomica, with a mineral acid and pepsin will often be found of value. If anæmic, some of the milder preparations of iron, as the citrate of iron and ammonia with strychnine may be given. Massage of the breasts is valuable. The so-called galactagogues are of doubtful value, and the patient may be spared their use.

If, after a sufficient trial of this treatment, no improvement is accomplished, the infant should be weaned.

(2) An Over-Abundant Quantity of Excessively Rich Milk.—At the beginning of lactation, a milk supply exceeding the demand of the infant is common, but this soon disappears and the supply and demand become equalized.

An abnormally rich and abundant milk supply is frequently seen in women who are in good health, but who take insufficient exercise, overeat of nitrogenous food, and who are, in all likelihood, taking some preparation of malt to improve the quality of their milk, which they think is poor on account of the baby not doing well. This condition of the milk is especially seen in a

wet nurse, whose previous life has been one of hard work and poor diet. The sudden change from such surroundings to one where no physical exercise is required and an abundance of rich food is supplied, serves to produce overrich milk. Their breasts will be full and tense; the child will have frequent attacks of colic; the stools will frequently contain large curds; there may be diarrhœa or constipation; regurgitation of sour, curdled masses into the mouth is frequent. Sometimes spasmodic seizures, resembling in character a mild convulsion occur at varying intervals.

Treatment.—This is very simple, and consists of restricting the diet, especially meats, and insisting upon plenty of outdoor exercise.

(3) A Milk, Poor in Quality But Sufficient in Quantity.—This is sometimes seen in those who drink large quantities of fluids. In such the breasts are frequently painfully distended and the milk often runs from them spontaneously. The specific gravity of the milk will be found to be low, and the amount of fat may not exceed one per cent. or two per cent.

Treatment.—Decrease the amount of fluids, and give more nitrogenous diet.

A condition known as "galactorrhœa" sometimes occurs. It is characterized by an enormously excessive secretion of milk of a poor quality, which may seriously impair or endanger the patient's health.

Its cause is unknown, but it is usually met with in those whose health is below par.

(4) The Presence of Colostrum in the Milk.—When colostrum returns or remains in the milk of a nursing monther after the second week of lactation, its presence acts as an irritant to the gastro-intestinal tract of the child and produces diarrhœa, and frequently vomiting. Such milk also causes rapid wasting. The presence of these corpuscles is ascertained by the microscope. In such cases there is no treatment. The infant should be weaned at once and fed artificially.

WET NURSING.

This method of infant feeding is not now so common as formerly. Its advantage is that the natural feeding is continued which, in some children, cannot be discarded if their lives are to be saved. In the majority of cases, however, careful bottle-feeding is preferable. It is by no means so essential as has been generally supposed, that the child of the wet nurse shall be of about the same age as the child she is about to nurse. It has been shown that after the first month the change in the composition of the milk is insignificant. It is, however, desirable that she shall have nursed her own infant long enough to demonstrate her ability to nourish a child.

MIXED FEEDING.

This is a combination of breast and artificial feeding. It is valuable when the mother is weak, or when her milk supply is insufficient. Two or three feedings from the bottle daily are usually given.

ARTIFICIAL FEEDING.

In view of the advances that have recently been made in scientific infant feeding, it is safe to say that in all probability the employment of substitute feeding will increase rather than decrease as civilization advances. While it is true that good breast milk from an absolutely healthy mother is unquestionably the best food for the nourishment of a child, but few such mothers are found. In our large cities, among the well to do people, the demands of modern society with its manner of dress, gaiety and luxuries, highly stimulating diets and beverages, late and irregular hours of retirement and lack of proper physical exercise, can not be productive of anything else than weak, nervous, anæmic and physically wrecked women, totally unfit to nourish their infants. It is sufficiently serious and unfortunate for children to be born of such physically degenerate mothers, without being nourished by them. Among the poor of our cities the women are usually housed in poor, ill-ventilated dwellings, are much overworked, and in many cases, sparingly or poorly nourished, and are thereby rendered unfit for the production of human milk of the best possible quality. In country districts such conditions are not the rule. The surroundings are such as tend to maintain the natural standard of health, consequently the majority of mothers in such places are able to give their offspring suitable nourishment.

With regard to the selection of a substitute food, cow's milk is the only one suitable for permanent use. It furnishes all the necessary elements, although not in the proportion required.

Artificial feeding is always a difficult problem, and to insure success with cow's milk it is necessary to make a detailed study, as follows:

(1) The modification of cow's milk, so as to make it closely approximate woman's milk in its chemical and physical properties.

(2) The destruction of pathogenic and non-pathogenic germs by which milk may be contaminated.

(3) The recognition and appreciation of the various derangements in the child, which denote an improper proportion of the different milk elements.

(1)—Modification of Cow's Milk.

The nearer cow's milk can be made to approach in chemical composition and physical properties woman's milk, the more perfect will it be. A knowledge of their individual analysis,

and wherein they differ, is therefore essential. Their analysis compared, is as follows:

	Woman's Milk.	Cow's Milk.
Fat	4.00 per cent.	3.50 per cent.
Sugar	7.00 per cent.	4.30 per cent.
Proteids	1.50 per cent.	4.00 per cent.
Salts	0.20 per cent.	0.70 per cent.
Water	87.30 per cent.	87.50 per cent.
	100.00	100.00

The fat, sugar, and proteids of cow's milk are seen to be about equal in quantity and practically in the proportion of four per cent. The principal difference between cow's milk and woman's milk is in the proteid elements. These present so many and important differences that the question of the successful substitution of cow's milk largely depends upon whether they can or cannot be overcome. In cow's milk the proteids are two or three times greater in amount and differ widely in character. The acid gastric juice coagulates the proteids of cow's milk into large, firm clots, which dissolve slowly, and are digested with difficulty, while woman's milk is coagulated into loose, flocculent curds, which dissolve readily. This explains the rapidity with which an infant's digestion is over taxed, even by a small amount of undiluted cow's milk.

The inorganic salts are about three times greater in cow's milk, the calcium phosphate being especially in excess, about four times greater.

The sugar in cow's milk is usually less than in woman's milk, but it is chemically, physically and physiologically the same.

Therefore, to modify cow's milk so that it approximates woman's milk, chemically and physically, it will be necessary to accomplish the following changes:

1. To reduce the proportion of proteids and salts.

2. To increase the amount of fat and sugar when the proteids have been reduced.

3. To overcome the acidity.

4. To overcome the tendency of the casein, to coagulate into large, firm masses upon entering the stomach.

(1) Reduction of the Proteids and Salts.—The salts and proteids are in excess to about the same extent. They are reduced by the addition of water.

Diluting twice reduces the proteids and salts to about the proportion found in human milk, but in very young infants it is not enough to reduce them to this extent. They must be considerably below this point, usually about one per cent., and for the first week even as low as 0.80 per cent. The secret of success is to reduce the proteids at the start to a proportion which the infant can easily digest, and then gradually to increase their amount as the power of digestion increases.

(2) To Increase the Amount of Fat and Sugar.—The dilution necessary to reduce the amount of proteids to the desired quantity diminishes still farther the already insufficient amount of fat and sugar. To supply this deficiency of fat, cream is added. The amount of fat found in woman's milk is four per cent., but in the use of cow's milk the amount of fat should not reach that quantity until the third month of life. Better to commence with a mixture containing two per cent., which can be increased gradually to reach four per cent., by the time the infant is three months of age.

To supply the amount of sugar required milk sugar is best. The purpose of adding the sugar is not to sweeten the food but for the specific purpose of furnishing the proper carbohydrate necessary for the infant's nutrition. The proportion of sugar may be constant at six per cent., or seven per cent., there being little or no difficulty in its digestion.

(3) To Overcome the Acidity.—Cow's milk being normally acid requires the addition of an alkali to make it resemble woman's milk in this physical respect. Lime water and bicarbonate of soda are the alkalies used for this purpose, the former being more commonly employed. Each fluid ounce of lime water contains about one-half grain of lime. Too much should not be used as a large amount renders the milk unpalatable. About one-sixteenth part of the bulk is quite sufficient to render the milk alkaline, and in this quantity it renders the taste of the modified cow's milk strikingly similar to woman's milk. If the modified milk mixture is to be sterilized, it should be done previous to the addition of lime water. If sterilized with the lime water the albuminoids of the milk are more or less decomposed. Bicarbonate of soda is preferred by Vogel, who dissolves one drachm in six ounces of sterilized water, and of this adds one teaspoonful to each feeding.

The Practical Application of the Foregoing Theories.

Having learned how the casein of cow's milk is reduced to the proper proportion; how the amount of fat and sugar is supplied and how the acid reaction is converted to the proper degree of alkalinity, we are now in a position to apply this knowledge practically. To be able to control and manipulate the various elements of milk, and to appreciate when, and why the proportion of these elements should be changed, is the basis of successful artificial feeding.

In Boston, Brooklyn, New York and Montreal, as the direct or indirect results of the labors of Professor T. C. Rotch, who is the pioneer in this good work, milk laboratories have been es-

tablished and are carrying out their work to a practical success, and at the present time there are in the United States and Canada nearly forty thousand infants fed from these laboratories with universal satisfaction. These institutions supervise the production of a pure, safe milk, by inspection of the cows and the direction of their feeding, milking, &c. The milk and cream are separated by a centrifugal separator, and stock solutions are made as follows:

1. Centrifugal cream containing 20 per cent. fat.

2. Pure milk, containing the albuminoids and no fat.

3. A 20 per cent. solution of milk sugar in distilled water.

4. Fresh lime water, containing one-half grain of lime to the ounce of distilled water.

These various elements now being separated are dispensed upon the prescription of a physician in the proportion called for, exactly as drugs are dispensed by an apothecary. The physician can rely upon the safety of the milk, and, above all, he knows exactly the composition of the food he is giving, and can vary the elements to suit the needs of the individual case. Such establishments have undoubtedly a great future, but these refinements are not always practicable.

Unfortunately such is the case in our own city, and we will, no doubt, have to be content for some time with such modifications as can be carried out in the various homes, by unskilled hands, working under our crude directions.

As a matter of fact one can get along very nicely in the majority of cases with three formulæ, commencing with a low amount of proteid and fat, and continuing this formula until the child is able to digest a stronger mixture (say one week old), then gradually increasing the proteid and fat to an intermediate amount, and finally, at the age of twelve weeks or three months, giving the elements in the full quantity found in woman's milk, providing the child's digestion will permit. It is wise to increase the proteids and fat to the normal amount as quickly as possible. In many this amount can be reached quite early in life, in others much later.

The three formulæ required are made from a cream mixture which contains ten per cent. fat. This ten per cent. cream is obtained by putting any desired abount of fresh cow's milk (say a quart) into a clean glass jar (an ordinary fruit jar answers admirably) and placing it in a cold place for six hours. Then separate the lower three-fourths from the upper one-fourth by means of a glass siphon, the remaining one-fourth being the ten per cent. cream. To commit to memory exact quantities of various ingredients to form certain formulæ is not practicable. All that is necessary is to remember the fractions one-fifth, one-fourth and two-fifths for the quantity of cream used, the remaining part of the mixture to be made up of boiled water, less one-sixteenth part of the whole which is to consist of fresh lime water, the amount of milk sugar required being practically two tablespoonfuls to a pint. (A tablespoon ordinarily filled holds approximately three drachms of milk sugar). It is advisable to add a little salt to each feeding. To make up 16 ounces of the three formulæ we proceed as follows:

No. 1, in which the fraction one-fifth is used, the resulting mixture being the food for use during the first few day's of life:

Take of ten per cent cream.... 3 ounces.
Take of boiled water.....12 ounces.
Take of milk sugar....1¾ tablespoonfuls.
Take of fresh lime water.....1 ounce.

If the food is not to be sterilized or Pasteurized, take the necessary amount of boiled water and while hot dissolve in it the milk sugar, then add the cream, and lastly the lime water.

An analysis of this mixture would yield approximately:

Fat.....2.00
Proteids.....0.80
Sugar.....6.00

No. 2, in which the fraction one-fourth is used and which forms the intermediate food to be used after the infant is one, two or three weeks old:

Take of ten per cent. cream....4 ounces.
Take of boiled water .....11 ounces.
Take of milk sugar.....2 tablespoonfuls.
Take of fresh lime water.....1 ounce.

No. 3, in which the fraction of two-fifths is used, should be fed as early as the child's digestive powers will permit:

Take of ten per cent. cream....6 ounces.
Take of boiled water.....9 ounces.
Take of milk sugar.....2 tablespoonfuls.
Take of fresh lime water.....1 ounce.

Approximately this mixture contains:

Fat.....4.00
Proteids.....1.50
Sugar.....7.00

This formula may be continued until the child is six months of age, when, if the digestive powers will permit the proteids should be increased so that by the time it is fourteen months of age, it can take pure cow's milk; this is accomplished by adding to the mixture some of the lower three-fourths of the separated milk which contains the proteids and practically no fat.

A mixture containing 6 ounces of cream and 3 ounces of the lower milk, 6 ounces of boiled water and 1 ounce of lime water with one and one-half tablespoonfuls of milk sugar would yield approximately:

Fat.....4.00
Proteids.....2.50
Sugar.....7.00

A mixture containing 6 ounces of cream, 6 ounces of the lower milk, 3 ounces of boiled water and 1 ounce of lime water, with one tablespoonful of milk sugar would yield approximately:

Fat.....4.00
Proteids.....3.25
Sugar.....5.00

A formula resembling closer in composition pure cow's milk than any of the former.

A formula which has given almost universal satisfaction for a number of years is that which was devised by Dr. J. F. Meigs, of Philadelphia, and later modified by his son, A. V. Meigs, and more recently by Professor Rotch, who advises lime water in the proportion of one-sixteenth part instead of one-fourth part, as used by Meigs.

The analysis of this well known mixture is about as follows:

Fat.....3.50
Proteids.....1.21
Sugar.....6.66
Salts.....0.25
Water.....88.35

(4) To Overcome the Lumpy Coagulation of Casein.—To overcome the tendency of the casein to coagulate in large, firm, indigestible masses in the stomach is a most difficult task. In fact, it is doubtful if cow's milk can be modified in this respect so as to resemble woman's milk. Many things have been advised, such as the addition of an alkali, as one-third lime water; thickening substances, such as barley gruel, oatmeal gruel, gelatine, &c., which are claimed to act mechanically by getting between the particles of casein during the process of coagulation and so preventing their running together. The recent experiments of Rotch throw a great deal of doubt upon the ability of these additions to perform such a function. In his opinion they are very much inferior to simple dilution with hot water.

If, by reasonable dilution, the proteids still continue to be undigested, they would better be predigested, as this method no doubt gives the best results, but its abuse in all likelihood is harmful. It should never be recommended where the infant's digestion is capable of getting along without it. When demanded should not be continued after the digestive powers are strong enough to do the work.

Partial peptonization will, in the majority of cases, be all that is required. This can be accomplished nicely by Fairchild's peptonizing powder, a tube of which contains five grains of extractum pancreatis and 15 grains of bicarbonate of soda. Peptonize for ten or twenty minutes. Ten minutes of peptonization does not alter the taste of the milk, but when continued twenty minutes it becomes slightly bitter, from the formation of peptone. This bitterness increases with the continuance of the process.

If it is desired to completely peptonize the milk, the process should be continued for an hour or two by which time all the proteids will be converted into peptones. Such milk is very bitter. It is better to peptonize the milk after it has been modified to the desired formula for feeding without the addition of lime water.

As the case improves and the necessity for peptonizing diminishes, the duration of peptonization should be gradually diminished, and finally discontinued.

(2)—The Destruction of Germ Life.

For the destruction of pathogenic and non-pathogenic germs, two methods are employed, namely, sterilization and Pasteurization.

Sterilization is the older method, and consists of heating the milk to a temperature of 212° F., and continuing the same for some time. It is now generally considered inadvisable and open to the following objections:

1. It renders the taste of the milk unpalatable.

2. The casein is acted upon more slowly and with more difficulty by the pepsin and pancreatin.

3. If too long continued, a certain proportion of lactose is converted into caramel, which gives the milk a brownish color.

4. The fat is so changed as to render its absorption tardy.

5. It tends to produce constipation.

6. Recently, attention has been drawn to the fact that scurvy occasionally follows the prolonged use of sterilized milk. Cases attributed to this cause have been reported by Louis Starr, Jacobi, Barlow, Heubner, Von Starck, of Kiel, Buckingham and others.

Pasteurizing milk consists in raising the temperature to 167° F. and maintaining the same for twenty minutes. This process is almost universally replacing sterilization. It has been shown that a temperature of 167° F., maintained for twenty minutes, will kill the various saprophytic bacteria upon which are believed to depend a large proportion of the diarrhœal diseases. It does not, however, destroy spores. The objections to sterilization do not hold true of Pasteurization. It is undoubtedly a much better way of treating an infant food. Freeman, of New York, has devised a very useful and simple apparatus for Pasteurizing, which can be procured at a small cost. In private practice, where good, fresh, pure, clean milk can be had morning and evening from the neighborhood, neither Pasteurization nor sterilization will be necessary. The danger of transmitting tuberculosis from the

cow to the infant by the medium of her milk is considered by Holt undoubtedly exaggerated. In 119 autopsies upon tuberculosis he did not find one with the primary lesion in the gastro-enteric tract. Northup, in his large experience, has found but one. In large institutions, however, feeding of raw milk is not to be advised. In the October number of the Montreal Medical Journal, is an article on modified cow's milk by Dr. D. J. Evans, and he there states that in order to test whether Pasteurization could be dispensed with, the infants of the Montreal Foundling and Baby Hospital were recently fed on un-Pasteurized milk. In a few days every infant was suffering from indigestion, and passing green motions with undigested curds. These troublesome symptoms disappeared entirely without the use of drugs on resuming the Pasteurization.

(3) Derangements in the Child, Resulting From an Incorrect Proportion of the Various Milk Elements.

The indications of improper digestion resulting from an incorrect proportion of the milk elements are furnished mostly by the stools.

Of the milk elements the proteids are the most troublesome, next the fat, and least of all the sugar.

When the proteids are imperfectly digested the most reliable indication is the presence of curds in the stools. Colic is frequent, in fact excess of proteids is the most prevalent cause of colic in young infants. There may be diarrhœa or constipation; the latter is more common, especially when the excess of proteid is great.

An excess of fat is indicated by the regurgitation of sour, curdled masses of food in small quantities, one or two hours after feeding, and by frequent passages from the bowels of stools, practically normal in color, but sometimes containing small, yellowish white masses of fat, which may be confounded with masses of casein. They are however not so numerous and are smaller and more yellow in color. If necessary, they may be distinguished by their solubility in equal parts of alcohol and ether, casein curds being insoluble.

Too little fat is usually indicated by constipation, with dry, hard stools, of a much lighter color than normal.

If the sugar is too scant the gain in weight is slower than normal. If in excess there are eructations of gas, colic, diarrhœa with green, acid stools, which cause irritation of the buttocks.

The minimum weight of new born babies occurs on the third day. The initial weight on the average is reached on the ninth day.

VARICES OF THE LOWER EXTREMITIES SURGICALLY CONSIDERED.*

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Consideration of varix of the leg in its surgical aspect is of great interest and importance on account of the common occurrence of varix, the variety of its clinical manifestations, the still not completely settled points relative to its etiology and treatment, and the fact that surgical interference has been often unsatisfactory, and, especially in preaseptic days, was many times so disastrous that a condition of undue conservatism relative to operative measures still obtains.

Surgical measures for the cure of varix have been practiced from the time of earliest medical record, and the frequent failure of the methods employed to give relief have served as a stimulus to repeated endeavor to invent means for radical cure. Hippocrates recommended multiple puncture of the enlarged veins, and Celsus laid bare the varices about every four inches and destroyed them at the place of incision with the actual cautery, or severed the veins at the places of incision and pulled out the intervening pieces. The classical case of Marius as given by Plutarch was probably treated after this manner. For Plutarch in extolling the bravery of Marius, states that as Marius suffered from varicose veins of both legs, he determined to be rid of the trouble, and, refusing to be bound, gave one leg to the surgeon, and submitted to the operation without moving or expressing pain, but when they came to operate upon the other limb he refused, saying that he perceived that the cure was not worth the pain.

Paulus, of Aegina (A. D. 660), operated by applying a tourniquet about the thigh, he then marked out the course of the saphenous with ink, applied a second tourniquet about the knee, exposed the vein, passed ligatures at the upper and lower ends of the incision, laid the vein open, loosened the ligatures and allowed as much blood as was deemed advisable to escape, then tightened the ligatures and excised the vein between them, or afterwards pulled it out with the ligature. Ambrose Paré describes a similar operation. In 1799 Evard Home reported the ligation of the saphenous just below the knee joint in twelve cases.

Following these examples operations by the open method were done by various surgeons, but were in the main discarded, as all who attempted excision and ligation of the veins re-

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ported a large mortality, as well as many cases who barely escaped death from pyæmia.

Naturally, attempts were made to effect cures by other methods, and compression of the veins, acupressure, and perivenous and intravenous injections of perchloride of iron, ergot, carbolic acid, etc., were resorted to, but not until the development of aseptic surgery could the means now available be employed with probability of success and safety to the patient.

At the present time operative procedures based upon our knowledge of the anatomy and histology of the saphenous veins, the etiology of varix and its clinical features as they occur in each case may be used to meet the indications which are present with reasonable surety of success. And in each case these anatomical, etiological and clinical facts are to be considered in order that appropriate measures may be taken, for no one operation is applicable to all cases, and only careful attention to the conditions present, and those which have produced the disease can lead an operator to proper decision.

Anatomy and Histology of the Saphenous Veins.

It is unnecessary to describe the general anatomy of the saphenous veins, but only such details as relate particularly to the cause or treatment of varix. In its course upward in the leg and thigh the internal saphenous is subcutaneous from its commencement to the saphenous opening and is supported only by the superficial fascia. In this it differs from the external saphenous, which pierces the deep fascia in the center of the calf, and has the support of a fold of aponeurosis in the upper part of its course. This explains in part the greater susceptibility of the internal saphenous and its branches and the distal portion and branch of the external saphenous to abnormal dilatation, for the superficial fascia being extremely yielding gives but little support to the blood vessels which it surrounds. Like many other veins of the body, the saphenous veins are sometimes double, and the double veins are united by anastomotic branches, a fact important to remember in operative procedures. An anterior branch which ascends the thigh over the position of the femoral artery, and a posterior branch from the inner and back part of the thigh which opens into the saphenous a little below the saphenous opening, are important from their liability to enlargement and their frequent anastomotic branches to the main vein and the possibility of their communication with the lower veins when the main trunk has been ligated. Of great importance also is the nearly constant communicating branch which extends from the external saphenous near its termination, upward and inward to the internal saphenous. It is to be noted that the external saphenous itself sometimes takes this course and empties into the internal saphenous instead of the popliteal. Another variation in the external saphenous to be noted is that it sometimes ascends the back of the thigh to empty into the sciatic vein.

The relation of the nerves to the veins is variable, and of interest in connection with the symptoms of pain so frequently present in varix. From the knee to the malleolus the internal saphenous vein is accompanied by the internal saphenous nerve. This nerve is sometimes behind and sometimes in front of the vessel, but more often forms an elongated plexus about it. In the middle of the thigh the vessel is nearly alone, being sometimes accompanied only by small musclo-cutaneous branches of the crural. Over Hunter's canal the vein is covered by the numerous filaments resulting from the anastomosis of the internal saphenous with the small saphenous nerve.

This variation of the accompanying nerves probably explains, at least in part, why pain is so much more pronounced in certain cases of varix than in others. Pain being most severe in those cases where the accompanying nerve forms a plexus about the vein, the plexus being pressed upon and stretched by the dilated vein; while in those cases where pain is largely absent the nerve probably lies near the vein, but does not form a plexus about it.

As the valves of the veins play an important part in the etiology of varix, their great variability as to number, position and development is to be noted. In the external saphenous vein the valves are from seven to twenty in number, one being frequently found just at the termination of the vein and another just on the other side of the cribriform fascia, but both these valves may be imperfect or absent. The valves of the external saphenous vary in number from nine to thirteen. In this connection it is to be noted that the femoral vein above the entrance of the saphenous and the external iliac are frequently, and the common iliac and inferior vena cava are constantly devoid of valves.

The most important facts of the microscopical anatomy of the saphenous veins are that the intima is well developed, being rather tougher than the same coat in the arteries and that the media is particularly well developed. Of all the veins, the media is best developed in the veins of the lower extremity, thereby most closely approximating the structure of the arteries. It consists of circular bundles of muscle cells, associated with lamellæ of fibro-elastic connective tissue. The muscular elements are well developed, and in consequence the vein has considerable contractile power. This development of the media is necessary to enable the vein to empty itself, as it frequently must, by working against the force of gravity, and that without the support and intermittent pressure of sur-

rounding muscles which is given to the deep veins. Longitudinal section of a vein shows that the wall of the vein on the cardiac side of the valves is dilated into a pouch or sinus, and on the other or distal side it is thinner than elsewhere. Normally, strain upon this weaker part of the vein wall is less than in other parts of the vein, but in abnormal conditions this thinner part of the wall is an important factor in the production of varix.

Etiology of Varix.

The causes of varix may be divided into predisposing and exciting. Of predisposing causes original weakness of the vein wall and a small number of valves are of major importance. Soboroff has shown that the histological structure of the veins varies as to thickness and strength in different individuals from birth. In the normal development of the circulatory system, balance is maintained between internal blood pressure and resistance to pressure by the walls of the vessels. When imperfect development takes place, either on account of hereditary influence (and there is reason to believe that tendency to vein weakness may be transmitted) or through malnutrition or other factors deleterious to normal tissue development, the vein walls may yield to the strain of the blood pressure and varix result. When this weakness occurs in a vein having few valves, the tendency to varix is increased; or when the vein wall is of average strength, a small number of valves alone may act as a predisposing cause. For, when but few valves are present in a vein, each segment of the vein between the valves has to support a longer column of blood than in those cases where valves are more numerous and consequently nearer together. The strain will, therefore, be greater upon both vein and valve and the occurrence of an exciting cause may readily produce yielding of one or both. This factor is probably causative in some cases where varix occurs in one limb, the other being free from the disease. It has been observed that varix has no predilection for either the right or left lower extremity, and that it is rarely or never symmetrical in any of those cases where it occurs in both limbs. This is due to the fact that, with a given general exciting cause whereby the back pressure in the veins is increased, the vein or part of the vein will yield first in which local weakness exists or in which there are the fewest valves.

The thinning of the vein wall just distal to the valves is also an important predisposing cause. Here the strain upon the vein wall is ordinarily least, but when through obstruction to the venous flow, passage through the next proximal valve is prevented, pressure in accordance with the well known hydrostatic law is exerted in all directions equally, and the part just below the valve being normally weakest yields first. When the vein dilates at this point, a pull is brought upon the valve along its convex under surface, tending to flatten it and make it less able to bear pressure from above. A continuation or frequent repetition of strain finally so weakens the valve as to render it incompetent, or separates its segments and extends the varix to the next centrally situated segment, and so on until the whole vein is involved or the process is stopped by sufficient strength of the vein wall or removal of pressure by passage of the blood through communicating channels.Such a process may occur in different places in the same vein, and if the process is arrested, localized varices occur in one or several parts of a vein or its branches, the intervening segments remaining normal or practically so. When the process continues until the whole length of the vein becomes involved the most pronounced type of varix is reached. This explains why most varices proceed mainly in a centripetal direction, for some part of the distal portion of a vein system being first involved, the disease afterwards extends centrally until the whole main trunk may become diseased.

Verneuil first noted the existence of varices of the deep veins of the leg in connection with those of the superficial, and their simultaneous occurrence has been noted by other observers, notably Schwartz and Agnew. So much was Verneuil impressed by the occurrence of varices of the deep veins that he formulated: "That far from being rare, deep varices are more common than subcutaneous varices," and "The primitive seat of phlebismus is in the deep veins." That varices of the deep veins frequently occur there can be no doubt, especially in advanced or pronounced cases. For where factors causative of varix exist and are marked, the simultaneous occurrence of varices in the deep and superficial veins may be reasonably expected, or what is more probable, the extension of the varix from the superficial to the deep veins. The support and protection of the deep veins by fascia and surrounding muscles and the physiological intermittent compression to which they are subjected place them in much more favorable position to withstand the effects of exciting causes of varix than is the case with the superficial veins which have the support of the skin and superficial fascia only. Clinically, also, it is known that superficial varices occur in cases which present no symptoms of varix of the deep veins, and in which appropriate surgical treatment gives complete cure and relief from all symptoms. For these reasons the conclusion of Verneuil, that superficial varices always originate in the deep veins, has been called in question, and justly so, by many observers.

The remaining predisposing causes of varix are sex and age. The greater liability of woman to varix is through the exciting cause of pressure of the gravid uterus upon the iliac veins, and the more frequent occurrence of varix in middle age is probably mainly due to the exciting causes of occupation which are then most actively followed.

The exciting causes of varix are mainly those which through obstruction of the venous flow produce back pressure in the veins. Organic affections of the heart by causing back pressure in the cava and its branches may be causative; or back pressure may be produced by pressure upon the great veins within the body by the pregnant uterus; by ovarian or uterine tumors; by aneurism of the aorta; by fæcal accumulation in the colon, etc.; also, external pressure on the veins may be due to a tumor in the groin or other part of the limb, resting upon the limb, or by the constriction produced by artificial appliances. Examples of varix due entirely to the latter exciting cause in which no predisposing cause exists are frequently seen in women who have constricted their limbs with tight garters. Such cases are seen in which pronounced varices exist below the place where the garter is worn, while just above it the veins are normal, showing that the trouble in these cases is entirely due to obstruction of the venous flow, and, therefore, disproving the conclusion of Von Lesser, who failed to produce varicosities in animals by increasing the blood pressure, and, in consequence, assumed that this was not a causative factor, but that the formation of varices was analogous to the growth of a tumor.

Another factor in the production of varix is diminished accommodation for the venous circulation through the blocking up of some of the veins as a result of traumatism or disease. This may arise from inflammatory processes following severe contusions, or the division of veins by extensive lacerated or incised wounds, or from the obstruction of veins following phlebitis.

Trades and occupations may also act as exciting causes in individuals predisposed to the disease, particularly those occupations requiring long standing, especially in warm or over-heated places where tissue relaxation is favored.

From these observations it will be seen that varix may arise either from local insufficiency of the vein, or from excessive back pressure in the vein, or from combination of these factors. It is also seen that varix in its beginning is localized and confined to one or several parts of a vein, and that it may remain restricted to these parts or that it may progress until the whole extent of a vein and its branches are involved. These observations are of importance in the surgical treatment of varix, for local and extensive varices require different handling; and the question of causation and whether or not the varix is strictly localized is to be borne in mind when means of surgical cure have to be considered.

Pathology of Varix.

The first pathological effect discernable, whether caused by back pressure in the vein or weakness of the vein wall, is a localized dilatation of the vein. This dilatation may not be symmetrical, as one side only of the wall may be involved. This weakening of the vein wall primarily begins in the tunica media, the muscular fibers of which as well as the elastic tissue fibers of it and the other coats through excessive strain or local weakness lose their normal tone and contractile power. This loss of strength allows an increased blood stasis in the vein, with resulting interference with normal physiological processes. Increased vascularization occurs in the media and adventitia, leucocytes pass out into the venous coats and surrounding connective tissue in increased numbers, and an increased transudation of serum into the subcutaneous connective tissue occurs. As a consequence nutrition of the vein is further progressively interfered with. Fibrous endophlebitis of the intima compensatory in character now begins, and may progress so far, together with weakening of the media and adventitia that the intima may bulge through and even form pouch-like projections through the two outer coats of the vein. Even where thinning of the two external coats does not progress so far as this, localized areas of atrophy of the coats occur, and as the conditions of strain, hyperæmia and infiltration are not equal in all parts of the wall of the vein, thickening instead of thinning occurs in part of the vein through increase of the connective tissue.

The resulting inequalities of strength in the walls of the vein lead to lateral deviations in the course of the vessel, and these by continued back pressure of the blood increase more and more until marked varicosities are produced. As a result of the dilatation of the vein or excessive back pressure, the valves become incompetent, and falling against the walls of the vessel, undergo atrophy and sometimes become wholly obliterated. In some cases connective tissue hypertrophy does not occur, the condition of atrophy is symmetrical and the veins become attenuated; but this condition is not so common as the first described form. As a result of the back pressure in the blood vessels and the alteration of their walls, exudation of serum into the perivascular connective tissue and lymph spaces is excessive. The lymph channels are unable to carry away the excessive exudate, and as a consequence nutritive changes occur, and a condition of so-called "semisolid" or "solid œdema" of the limb occurs in the neighborhood of the varix. The

exudate presses upon the arterioles, capillaries and venules, still further disturbing the nutrition of the tissues and leading to eczema, ulceration (varicose ulcers), pseudo-elephantiasis, pigmentation, &c.

Surgical Treatment.

In the earlier days of surgery the radical methods of incision of the vein, excision and obliteration by the actual cautery were practised. The results following such procedures under the conditions which then obtained were of course frequently disastrous. Later, from experience gathered from observations of small and subcutaneous wounds, attempts were made to obliterate the veins with a minimum of traumatism. This gave rise to occlusion of the vein by acupressure and subcutaneous ligation as advocated by Davat, Velpeau and Lee, who passed metal pins under the vein upon which a twisted suture was applied. But as these procedures also frequently gave rise to grave or fatal phlebitis, other methods were resorted to. Mayo applied a caustic in the form of Vienna paste over the vein, causing obliteration by the slough produced. Regaud cut down on the vein, isolated it and left it exposed to the air. Then methods of intravenous and perivenous injections were exploited. Weinlecher injected perchloride of iron into the vein while the limb was elevated and an elastic bandage applied. Watson Cheyne used pure carbolic acid, and Porta used chloral for the same purpose. Naturally these methods were also unsatisfactory and sometimes disastrous from phlebitis or embolism, and attempts were made to obliterate the vein by the inflammatory action following injection of irritating substances into the perivenous tissues. This method was highly extolled by Vogt, who used ergotine freshly prepared in distilled water to which a little carbolic acid was added, while Schwabe and Lang advocated the use of alcohol. It is only necessary to recount these different procedures to show that their diversity alone proves their defects, and it was not until asepsis had become thoroughly grounded and the dangers of surgical infection and their prevention understood that surgical interference in varix could be accurately and scientifically considered. Now it may be said that the surgical treatment of varix is pretty definitely established upon proper facts founded upon pathological, anatomical and clinical knowledge. It is true that no one procedure has been settled upon for all cases, and it is doubtful if any single procedure ever will be found applicable to all. The diversity of the manifestations of the disease relative to the veins involved gives each case a peculiarity of its own and necessitates judgment as to the course to be followed in its treatment. At the same time all methods of operative interference may be reduced to three, namely, excision, multiple ligation and single ligation, or a combination of these methods.

Consideration of the pathological condition of a varicose vein and the altered nutrition of the tissues surrounding it points clearly to the conclusion that a vein so affected is not only practically physiologically useless, but has a continued and increasing ill effect upon the part with which it is in relation. This being the case, complete removal or obliteration of the vein is indicated. The retention of such a vessel as a supposed necessary blood channel is not only erroneous, but productive of increased trouble. It is well known that obliteration of one or both saphenous veins or their branches does not interfere with proper nutrition of the lower limb; the other veins, both subcutaneous and those connected with the deep veins, being sufficient for functional purposes. When, therefore, a vessel becomes the seat of varix, obliteration or removal of the vessel should be done if possible, for the blood then seeks collateral channels, blood stasis is done away with, œdema from serous exudation and engorgement of the lymphatics ceases, pressure upon the capillaries is removed and the metabolic cell processes may be resumed under normal conditions. Thus cure of eczemas, varicose ulcers, pseudo-elephantiasis accompanying varix is effected, together with relief of pain due to pressure upon the nerve filaments by the distended vessels or œdematous tissue. Fortunately there are many cases of varix of the lower extremity in which these results may be obtained with ease. These cases belong in the class of local varices, namely, those in which only a portion of the vein, not too great in length, is involved, or those cases where the vein or its branches are involved in different parts, the intervening portions being normal, and in such cases operation should always be advised. Frequently a small varix will produce great discomfort and may almost incapacitate for manual labor through swelling of the limb, pain, soreness, and a feeling of intense fatigue in the part affected. These are ideal cases for excision, for such procedure in almost all instances leads to complete cure. The completeness of cure in these cases negatives the assertion that superficial varix is always preceded or accompanied by varix of the deep veins. In these as in all operations upon the veins, measures of strictest asepsis should be adopted. A soap or bichloride poultice should be applied the day before operation, and ulcers, if present, should be thoroughly cauterized with the Paquelin cautery. Exposure of the vein is facilitated if the limb is depressed and constricted by an elastic bandage placed proximally to the enlarged vein before an attempt is made to isolate it. The vein should then be exposed and ligated with

sterile catgut at the proximal end of the varix and the varicose portion removed by dissecting it out toward the distal part, ligating the branches of the vein as they are reached. In this way the vein is kept distended with blood and its course and condition can be definitely determined. If emptied it contracts and it becomes sometimes difficult to determine where the varicose part ends and the normal begins.

To another class belong those cases where the varix is extensive involving either the entire vein or such an extent of it or its branches as to render excision of the entire varix impossible. For these cases multiple ligation or a combination of multiple ligation with excision is to be advocated.

The performance of multiple ligation offers but few difficulties. The ligations are best done with catgut through short incisions directly over the vein so allowing inspection of the vein that no nerve be included in the ligature. Of cardinal importance is the necessity of applying the ligatures near together, at most not more than two inches apart. As early as 1772, Hewson demonstrated that blood does not readily coagulate in a normal blood vessel and Brücke and others have demonstrated that the fluidity of the blood will be maintained in a blood vessel so long as the intima is uninjured by mechanical or pathological processes. When, therefore, a vein is ligated aseptically no thrombus is formed in the vein except in the immediate neighborhood of the ligature and the clot in no case extends beyond the first anastomotic branch, consequently the vein continues filled with blood and the anastomotic branch may dilate and the varix remain. In preantiseptic days, the surgeon may have been said to have been aided, in one way, by septic infection of the wound, for the resulting endophlebitis following ligation extended through the greater extent of the vein and caused inflammatory changes in the endothelial layer of the intima which led to thrombosis and obliterative phlebitis. In aseptic ligations these changes do not occur and obliteration of the vein can only be accomplished by applying the ligatures so close together as to completely obliterate the vein as a blood channel. It will be well to consider here the so-called Trendelenberg operation, though Rimi, of Venice, described the same operation in 1825, together with his theory of varix, and in 1848 again brought his theory forward and published a report of 37 cases treated by high ligation of the internal saphenous, with 14 cures, 13 improved and but 2 deaths—a most excellent showing for those days of septic infection. He argued that varix of the lower extremity was due to incompetence of the valves of the main saphenous vein, that the vein, therefore, had to bear the weight of the column of blood extending up through the femoral, iliac veins and inferior vena cava to the heart. In support of this theory he showed that elevation of the limb caused the veins to empty themselves and that on compressing the vein and lowering the limb the vein filled from above downward. He argued that position would fill the veins more than proximal compression of the trunks, and that in section of the saphenous, blood will flow from the proximal extremity which flow may be checked by pressure on the vein high up. He, therefore, stated: "We considered ourselves even then (1825), in a condition to prove both by reasoning and facts that it (the cause of varices of the lower extremity) consisted in an inverse movement of the blood in the great saphena, which gravitated in a column from above to below from center to extremity, that hence the valves were paralyzed and the venous tunics were, in various ways debilitated." Following this theory he ligated the internal saphenous in the middle of the thigh in order to obliterate the vein at that point and so relieve the distal part of the vein of the pressure of the blood column, the removal of the blood pressure allowing the dilated vein to regain its normal volume and elasticity. In view of our present knowledge it may be conjectured that many of his cures were effected not through the removal of blood pressure in the vein but from obliteration of the vein by post operative phlebitis. It is of interest to note that Rimi's theory was directly opposed to that of Herapath, who argued that varix was due to a constriction of the saphena magna at the cribriform fascia and advocated and practised incision of that fascia for relief of the trouble. Many years after Rimi's publication, Trendelenberg (Beit. z. Klin. Chir. 1890-91) advocated a procedure similar to that used by Rimi and brought forward arguments identical with those of Rimi though without mentioning the latter, apparently not having seen the earlier work of the Venetian surgeon. While in most respects Trendelenberg's paper is so like Rimi's as to seem almost like an amplified translation, and while both writers are similar in statement of clinical facts and argue alike as to the indication for the operation which they advocate, in other particulars they differ somewhat. Rimi discusses the etiology of varix and argues that paralysis of the valves of the main trunk of the saphena magna is causative of varix and that the disease extends from above downward, and makes no mention of varices in which the main vein is not involved. Trendelenberg does not discuss the etiology of the disease but deals entirely with its clinical aspects. He opens his paper by stating that varicose veins of the leg can be divided into two groups and says: "There are cases in which the varicose degeneration is restricted to the branches of the vena saphena

magna while the trunk does not show any perceptible change, anl again others in which the trunk of the saphena is likewise strongly dilated and varicosely degenerated. Only the last mentioned group, the cases of simultaneous varicose dilation of the branches and trunk of the saphena will in the following (Trendelenberg's paper) receive attention." Confining himself entirely to the cases where the main saphenous trunk is involved Trendelenberg advocated high ligation of that vessel for the same reasons as Rimi.

When a varicose condition of the vein has so extended as to involve the entire trunk of the saphenous, there is no doubt a majority of cases in which from absence of valves in the external iliac, the vein has to support a column of blood extending from the lowest dilatation to the heart. When varicose degeneration has advanced to this extent, high ligation, by removing the back pressure will undoubtedly improve a certain percentage of cases. When done, a short length of vein should be excised between two ligatures as simple ligation may be followed eventually by reëstablishment of the patency of the vessel, while the experiments of Minkewitsch have proved that no restoration of a vessel can occur after excision of a portion of it.

Following the reasoning of Rimi and Trendelenberg Schede has devised a more radical operation his design being not only to close the internal saphenous high up, but to close all the subcutaneous veins at the same level, so that there may be no possibility of dilatation of the superficial veins from above through communicating channels.

The operation is done by making a circular incision about the thigh down to the fascia covering the muscles just as if a circular amputation was intended. The cut ends of the veins above and below and all small arteries are tied after which the incision is closed. The superficial nerves are severed but the internal saphenous nerve may be saved by careful dissection. Cures of ulceration and improvement in the varices have been reported, due probably more, as in high ligation of the saphenous, to the rest following the operation than to the operation itself. Cases are reported in which a breaking down of the healed ulcers have occurred after reported cures, as well as persistent local anæsthesia due to the severing of the nerves.

In view of the etiology and pathology of varix, the operation of high ligation of the saphenous and the operation of Schede can not be considered as either rational or scientific methods for radical cure, and the extent of the latter operation and the damage it does to the nerves makes its employment of extremely doubtful propriety. The operation of high ligation is less severe and there is no doubt a certain percentage of cases in which the indication, as given by Rimi and Trendelenberg, for high ligation exists, and which are benefited by the operation proposed by those surgeons. Where the disease has advanced so far that the main trunk of the saphenous and its valves are functionally inactive and consequently sustain the pressure of a column of blood extending up to the heart, removal of this pressure certainly offers certain advantages and cases of improvement and cure of accompanying ulcers are reported, too often, however, followed by reports of return of the ulcers and other symptoms. For as varix is of distal origin, as its pathology shows it to be, removal of the pressure from above simply puts the distal veins in much the same condition as they were before the higher valves or the upper part of the main became incompetent. Dilatation of the upper part of the saphena magna is the last step in the progress of varix. After ligation of the dilated main trunk the diseased distal veins are still subject to the same etiological factors as before. For these reasons the Trendelenberg operation has a limited field and might perhaps be considered rather with the palliative than curative methods. It has in its favor that it is comparatively simple and does not prevent other future operations of a more extensive character should they be necessary. But in simple cases complete excision of the diseased parts of the vein and in the graver variety multiple ligation alone or combined with excision of the worst varicosities are the most reliable, and in the light of the etiology and pathology of the disease the most rational methods of surgical procedure.

Also early operation is to be advised in varix. The tendency is too much toward palliative treatment in the early stages of the trouble. By removing the diseased veins while the diseased area is small and localized, the varix may frequently be permanently cured. Under palliative treatment, the diseased condition too often extends until serious complications arise or operations of difficulty and magnitude are demanded. If more early operations were done we would see fewer of the extreme cases in which so large a part of the saphena and its branches are involved.

PATHOLOGY IN TRAUMATIC BRAIN LESIONS.*

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This subject involves the consideration of the typical or characteristic symptoms that afford the means of discriminating between the dif-

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ferent forms of injuries to the contents of the skull.

Its intelligent consideration would seem necessarily to involve a review of not only the mechanism or architectural construction of the skull, but the well known elasticity of the brain in the production and location of the different brain lesions.

The experiments of Messener, substantiated by the clinical observations of others, establish the fact that the skull is less liable to resist violence due to blows over the vertex or sides of the skull than it is to violence applied to the forehead or occiput; that the skull will burst under a considerable less force applied transversely than when applied longitudinally; that the skull is more compressible in its transverse than in its logitudinal diameter. In others words, violence applied to the vertex or sides of the skull is most likely to produce fractures at or near the base of the skull, and that violence applied to the forehead is most likely to produce fracture in the temporo-parietal regions. This is accounted for by the anatomical peculiarities of certain parts of the bones of the skull, such as the frontal sinuses. the orbital plate of the temporal portions of the frontal bone, the horizontal plate of the ethmoid, the orbital portions of the greater wings and the walls of the sphenoidal sinuses, the open cancellated structure of the basilar portion of the sphenoidal bone, the inferior angles and the lower part just above the parieto-squamous suture of the parietal bones, the floor of the cerebral fossæ and to a lesser extent the floor of the posterior cerebellar fossæ of the occipital bone, the thinness of the squamous plates as well as the open spaces often found in the mastoid portion, the roof and floor of the external auditory meatus and canal. All of these representing the thinest and weakest portions of the bones of the skull, explain the location of many fractures as well as intracranial hemorrhage and injury of brain tracts and brain tissues.

Then again the elasticity of the skull in influencing its contents, the "bursting theory" so ably advocated by Dr. Chas. W. Dulles, of Philadelphia, in his work on "Mechanism of the Skull," in which he shows the great importance of considering the great elasticity of the skull in indirect fractures, that is, the conversion of a direct depressing force into an indirect disruptive force, brought about by a shortening of the axis parallel to the direction of the force, and a complementary lengthening of the axis at right angles to the former; that when an elastic spheroid is compressed in any diameter, all the diameters lying at right angles to this, that is to say in planes parallel to that of the equator, must be elongated. The experiment of pressing on the convex surface of a bow the ends of which rest upon the ground, will illustrate what takes place in every chord of every arc that is depressed. Thus it will be seen that where there is brain or skull injury, that the injury is not necessarily to be found at or near the point where the external force is applied.

Cerebral physiology in outlining the brain areas that preside over motion and the special senses of speech, sensation, hearing, sight, smell and touch, is of the greatest value in establishing a correct diagnosis of the location of brain lesions and thus justifying surgical procedures for the removal of growths or deposits in the brain.

LACERATION AND CONTUSION.

Lacerations and contusions of the brain are the most frequent and the most important of all injuries of the head. In all fatal cases, whether accompanied by fracture or not, where post mortems have been held, one of these lesions has been found. Lacerations occur with the greater frequency; they may be single or multiple; may be limited to the cortex or extend into the subcortical structure. There is no lobe or convolution which may not be injured. The records show that the base of the brain suffers most frequently and seriously. If a considerable surface of brain tissue is wounded, the frontal and temporo-sphenoidal lobes are especially apt to suffer, and are oftenest the site of extensive destruction; death may occur before any change can take place. If the patient survives, the process of repair is by cicatrization, and is slow. Death, when it occurs, is the result of hemorrhage or inflammation. They present wounds containing more or less coagulum with shreds of brain tissue.

Contusions may be limited to the meninges, or to the brain, or may involve both; there is no destruction of tissue and only slight extravasation of blood. When recovery occurs it is by absorption not cicatrization. Cortical or subcortical laceration, where the dura is uninjured, accompanied by compound fracture of the vertex (Phelps) has resulted in abscess some weeks after the accident, and without meningeal inflammation. Since the advent of aseptic methods, cortical and meningeal suppuration have disappeared. General contusions of the brain, as ascertained by necropsies, result in hyperæmia with or without œdema, miliary hemorrhage, and thrombosis of the minute cerebral vessels. Statistics show that almost always contusions and lacerations of the brain are caused by contracoup at a distance from the seat of the injury.

CONCUSSION AND COMPRESSION.

Some fifteen years ago, Von Bergmann, in a clinical lecture, admitted the existence of both concussion and compression, with an etiological difference, but insisted upon their clinical identi-

ty. He attributed concussion to a direct injury from a single impulse, modified by the elasticity of the skull, by which the brain suffered a diffuse disturbance of nutrition without appreciable lesion. He considered it a suspension of cortical activity, followed by stimulation, and eventually by depression of the medulla. He recognized it as occurring in three degrees: first, involving paralysis of the cortex only; second, paralysis of the cortex and stimulation of the medulla; third, paralysis of both cortex and medulla, with brief and unobserved stimulation. Cortical paralysis was indicated by unconsciousness, medullary stimulation by slowness of pulse and increase of arterial tension, and medullary paralysis by rapidity of pulse and decrease of arterial tension, and in no condition except sunstroke is the temperature so uniformly high as in cases of brain lesion. Dr. Earl says that the temperature of the brain affords the means of absolute diagnosis between traumatic coma and alcoholic coma; that in alcoholic coma the temperature is 98.6,° normal, and that this rule is absolute. In compression, Dr. Von Bergmann regards the brain conditions as being exactly the same, and as manifested by the same symptoms, but due to change of cranial capacity, and not, as in concussion, to change of cranial form. Dr. Chas. Phelps says of the above views of Dr. Von Bergmann, "they are of great weight and authority and probably represent the cumulation of thought and observation up to the present time, as I do not know that very much of importance has been added since." He also adds that in every fatal case where the clinical history has corresponded to that of recovering cases, a carefully conducted necropsy has revealed organic lesions, and he further says that "in all cases that have been cited to prove that no post mortem lesion existed, not one has been observed with sufficient exactness to make it of the slightest clinical value, and that there is nothing in the analogy to warrant, at present, the assumption that any fatal disorder terminates without involving structural change; that brain injury produces structural change with the same certainty that it occasions palpable symptoms."

CEREBRAL TUMORS.

Of all the cerebral tumors, gumma and tuberculа are all that are left to medical treatment. The symptoms of cerebral tumors vary according to the size, location and nature of the tumor. There may be present vertigo, vomiting, loss of vision, violent headache or anæsthesia of any sense, convulsions, intellect not seriously disturbed at first, and if paralysis does not show until long after the headache, and then perhaps is limited to the muscles of the eyeball, or face, or the muscles of the extremities of one side of the body, and there is optic neurities or choked disk, the presence of a tumor is more than probable. Horsley states that the localizing symptoms are Jacksonian epilepsy, or local contractions, or local auræ. As pressure becomes more marked, paralysis develops either of motion or sensation, often sharply located at first, but progressive in character. Agonizing headache, mental hebetude, vomiting and optic neuritis are commonly associated, and the progressive character of the symptoms indicates the nature of the lesion more clearly than any other feature of the case. The pressure of a tumor or a cyst in the brain, in time causes structural changes in the substance of the brain, which interfere more or less with its normal action and may cause mental weakness for an indefinite time.

According to Ferrier, "pain on percussion over the site of a tumor is of more value as a means of locating such a lesion than spontaneous pain." Drs. Lewis and Morton have in other cases of cerebral tumor observed pain either at the ensiform cartilage or at the midsternum, particularly upon flexing the head, although they do not know how to explain it. Dr. Robinson says that with a history of an old traumatism, with persistent frontal headache, loss of speech, knee jerk increase, ankle clonus absent, with or without paralysis, patient can be roused but answers unintelligibly, we can expect to find a brain cyst. The differential diagnosis between brain cyst and brain abscess is difficult. If after an injury of the skull headache comes on suddenly and is uniform and general, and the paralysis comes on rapidly and we have discharges from the ears and pain over the mastoid process, we may suspect brain abscess. When brain tumors are strictly encapsulated and cortical, and of moderate size, their removal is easily accomplished. Cerebral localization, in a large proportion of these cases, enables the operator to locate the growths, especially in the motor areas, with almost absolute certainty, although the tumor may be inaccessible on account of its distance from the surface, or so infiltrated as to prohibit its removal.

FRACTURES OF THE SKULL.

Dr. Phelps says "nearly sixty per cent. of fractures of the skull extend to its base, even though beginning at the vertex." "In fact," he says, "fractures that do not begin at the vertex are rare, and fractures of the skull without complications are of no importance, and are devoid of symptoms."

Fractures of the base of the skull and of the vertex have two diagnostic symptoms peculiar to themselves. The other symptoms are common to both forms of fracture with brain injuries. Those peculiar to fractures of the base of the skull are serous discharges from the ears or nose, and bleeding from the ears, nose and

mouth, and into the orbital, subconjunctival or cervical subcutaneous tissues.

The characteristic symptoms of fracture of the vertex of the skull are shown in the changes in the perception of sight and touch.

The general symptoms of brain injuries are changes in pulse, temperature and respiration; delirium, stupor, irritability, paralysis, muscular rigidity and muscular tremor, convulsions, anæsthesia, hyperæsthesia, changes in the pupils, of which unilateral dilatation is probably the most frequent, cephalalgia, vomiting, vertigo, incontinence of urine and fæces. Their complications are hemorrhage, thrombosis, paralysis, meningitis, abscess and atrophy.

HEMORRHAGE INTO THE MENINGES OF THE BRAIN.

Hemorrhage into the meninges of the brain are grouped as follows in the order of their frequency: Extradural, subdural, subarchnoidal. Dr. Lanphear says that "subdural hemorrhage is closely allied to hæmatoma of the meninges, and that the hemorrhage occurs before the formation of the investing membrane, and is less circumscribed. And in subarchnoidal hemorrhage the blood may be widely disseminated, being more or less intimately mixed with the cerebro-spinal fluid, and is apt to gravitate toward the base and be beyond the reach of the surgeon."

Extradural hemorrhage is always the result of traumatism, and owing to the weak adhesions between the dura mater and the bones in the temporal fossæ allowing it to be ruptured sufficiently to detach it, is almost always due to rupture of the middle meningeal artery, or one of its branches, and may be either slow or rapid in its development. The force necessary to cause the rupture may be slight. There have been instances where the vessels upon the opposite side of the skull have been ruptured by counterstroke. In such cases we would expect paralysis upon the same side that the injury was received. The pupils may be contracted, due to the concussion of the injury, or dilated, if the clot be large and pressing upon the base of the brain. If the pupil upon the same side as the injury is widely dilated it evidences the pressure of a large clot. The following localizing symptoms guide us in locating the origin of the hemorrhage. Weisman says: "when aphonia is present the clot is toward the front, and when there are disorders of sensibility there is extension backwards and if there be paralysis of the third pair of nerves, the extension is toward the base of the brain." In more than half of the cases reported of middle meningeal hemorrhage, a period of consciousness, may be hours or days, intervenes between the reception of the injury and the stage of more or less complete unconsciousness deepening into coma, and is the most important diagnostic symptom. If the hemorrhage is slight, there may be evidences of cortical irritation as shown by convulsive movements of the arm or leg of one side, or there may be general convulsions. The hemiplegia, except in rare instances, is on the side opposite the injury.

CEREBRAL HEMORRHAGE.

Hemorrhage may occur with or without fractures of the skull, into the furrows of the hemispheres or into the substance of the brain or in the ventricles. Profuse hemorrhage may take place into the ventricles, and, as a rule, there is a much less amount in the substance and on the surface of the brain.

Dr. Edes claims that "the most common form of intracranial hemorrhage is located in the white substance of the brain, which is more or less lacerated, and may vary from a mere point to a clot filling a cavity nearly as large as the hemisphere." The vessel which most frequently bleeds is a branch of the middle cerebral artery.

The symptoms depend upon the amount of hemorrhage and are those of compression. It is impossible to make a positive diagnosis between hemorrhage that can be reached by surgical interference and one which is located in the base of the brain.

Hemorrhage in the optic thalami usually comes from the posterior communicating artery or the posterior cerebral, and cannot be operated upon.

NOTE.—No originality is claimed for this paper. I utilized what material I could reach as a basis for discussion.

Dr. Edmunds, in the Journal of the American Medical Sciences, records a case in which the antistreptococcic serum was given a fair trial in puerperal septicæmia. That it was a case of genuine streptococcic infection was shown by the examination of pus from an abscess near the knee. Further, no other surgical treatment was carried on during the administration of the antitoxin. The case is thus free from two of the common fallacies which prevent our forming a due estimate of the value of such injections. The patient made a complete recovery, which the author thinks was entirely due to the antitoxin. The injections produced, in varying degree, pain, erythema, and, on four occasions, an abscess. Possibly this was due to some decomposition having taken place in the bottle after it was opened, and it will be best, therefore, to have the serum supplied in single-dose bottles.

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HYPNOTISM AND THERAPEUTICS.

Sufficient time has now elapsed since the excitement aroused by the startling claims of the French school of mesmerism to permit of a fair estimate of the real place of this agent in science and its value for therapeutic purposes. Just at present there is rather more local interest than usual in the subject, and classes of physicians and dentists have been formed to study the proper application of hypnotism to practical ends. The interest of the dentist is limited to its use for the purpose of abolishing pain, but if half of what has been claimed for it be really true the physician may hope to find in suggestion a most valuable addition to his therapeutic resources.

That people in the hypnotic state may be insensible to quite severe pain has been repeatedly proved in such a way as to admit of no doubt. In more than one instance the pains of child birth have been entirely done away with in this manner, and small operations such as the pulling of teeth have been performed painlessly many times upon people in a "trance." Unfortunately, however, it seems to be the case that the subject is a rare one who can thus be brought into a state of anæsthesia. In most instances the condition induced by hypnotism is more like an artificial sleep, and anything like the infliction of pain will usually break the spell.

If it is rare to find subjects who can be made wholly insensible to pain by using the mesmeric power, it seems, on the other hand, to be rather the rule than the exception that people are in some degree subject to the influence of suggestion when hypnotised. Wetterstrand, the author of a recent work upon the application of hypnotism to practical medicine, claims further that nearly every one is susceptible. The figures he gives are that out of 3,148 persons hypnotised by him only 98 failed to respond to suggestion. Age is an important factor in this respect: children are almost always responsive, and up to the age of thirty suggestion seldom fails. This is Wetterstrand's experience in his own country (Germany), it must be understood. It is the experience of those who have practised hypnotism upon American born subjects that susceptibility to this agent if far from universal. It is not clear whether the difference is a matter of temperament or is owing to the fact that the atmosphere of this country encourages a freedom of thought and independence of mind that makes its citizens more resistant to hypnotic influence than are persons of the same age and social status who owe allegiance to a continental nation.

The great field for suggestive therapeutics is the overcoming of vicious habits such as bed wetting, masturbation, biting the nails. Those who are content to limit themselves to this class of disorders are the ones who get the greatest satisfaction from the use of the agent. Particular success has attended the treatment of incontinence of urine in children where the trouble was purely functional, and this success has been all the more gratifying because of the frequent failure of other methods of treatment. Too much, however, must not be expected even from hypnotism in dealing with a disorder in which relapses are of frequent occurrence after the cure seems to have been well established.

When it comes to dealing with the treatment of organic diseases, the claims of the champions of hypnotism must be taken with several grains of salt. Wetterstrand, in the work already men-

tioned, describes a number of successful applications of the remedy where there is much room for doubt as to the real benefit obtained from the treatment. In some of the cases of organic disease he administered a small amount of chloroform to help bring the subject under his influence. This was where the case was refractory because of the voluntary or involuntary exercise of the will power, the chloroform being given just to the point of rendering the subject passive. As an illustration of the cures that are open to doubt is one of an old hemiplegic who "could not lift his arm, which hung down powerless," but was "completely cured after the first treatment." If the advocates of hypnotism wish to win the medical profession to faith in their agent, the less such claims as this are made the better.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated meeting, Wednesday, March 2, 1898, at the Hotel Ryan, St. Paul: The vice president, Dr. C. G. Weston, in the chair.

Reports of cases were presented by Drs. A. W. Abbott and Dr. J. Clark Stewart, of Minneapolis.

Dr. W. C. Borden, of Fort Snelling, read a thesis entitled

VARICES OF THE LOWER EXTREMITIES SURGICALLY CONSIDERED.

See page 147.

The discussion was led by Dr. A. W. Abbott, of Minneapolis. He asked whether it was the experience of Dr. Borden or of other members of the Academy that varices were produced by pressure upon the blood-vessels. In his experience, pressure is more apt to produce œdema, than varices.

Dr. J. E. Moore, of Minneapolis, agreed with the author of the paper in the treatment of these cases by early operation, rather than by merely palliative treatment in the way of support. Referring to Dr. Abbott's question, he recalled the case of two women, both of whom had femoral hernia and wore trusses, and in both of these cases varices had developed after wearing trusses.

Dr. A. E. Senkler, of St. Paul, said that he had perhaps seen more of varices than falls to the lot of the average practioner, and he could guarantee the fact of their heredity. Varicosities of the internal veins cause the most discomfort. He inquired if there was any operative procedure which would relieve such cases. He thought that external pressure relieves many varices. He had found women in the better walks of life get along well with elastic stockings and he did not believe that it was always necessary to operate.

Dr. Borden closed the discussion. Replying to Dr. Abbott, he said that he believed pressure to be one of the exciting causes—which coëxisted with others. Regarding Trendelenberg's operation, he shared Dr. Moore's opinion, that it was a failure. No operation had been found that would relieve deep varicosities. The question of operating upon cases which do well with elastic stockings must be left to the attending physician. Some cases, which are causative of trouble, and which the elastic stocking does not relieve, should certainly be operated on.

Dr. Moore inquired what should be done if all the veins below the popliteal are varicose.

Dr. Borden said that every case should be a law unto itself. One might perhaps excise the larger varicosities, and use multiple ligation for the smaller ones.

Dr. J. C. Stewart inquired how long patients are laid off for operations of the kind in the army.

Dr. Borden replied that a return to duty meant full duty, and that the army was liberal in the matter of time.

Dr. A. McLaren ,of St. Paul, read a paper entitled

RUPTURE OF THE BLADDER.

In opening the discussion, Dr. J. L. Rothrock, of St. Paul, said that, as a means of diagnosis, inspection of the interior of the bladder ought to be made. He had been impressed with the usefulness of baths in these cases, as reported in Johns Hopkins Hospital.

Dr. A. W. Abbott, of Minneapolis, objected to the use of the cystoscope in these cases, on account of its admission of air to the bladder, and possibly to the abdominal cavity. Any instrument so used should be one that would not admit air.

Dr. McLaren in closing sustained Dr. Abbott's objection to the cystoscope.

BOOK NOTICES.

A Text Book on Surgery. By John A. Wyeth, M. D., Professor of Surgery in and President of the Faculty of the New York Polyclinic Medical School and Hospital; etc. Third edition. Revised and enlarged. New York: D. Appleton & Company, 1898. [Price $7.00.]

There are few works on surgery written at the present day and by a single author that cover the whole subject fully and completely. Wyeth's well known text book is one of the few.

It invades the realm of the specialist and describes operations for cataract, for mastoiditis and for nasal polypus just as much as it describes amputation at the hip. Thus it is a particularly suitable work for the general surgeon, especially when practicing in the country, where an all around man is very important. The time lost in sending for the specialist to perform an iridectomy, for acute glaucoma, for example, might easily result in hopeless injury to the eye.

One of the strong points of Wyeth's surgery is the full and clear way in which everything is described. It is just as if the author were giving verbal directions to a student, begining at the beginning and taking nothing for granted, not even a knowledge of the instruments necessary for the proper performance of the work. The description of operations in detail is a great help to the surgeon who happens to be confronted with a piece of work that is new to him and is at a loss to know how to go at it. The greatest benefit that books confer is to put on record the experience of those who have gone before and act as a guide to the new comer, who by profiting by the experience of others is able to avoid many pitfalls and to learn in advance many pathways that, unassisted, he would be long in discovering for himself.

Treatise on the Diseases of Women. By Alexander J. C. Skene, M. D., LL.D., Professor of Gynæcology in the Long Island College Hospital, Brooklyn, N. Y.; etc. Third edition. Illustrated New York: D. Appleton & Company. 1898. [Price $5.00.]

Skene is the typical American gynæcologist, and his book is in that respect a representative work. As such it has met with a most flattering reception from the medical profession, and there is no American author more widely quoted both at home and abroad. To say that this foremost position is well deserved is to give the author no more than his due. The rapid changes and advances in gynæcology have made it necessary to do much revision for this edition, which appears after an interval of six years since the publication of its predecessor. During this time the author has become firmly attached to the plan of controling hemorrhage in operations by the use of pressure and heat rather than by the ligature. He has perfected his methods for this purpose to such a degree that he believes they will find favor with the general surgeon as well as with the gynæcologist.

It is worthy of passing notice that Skene still finds a limited use for the pessary in contrast to those who are so afflicted with the madness for operation that they will allow no place for this instrument. In this matter, as in all others, Skene shows a wise conservatism.

The work is well illustrated in two ways: By the author with numerous cases from his own practice exemplifying certain points; by the publisher with numerous pictures and diagrams, including a number of colored plates, one of which, that illustrating the operation of trachelorrhaphy, is the best of its kind that has been produced.

The Elements of Clinical Diagnosis. By Professor E. Klemperer, Professor of Medicine at the University of Berlin. First American from Seventh German Edition. Translated by Nathan E. Brill, M. D., Adjunct Attending Physician. Mt. Sinai Hospital, New York, and Samuel M. Brickner, A. M., M. D., Assistant Gynæcologist, Mt. Sinai Hospital Out-Patient Department. Illustrated. New York: The Macmillan Company. 1898. [Price, $1.00.]

In this very convenient little volume is given a complete outline of the methods pursued in making a diagnosis in the first medical clinic of the University of Berlin. The author does not attempt to tell all that may be said about the points of difference among the diseases discussed. He rather confines himself to the leading points involved and discusses these without going into the minutest details: in fact, the text of the book is very much like what a clinical teacher would be likely to say at the bedside, except where some elaboration is demanded, such as the giving of formulæ for diagnostic reagents, tables showing the delicacy of the sense of touch in different parts of the skin, and other like matters which every one expects to go to a book for.

NOTES.

THE LOCAL TREATMENT OF PAINFUL ULCERATIONS BY ORTHOFORM, WITH SPECIAL REFERENCE TO THE UPPER AIR PASSAGES.

By Eugene S. Yonge, M. D. Edin.,

The anæsthetic presents a triple claim to recognition, in that it is sparingly soluble, is nontoxic, and is powerfully antiseptic. On the other hand, it is a disadvantage that the substance will not act on unbroken skin, nor with certain reservations on intact mucous membranes, for its strong anæsthetic properties are only manifested where nerve endings are exposed. The slow solubility leads the anodyne to exert its action economically on the tissues, and unlike its rapidly soluble congener, cocaine, only sufficient is dissolved to produce and keep

up local insensibility, which therefore becomes prolonged. In from five to ten minutes after application anæsthesia of the denuded surface to both touch and pain commences, and it reaches its consummation within a short period of time. The effect lasts from a few hours to five or six days, and there is, in the majority of cases, perfect or nearly perfect analgesia, the patient experiencing the sensation of the offending part having been cicatrised over or "enamelled." Suppuration is usually markedly diminshed and healing accelerated.

The action of orthoform on the unbroken mucous membrane of the mouth, naso-pharynx and larynx is, in my experience, the following: Neither the free orthoform (basis powder) nor the hydrochloride anæsthetics sufficiently to allow of surgical action. When applied to the tongue, inner surface of the cheek, or to the pharynx, a numb sensation supervenes in the course of about five minutes, but there is little real anæsthesia. The effect on the larynx is to reduce reflex irritability. A peculiar feeling, described as similar to that produced by cocaine, is experienced in five minutes; in a few more minutes this relative loss of sensation vanishes, but if before its subsidence a probe be introduced and the vocal cords and interior of the larynx touched, although a species of "gagging" ensues, there is no laryngeal spasm or cough.

I have had the opportunity of testing the anæsthetic value of orthoform in eighteen patients who suffered from painful ulcerations of the upper respiratory tract, and a few representative cases are now quoted:

Case X.—L. F., aged 24. Tuberculosis ulceration of the epiglottis; phthisis. The pain on swallowing and on coughing was intense, and the patient had avoided any but liquid food for three months. A 10 per cent solution of cocaine gave more or less ease for six hours. Five grains of orthoform were insufflated on to the ulcerated surface, and relief began within an hour and lasted for thirty hours. The pain on swallowing and coughing was reduced almost to nil, and the patient succeeded in taking food with comfort for the first time for more than three months.

Case XVI.—L. G. Syphilitic ulcer of left tonsil, causing great pain and dysphagia. Pain absolutely relieved by powder in ten or twelve minutes; the parts were then painted over with a saturated solution of orthoform in collodion. The patient, who had been unable to eat for some days without agony, took, on reaching his home, a good meal of beefsteak with comfort, but was disappointed to find that two hours after the relief commenced the pain was beginning again, and in another hour was as bad as ever. A similar result followed a second insufflation and painting.

Case IX.—G. S. Intranasal ulcer of catarrhal origin which had become irritated or septic. Situated on floor of nose, about 1½ c. m. from external nares, and extending on to septum. Infiltration of surrounding parts, and great pain and tenderness of the nose generally. After insufflations of orthoform, relief began in five or six minutes and lasted several hours. The breach of surface began to heal rapidly.

Toxic effects were not noted in any of the cases, but there was occasionally some slight burning for a few minutes after the application of the hydrochloride.

The antiseptic action of orthoform appears to be demonstrated by the rapid diminution of purulent exudation in several of the cases encountered and the speedy healing of the ulcer. In a case of acute gonorrhœa injections of orthoform solutions were followed by the disappearance of gonococci in four days, and the complete cessation of blenorrhagia.

Finally, if further observations confirm the results already published, it would appear that orthoform is entitled to take a position in the gamut of local anæsthetics applicable to the upper air passages. It seems probable that it will replace—by virtue of its insolubility and innocuousness—its relative, cocaine, when long anæsthesia on ulcerated surfaces is wished for, be replaced by the more reputed drug when short insensibility of intact mucous membrane is desirable, and on occasion supplement it.

The regular meeting of the Minneapolis Medical Club will be held at the Holmes Hotel on Thursday, April 21. A paper entitled "Ectopic Pregnancy" will be read by Dr. D. Edward Smith.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

It has been truly said that there are three subjects which chiefly attract the attention and study of educated men: The philosophy of life, the enjoyment of the fine arts and the study of history. These subjects are to a great extent associated, and the study of history, especially, includes the study of the others. It seems to me that no department of education does so much to broaden the individual or to give character to culture, as the study of history, and there is no department of human knowledge that can be mastered without studying the history of those who have previously labored in the same field. History not only enables us to profit from the experiences of those who have preceded us, and to enjoy the fruits of their labour; it does much more than this; it teaches us by example, how we may labor and how each one of us may also leave our "foot prints on the sands of time."

One of the most valuable lessons to be learned from history, is that of humility. We are thus brought face to face with our own individual littleness. When we scan, even hastily, the vast oceans of the past, when we consider the innumerable mites of humanity who have lived and died, we can appreciate that verse of "The Rubaíyát" which says:

"And fear not lest Existence closing your
Account and mine, should know the like no more;
The Eternal Saki from that Bowl has poured
Millions of Bubbles like us, and will pour—"

An appreciation of our own insignificence in the Universe of Time and Space, should not be discouraging to us as students, but should rather stimulate us to do our best; and we may learn from history how many of the greatest of human achievements have been accomplished by individuals who during their lifetime were obscure and unknown, and whose work was only appreciated by subsequent generations.

Another very interesting lesson of history is constantly forced upon us in the recurrence of the same experiences which we find in different and far distant ages, and the same efforts of the human mind to meet them. Inventions have been made, utilized, abandoned, forgotten and made again—until we are almost forced to agree with old King Solomon who wearily and somewhat bitterly, some 3,000 years ago, gave utterance to those oft quoted words: "The thing that hath been is that which shall be; and that which is done is that which shall be done; and there is no new thing under the sun."

The object of history is to record the experiences and achievements of the human family, to narrate the past events in which mankind has been concerned and to describe the progress of civilization and of culture. History presents itself to the student from several different points of view: The intellectual, the industrial, the æsthetic, the religious and the political, and from all these points of view history has been written, and from all these points of view we must to some extent consider it in studying the history of medicine.

The original sources of history were oral traditions, which in times before there existed any written records ,served to perpetuate and to hand down in the form of songs and legends the important events of previous generations. Later came rude inscriptions on monuments, tablets and coins. The earliest historians, therefore, must have found many difficulties in their attempts to accurately describe the institutions and national affairs of their predecessors, and doubtless drew largely upon their imaginations for many of their statements. For this reason we are not surprised at the many opposite and contradictory statements which confront us in the study of early history, and we must be cautious in accepting uncorroborated statements. In spite of these obstacles modern historians by careful study of all the evidence that has been preserved have arrived at what is considered to be a fairly accurate knowledge of the history of nations which flourished long before there existed anything like manuscripts or written records of events.

Some knowledge of the history of medicine should certainly form a part of the education of every physician, although until recently this has been greatly neglected in most medical schools. It is not, however, to the physician only that this knowledge is interesting and valuable. The history of civilization, a knowledge of which should belong to all persons of education and culture, would be incomplete did it not include the history of medicine and of the medical profession. It is my purpose in the course of the following lectures to trace the history of the

*Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

science and art of medicine from the earliest time of which there exists any authentic record; following its course through the various stages and epochs of the history of the world, in all civilized countries, down to the present day. In thus reviewing the labors of many thousands of years, and the lives and experiences of those who have labored to give us the knowledge of medicine which we possess, I shall to some extent refer to events and epochs of general history, and of the history of literature and art, in so far as they may have directly or indirectly influenced the history of the medical profession; I shall give you an account in detail of the various great discoveries which have made epochs in the history of medicine, and I shall describe as accurately as possible the great epidemics, plagues as they were called, which have from time to time swept over the various regions of the earth, destroying at times almost entire nations, depopulating great cities, and devastating and laying waste whole countries, whose very history in some instances from that time has ceased. This study which we are about to take together will certainly be profitable, and I shall so endeavor to tell the story that it shall be interesting to every one who listens to it, although there must, from the nature of all history, be times when it will seem a little tedious. I shall endeavor not to weary you with long biographies, although I shall have occasion to mention the names of those who have been conspicuous in the making of the history we are to study, and I shall mention such special events in their lives as seem to me interesting and important.

The beginning of what we call civilization is hidden by an obscurity which all students of history have failed to penetrate. The origin of man was probably in the southern part of what we know as Africa, and the oldest civilization of which we have any record was in Egypt along the valley of the Nile, and it is among the early Egyptians that we find the first evidences of the dawn of medical history. The famous Pyramid of Cheops, and the great Sphynx, as well as numerous other monuments of antiquity tell us of a civilization which must have existed at least 5,000 years before the Christian era, and we have preserved to us authentic records of medical knowledge as it existed at that time.

In some rude way the study of diseases and their cause and treatment must have been almost contemporaneous with the dawn of human intellect. Disease, decay and death have always coëxisted with life, and the very earliest speculations and experiences of primitive man must have been associated with the arrangements and derangements of his bodily functions. A knowledge born only of experience did not exist at first, and naturally no explanation was attempted for diseased conditions any more than for the various phenomena of inanimate nature. All was ascribed to the working of some divine supernatural agency. It appears that the early Egyptians were accustomed to expose their sick in public places so that all might see them, and if any of those who passed had had similar symptoms and been relieved or cured by any treatment, the sufferer might receive the benefit of such experience and advice as would be offered. Those who were cured or relieved were required to go to the temples and there record their symptoms and describe the treatment which had helped them. These records were carefully kept and guarded by the priest, and were always open for inspection to any who desired to consult them. Thus it came to pass that the first medical men were the priests, and medicine and religion were closely associated in the early days of history. As a natural consequence of this association among a superstitious people it happened that to certain divinities were ascribed the cure of diseases, and the God Hermes was at first selected by the Egyptians as the special God of Medicine, and by some historians he is considered identical with Æsculapius of the Greeks of a later date. Afterwards other Deities were selected as the special presiding Divinities of certain departments of medicine, and of certain special diseases, and, although the records of the temples and the clinical experiences there recorded were always consulted as the basis of treatment, it was considered necessary for the priests to invoke the assistance of certain appropriate Gods in all cases before the treatment could be properly carried out. The earliest medical records were engraved upon pillars and tablets of stone, some of which are still extant, and later were copied and preserved upon rolls of papyrus. The Berlin papyrus which was committed to writing in the fourteenth century, B. C., contains the substance of the so-called Hermitic books, and gives us a very clear idea of the medical experiences of that time and of a century or two preceding.

We find there recorded many remedies for diseases of the eyes, of the stomach, of the bladder, and ointments for the destruction of bodily parasites. It is a curious fact, as we shall see more distinctly when we get further on, that specialism in medicine, instead of being as we are accustomed to think a development of modern times, was characteristic of the very earliest days of our profession, and specialties were much more limited then than now, each separate disease had its specialists, and the surgery of different parts of the body, and the knowledge of surgery among the early Egyptians was by no means inconsiderable) was divided and sub-divided among those who had practised and were familiar only with certain operations. We know that the early Egyptians practised cupping and

venesection, performed circumcision, operated for cataract, operated for stone by lithotomy, amputated successfully; and many dental operations were familiar to them. Castration for the production of eunuchs was devised by them, and as late as the time of the Roman Empire nearly all of the eunuchs came from Egypt. Archeologists have discovered many surgical instruments among the relics of ancient Egypt, such as catheters, amputating knives, forceps, scissors, etc., which prove that they possessed a considerable knowledge of surgical technique. The diseases peculiar to women and the physiology and pathology of child bearing received great attention from the very earliest times, and we find among the records of antiquity directions for the treatment of difficult labour, for the production of abortion and even for the prevention of conception. The custom of embalming the bodies of the dead probably originated with the Egyptians, and there are preserved to us very minute accounts of the various methods which they employed, and it was in this way that they obtained some slight knowledge of anatomy. The prejudice against dissection of the dead was, however, so strong, that the actual study of human anatomy made no progress until a comparatively recent date. Many of the drugs still in use were known to this early period, especially opium, mercury, antimony, strychnia and lead, and we know that they made use of pills, inhalations, plasters, poultices and enemata. Weights and measures were known in the most ancient Egyptian times, and there are extant prescriptions for the accurate compounding of drugs, which prove that there existed quite a cultivated pharmacy, at least 3,000 years before Christ.

Next to the Egyptians, the most important people of antiquity were those who inhabited the central portion of Western Asia lying between the Caspian Sea, the Persian Gulf and the Syrian Desert. These people were the Babylonians, the Assyrians, the Phoenicians, the Medes and the Persians. We have many evidences in the way of architecture, art, literature and even music, that there existed a very high degree of civilization among these people, and medicine as a profession existed among them much as it did with the Egyptians. Indeed much of their knowledge was borrowed from the Egyptians, with whom they had at times friendly relations, and some of the later Greek historians have recorded that Egyptian physicans were frequently summoned to the Court of Persia. Among the Persians we find the earliest traces of veterinary medicine and surgery, and there were those among them who gave their entire lives to the study and treatment of the diseases of their dogs, cattle and horses. The Phœnicians, a nation contemporary with but entirely distinct from the Persians, were the inventors of the art of writing, and the alphabet which originated with them has been the model upon which the letters of all later people were founded. Many of the Phœnician writings have been preserved, some in the original and some in translations and copies of a much later date, and it is from these that we have learned much of the history of these ancient nations. The Phœnicians were an extremely sensual people and the worship of Phallus, which originated with them was the foundation of that strange and disgusting system of sexual idolatry of which we shall find traces throughout the history of both medicine and theology in much more recent times.

In reviewing the history of antiquity we must not overlook the Jews, who have been well described as "the most enduring, and most persistent, as well as the most pliant race of all people of history; a people scattered throughout the whole world and adapting itself to all circumstances, yet always peserving its exclusiveness, its ancient God and his commandments." The ancient Jews, as might be expected from their wandering, nomadic history, were not an original people, so far at least as medicine is concerned, and their knowledge, such as it was, was gathered from their experiences of the various other nations among whom they had sojourned. They were perhaps the most superstitious of all the ancient nations and their medicine was of an essentially theurgic character, only the priests being permitted to take the responsibility of prescribing for the sick and injured. At a later period of their history certain special physicians and surgeons, not priests, were recognized and allowed to practise, but only those who were licensed by the public authorities and the courts of justice. Thus the Jews seem to have been the first people to recognize the importance of public supervision of the practice of medicine, as they were also the creators of the science of public hygiene. They recognized the importance of isolation in cases of contagious diseases, they made laws forbidding the marriage of those near akin, they regulated the methods of slaughtering animals for food, and had strict laws concerning the burial of the dead and the situation and the care of cemeteries.

The knowledge of surgery and obstetrics was extremely limited among the Jews, the operation of circumcision being about the only one they attempted.

The early history of India, whose people lived in the country beyond the Indus and the sacred Ganges, tells us of a very high degree of culture, extending according to some historians to a period antedating that of the Egyptians. Our knowledge of the Indian Aryans is chiefly derived from their ancient sacred books, The Vedas, written in Sanskrit, which date back to

a period probably not less than 2,000 years before Christ. Their religion was at first polytheistic, that is the worship of many Gods; but later it was converted into pantheism and Brahma was their supreme being and the eternal source of all things. At a still later date, a half century or so before Christ, Buddhism became their religion and the worship of Buddha has continued to the present day.

Indian medicine like that of all the ancient people was priestly and closely connected with their religion, although there were physicians among them who were not priests but were authorized by law to prescribe for the sick. A curious translation from one of the Indian writings of great antiquity says that "A physician who desires success in his practice, his own profit, a good name and finally a place in heaven, must wear his hair short, keep his nails clean and cut close, wear a sweet smelling dress and avoid any familiarity with women; his speech must be soft, clear and pleasant and he must not speak abroad the transactions of the sick room."

These directions might well be borne in mind by the physicians of the present day. The Indians were well acquainted with many major surgical operations, and minute directions are found among their writings for the care of those wounded in battle. Lithotomy, both suprapubic and perineal was performed by them, and there are descriptions extant of laparatomies for tumors, for the cure of hernia, and even for the Cæsarean section on women dying in the late stages of pregnancy. They made a special study of the phenomena of menstruation and of sexual relations, and recorded minute directions for the regulation of sexual intercourse, and for determining the sex of the offspring.

They were evidently familiar with venereal diseases and have left very accurate descriptions of both syphilis and gonorrhœa. In the study of diagnosis they examined the urine, the faeces the blood, the saliva and even the semen, and they studied the variations of the pulse and respiration. Of anatomy, physiology and pathology they had practically no knowledge at all, so that in studying symptoms they could give no explanation of them, but only compare them with the symptoms of other similar cases. Their materia medica was very extensive, and they were familiar with and made use of many drugs which are found in the pharmacopœias of today. Bleeding cupping, blistering and poulticing are all described by them, and they had instruments for washing out the various cavities of the body. Both leprosy and small pox were diseases known to the very earliest days of history, and the Indian Vedas tells us that inoculation, by the direct method, was well understood by these early people, who lived several thousand years before the time of Jenner. We shall have occasion to discuss this circumstance more fully in a subsequent lecture.

When we come to study the history of the ancient Mongolians, the Chinese and Japanese, we find a people who had undoubtedly attained a very high degree of culture and civilization from the very earliest times, but who have preserved an exclusiveness and an isolation which for many centuries prevented all intercourse with other nations, and which has buried their early history in obscurity. Indeed these people have kept themselves remote from modern civilization, so far as science, art and international commerce are concerned until the present century, and although today there are very many of them living in their larger cities who are possessed of what we may call a modern education, it has only been obtained by sojourning at the universities of this country or of Europe.

In reviewing the history of medicine as it existed among the nations of antiquity, we cannot of course measure its progress by our present standards. In those dawning days of civilization there existed no knowledge of past experience, no literature and no science. The people were simple, concerned chiefly with the necessities of obtaining food and of protecting themselves and their possessions from the encroachments of neighboring and hostile tribes.

There was no opportunity for the study of anatomy or pathology. Their only idea of the cause of disease was that it was an infliction of some Divine supernatural power, and their treatment was based partly upon such past experience as they might have had and partly upon the various methods which they imagined might propitiate the special Deities who had sent the infliction. Bearing in mind their circumstances and condition we can not, it seems to me, but wonder that the knowledge of medicine and surgery was as well developed and as progressive as it appears to have been among these primitive people who were, so far as history can tell, the originators of the civilization of the human race.

We shall from time to time in the course of these lectures have occasion to refer to the medical experiences and speculations of these people who lived in the infancy and childhood of mankind, but for the present we will advance to a later period of which we have a more detailed and accurate knowledge historically, and which shows in many ways although by no means in all, a higher degree of culture and of intellectual development. Our knowledge of the civilization of the early Greeks is quite extensive, and has been derived partly from the study of monuments, with their carvings and inscriptions, partly from the discovery of many objects of artistic, mechanical and domestic use, but largely from their very numerous manuscripts and records

many of which are still in a state of excellent preservation.

The Grecian culture borrowed much from the primitive civilization of the earlier nations, but being a progressive people they elevated and refined and improved upon the knowledge which they gained in this way, and facts and experiences which had been known for centuries, became in the hands of the more intellectual Greeks the basis for deduction and investigations which resulted in the discovery of much actual and valuable scientific knowledge. No people of history have so definitely left their impression upon and so profoundly influenced all succeeding people as have the Greeks. Their literature, their poetry, their music, their art and their philosophy have been admired and imitated by their successors in all ages. They were peculiarly gifted with an imaginative and creative power which has left an impression upon certain of their intellectual and artistic productions, which the mental culture of no other people either before or since has been able to surpass. The very earliest Greeks were inspired with a spirit of philosophy and reasoning which made them desirous of finding out the cause of phenomena, and although their explanations of many of the occurrences of nature which our present knowledge enables us to clearly understand were entirely erroneous and in many cases absurd, the very attempt to understand and to investigate and to explain, things which had been hitherto regarded as unknowable, marks a great advance in the history of culture.

The most interesting, the most reliable and the most significant remains of the history of medicine in antiquity are furnished to us in the traditions and records left by the inhabitants of Greece. The two great poems of Homer, the Iliad and the Odyssey, which were written somewhere about 1,000 years before Christ, give us an invaluable picture of the manners and customs, and the knowledge of the prehistoric Greeks. That the practice of medicine was held in high honor is shown by Pope's translation of these two lines from Homer:

"The wise physician, skilled our wounds to heal,
Is more than armies to the public weal."

The founders and supporters of the healing art among the Greeks were of course, certain Gods and Goddesses, of whom many were selected by them as presiding over certain departments of medicine. Many of the beautiful traditions and myths which are found in early Grecian literature and poetry have to do with the Gods and Goddesses of medicine. The all powerful Zeus was the highest and the greatest of the Grecian Gods, and Juno, his wife was selected as the chief Goddess of obstetrics, presiding only, however, over those born in wedlock, while Artemis was the Goddess of parturition in general. Apollo was supposed to be the bearer of pestilence and is reputed to have been the father of the true God of medicine whose name is so indissolubly connected with our profession, Æsculapius. There were various curious myths and traditions among the Greeks concerning the birth of Æsculapius, the most interesting being that he was the offspring of an illicit union between Apollo and the beautiful nymph Coronis. The latter dying before his birth, Æsculapius was taken from his mother's womb by Apollo. This is probably the earliest allusion to a procedure which has been called from a supposed historical event of more recent time the Cæsarian section. Many children were attributed to Æsculapius by several different Goddesses, among them two are worthy of mention as having received names which are familiar to us, Panacea and Hygieia. The latter was represented as his constant companion and the feeder of his serpent, which in all the pictures and statues of Æsculapius is represented as twining about his staff. Others of the Gods of Grecian medicine and contemporaries of Æsculapius were Orpheus, Medea, Circe, Hercules, Prometheus and Melampus. The story of the manner of the death of Æsculapius is even more curious than that of his birth. He is supposed to have been hated by Pluto, who presided over the Infernal Regions, because his skill in curing the sick was so great that the realms of the shades were becoming desolate. Pluto, although powerless for harm himself complained to the great God Zeus, who finally slew Æsculapius with a thunderbolt. At a somewhat later and less mythical period the followers, or as many of them claimed the direct descendants of Æsculapius, who were called Asclepiadæ, established various temples of healing where the sick were brought for treatment. A curious account of the proceedings in one of these ancient clinics is preserved to us: "The patient having been prepared by fasting and by certain regulated ablutions was finally permitted to enter the temple. As he entered, the priests in their robes surrounded him and began by recounting the wonderful deeds of the God Æsculapius, of the cures he had effected and of his marvelous powers. Thus the imagination and hope of the patient were stimulated and he was prepared at least to receive whatever benefit suggestion might contribute towards the cure of his malady. Next came prayers and incantations, followed by baths, frictions, inunctions and various manipulations of the body. Finally such medicinal preparations as they were familiar with were administered; cathartics, emetics and soporifices, in a rather indiscriminate manner, and then the patient was permitted to depart. If any benefits were derived from the treatment, or rather after the treatment, or if the patient finally recovered, he was expected to

make some votive offering to the shrine of the God, which very commonly took the shape of a gold or silver or ivory model of the diseased part of the body. Many of these curious 'Anathemata,' as they were called, are still preserved in European museums."

Their knowledge of anatomy was very slight, only such as was gathered from the slaughter of animals and preparing the different parts of their bodies for food, and their knowledge of physiology was even less. The Asclepiadæ, however, kept tolerably accurate records of the cases they observed, and when any special method of treatment was conspicuously successful this was inscribed upon the pillars of the temples or upon tablets which were carefully preserved until gradually a very considerable knowledge of therapeutics was accumulated which formed the basis of a more rational system of medicine of later ages. Many of these so-called Asclepiadæ were lay physicians having no conection with the temples, but travelling about studying and practising medicine purely for gain. Many of them gained reputations and were summoned in consultation to foreign countries.

In the earliest days of their intellectual development the Greeks were students of natural and moral philosophy, and their philosophy soon began to exercise an important influence on their knowledge of medicine. Without going into a detail, which would be tedious, of the many fanciful and eccentric theories of the early Greek philosophers by which they endeavored to explain the origin of the universe and the principles of nature and life, it will be sufficient to mention the Ionic school and the school of Crotona founded by Pythagoras, and which was devoted to the study of mathematics; the materialistic school, which founded the so-called atomic philosophy, and the school of cynics which produced the famous Diogenes. These schools which were were largely devoted to the study of philosophy, flourished between three hundred and five hundred years before Christ, and many of their students and followers paid especial attention to the study of medicine, and made earnest attempts to gather together the scattered knowledge and experience of previous ages into some tangible and useful shape.

The real creator of the science and art of medicine, who founded and taught the true principles of our profession, principles which have been the models for the practice of all subsequent ages, principles which from a moral and ethical point of view have never since been improved upon, was Hippocrates.

Before we study the life and work of Hippocrates, let us pause for a moment and review somewhat hastily the age in which he lived, which was the grandest period in the political, the artistic and the literary history of Greece. The fourth century before Christ in Greece is not only remarkable in the history of that country, but in the history of the world. For never before or since have there lived at any one time and among one people so many men whose genius has made them conspicious and whose names can never be omitted from the history of culture.

Who among you has not heard of Aristotle, of Anaxagoras, of Democritus, of Socrates or of Plato? These were the leaders of philosophy and investigation in Hippocrates' time. The historical writings of Herodotus, of Thucydides and of Xenophon are studied today in every classical university. The tragedies of Æschylus, Sophocles and Euripides, and the comedies of Aristophanes have been the models upon which the drama of today has been built. Some of the greatest statesmen and orators in all history, Themistocles, Miltiades, Pericles, Alcibiades and Cimon flourished during that age, and it was then that the work of the great sculptor Phidias was created and that the poems of Pindar were written.

This was certainly an age of genius, of refinement and of intellectual culture, and it is not strange that it should have produced the most illustrious and the greatest individual in the history of ancient medicine. Historians are pretty well agreed that Hippocrates was born on the island of Cos in the year 460 B. C. His father was a physician, although of no great renown, and it was from him that Hippocrates received his first teachings. After his father's death he went to Athens where he studied and practised and afterwards, having travelled quite extensively, observing and investigating the medical and other knowledge of many countries, he settled in Thessaly, in Asia Minor, where he spent the greater part of his life, and where he finally died at an advanced age. The most important service which Hippocrates rendered to medicine was in separating it from its original priestly, theurgic and superstitious character and placing it on a scientific basis. He was a most accurate and careful observer and a most prolific writer.

The Hippocratic writings, which are very numerous, and many of which although probably inspired by, were not actually written by Hippocrates, we must admire not so much for the actual knowledge of disease and its treatment which they contain, for this was extremely crude when compared to our present knowledge, but for the evident and earnest attempt which was made to investigate scientifically the causes of disease and to establish some rational methods of treatment. Hippocrates was not satisfied with the preëxisting beliefs that diseases were only evidences of Divine wrath and that their cure depended chiefly upon the propitiation of the specifically offended Deity. He held that

there were certain natural laws according to which men must live and which could not be infringed with impunity, and that disease was the direct result of living contrary to these laws. Many of his writings are devoted to matters of both public and private hygiene and contain detailed instructions as to cleanliness, diet, exercise and bodily habits in general. He recognized epidemic and contagious diseases and the importance of isolating those afflicted by them. Hippocrates taught and emphasized repeatedly the importance of the careful and minute study of symptoms, and in this respect his directions might be profitably studied by physicians of today. The pulse, the breathing, the facial expression, the varying color of the skin, the temperature of the body, the appearance of the urine, the fæces, the blood, in fact of all the secretions and excretions so far as they could be observed, were studied in each case, and carefully recorded and compared with other cases. Of course his method of diagnosis had not the assistance of the apparatus which is at our disposal; his eyes were not aided by the microscope, or his ear by the stethoscope. He had no thermometer to accurately measure the temperature, no sphygmograph to record the tracings of the pulse; nor was he familiar with chemical methods by which to examine the urine or the other secretions.

Furthermore, we must remember that Hippocrates had practically no knowledge of anatomy, physiology or pathology, so that his treatment was purely symptomatic and empirical, and in obscure cases of internal disease he could have no knowledge of the special organ that was affected.

The study of the ætiology, diagnosis and prognosis of disease was originated by Hippocrates, and his work was the basis upon which these arts were finally developed.

The Hippocratic writings contain many references to obstetrics and to the phenomena of parturition, but this was considered so entirely a natural process (and it probably was much more so then than now) that little interference with the course of nature was attempted. There were recognized, however, cases of impossible delivery, either from maternal deformity or from abnormalities of the fœtus, and the destruction of the fœtus in utero is mentioned. Abnormal positions of the fœtus and methods for their correction are also alluded to. Methods for the production of abortion and for the prevention of conception were known at this time, but they are mentioned by Hippocrates, be it remembered to his honor, only to be condemned.

The Hippocratic surgery was a very considerable improvement on anything that had preceded it, although it was chiefly what we call emergency surgery. Very correct descriptions are recorded of most of the special fractures and dislocations, of the proper methods for their reduction, dressing and after treatment. Hernia and its treatment both by reduction and operation is described, and lithotomy was a well known operation, both by the perineal and suprapubic section. Originality in surgery could hardly be expected at a time when the prejudice against dissection of the human body was so strong that there was no opportunity for anatomical knowledge, but we cannot but admire the accuracy with which Hippocrates studied and described and understood the treatment of the various surgical accidents and diseases which occurred much in the same way then as they do now.

(To be continued).

ORIGINAL ARTICLES.

THE PHYSIOLOGICAL AND PATHOLOGICAL PUPIL.

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The iris is a highly organized structure composed of muscular fibres, epithelium, connective tissue, pigment, blood vessels, lymphatics and nerves. It surrounds an opening called the pupil, which varies in size under certain physiological and pathological conditions. These variations are valuable aids in the diagnosis of some diseases and in the location of cerebral and spinal lesions, as well as guides in the administration of drugs and in the determination of ocular disorders.

In connection with the description of these various diseases changes which take place in the pupil are noted in the text-books, and the importance of these changes is well recognized, but rarely do we find the reason for these changes in the descriptions, and it therefore would seem that a consideration of the pupil from a physiological and pathological standpoint might be of interest, and perhaps lead to a better understanding of its diagnostic significance.

The diameter of the physiological pupil when

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the visual axes of the eyes are parallel, i. e.—when there is no convergence of the two eyes, ranges from 2.5 to 5.8 m m. The pupils of people with light irides, are, as a rule, smaller than those with dark, for more light reaches the retina, and hence the pupil reflex is stronger. At birth the pupils are small, increasing in size as the child grows older and as age advances, and the walls of the vessels of the iris become sclerosed with consequent rigidity of its structure, together with a decrease in the energy of the sympathetic, the pupil again becomes small. In neurasthenics and in excitable people the pupils are usually dilated because of the constant irritation of the sympathtic.

Miosis (contraction of the pupil) is brought about by contraction of the sphincter pupillæ, controlled by the third nerve.

Contraction to light is a reflex action, the optic nerve serving as the afferent, and the third nerve serving as the efferent nerve. The degree of contraction depends upon the intensity of the light falling upon the retina. Light stimuli are conveyed by the optic nerve, chiasm and tractus to the corpora quadrigemina, and thence by Meynert's fibres to the centre of the third nerve controlling the sphincter pupillæ. and thence by the third nerve to each sphincter. In the optic chiasm there is a semidecussation of fibres, therefore the stimulus of light even when applied to one eye alone, passes up each tract with equal vigor to both the right and left oculomotor nucleus, thus causing consensual reaction. Furthermore, there is a communication between the nuclei of the motor oculi, so that even when a lesion is located on one side beyond the chiasm consensual reaction takes place. Under normal condition, therefore, both pupils must be of equal size and react equally to light, and inequality is always a manifestation of a pathological condition.

In testing the reaction of the pupils to light, the patient's gaze should be directed toward some object, the light cut off by the observer's hand (covering both eyes) which should then be suddenly removed, and the effect of the sudden stimulus of light noted. The presence or absence of consensual reaction is shown by keeping one eye shaded while the other is exposed to the light, noting the effect on the shaded eye as well as the effect on the eye exposed.

The reaction of the pupil is of value in testing the presence or absence of light perception, but this evidence is not conclusive, as (a) perception of light may be present and reaction absent; and conversely (b) reaction to light may be present in totally blind eyes. (a) Whenever the motor oculi or the branches supplying the sphincter pupillæ are paralyzed from any cause there will be no reaction, even though light perception exists; as, for instance, when atropine has been instilled. Reaction is also absent when the iris has become adherent to the anterior capsule of the lens from plastic inflammation. In these instances, unless both eyes are involved, consensual reaction is our guide. (b) A lesion situated so high up in the optic tract that the fibres of the reflex arc are not affected, would produce blindness by cutting off the communication to the centers of sight and yet would not prevent the reflex act of contraction to light. (See diagram.) The same would hold true in cortical lesions were all perception centres involved. Instances of this latter character are, however, of rare occurence. In the partial or total blindness of uræmia (following pregnancy, scarlet fever, etc.) the pupillary reactions are preserved.

Miosis also occurs simultaneously with the effort of accommodation and convergence. Knies states that the contraction which occurs in accommodation is partly a mechanical process, the contraction being caused by the action of the ciliary muscle, the blood being forced into the iris, causing this structure to increase in size at the expense of the pupil. But this theory is incorrect because miosis does not necessarly occur when accommodation takes place, hence the contraction of the ciliary muscle can have nothing to do with the process. Miosis does take place always in the normal state upon convergence of the visual axes of the two eyes, and as accommodation and convergence are usually associated, it usually takes place with accommodation. The author has repeatedly made the test to confirm this point and finds invariably that in the eyes of people who are able to free convergence from accommodation, no contraction of the pupils takes place upon accommodation but as soon as convergence occurs the pupils contract. Furthermore, in people with extreme myopia whose eyes do not accommodate contraction of the pupils occurs upon convergence. Strictly speaking, therefore, it is incorrect to speak of "contraction of the pupils upon accommodation", instead of which we should substitute "contraction of the pupils upon convergence." The best explanation of this phenomenon is that the centres of convergence and pupil contraction are so intimately associated that the same stimulus produces a reaction of both muscles.

In testing the reaction to convergence, the patient's gaze should be directed toward some distant object and then suddenly toward an object quite near to the eyes (about four inches) changes in light being avoided.

Miosis takes place, sometimes, from purely mechanical causes, as, for instance, when the aqueous humor is allowed to escape, and this

will occur in the dead as well as in the living. If the vessels of the iris become filled with blood the pupil contracts, even though there is no action on the part of the contracting muscle of the iris. Gifford (Archives of Optholmology, July, 1895) describes a contraction of the pupil brought about upon a forcible contraction of the orbicularis palpebrarum. Irritation of the cornea or eyeball will cause miosis.

Mydriasis (dilatation of the pupil) is brought about by the action of the dilator pupillæ, which is controlled by the sympathetic.

There is much controversy regarding the existence of this muscle. Those who claim its non-existence account for dilatation by a contraction of the vessels of the iris, causing a decrease in the width of the iris with consequent enlargement of the pupil, while others state that the posterior limiting membrane of the iris causes dilatation by virtue of its elasticity. After discussing all the evidence pro and con, Dwyer, in Norris & Oliver's new System of Diseases of the Eye, concludes as follows: "The combined anatomical and physiological evidence of a radially arranged dilator muscle now appears conclusive." Experiments indicate that the dilating nerves are composed of vaso-motor and muscle fibres, hence it is probable that the contraction of the vessels of the iris plays its part in producing mydriasis.

The nerves governing mydriasis originate in the "front part of the floor of the aqueduct of Sylvius, pass to a region in the lower cervical and upper dorsal portion of the cord, and from thence pass out with the two first dorsal nerves, and by way of the rami communicantes, to the sympathetic in the neck and thence to the cavernous plexus, gasserian ganglion, ophthalmic division of the fifth nerve, nasal branch of this division, ganglionic branch of this nerve, ciliary ganglion, there joined by nerve branches from the cavernous plexus, and from thence by the short ciliary nerves reach the eye."*

Dilatation takes place upon absence of light, and upon the application of sensitive stimuli, such as galvanism, to different parts of the body, irritation of the fifth nerve terminals in the face, etc. Various emotions such as fright and anger will produce diatation. Slight dilatation occurs on each ordinary inspiration, and is dependent upon a variation of the blood pressure. Considerable dilatation occurs upon deep inspiration or expiration said to tbe due to the retention of carbonic acid in the blood. Mydiasis occurs simultaneously with labor pains, probably on account of the associated action of the centres.

We may now pass on to the consideration of the changes which take place in the pupil under pathological conditions.

*Swanzey.

Miosis may occur as a result of irritation of the pupil-contracting center or nerve fibres, or from paralysis of the pupil-dilating centre or nerve fibres, or a maximum miosis will occur from a combination of both conditions. Likewise, mydriasis may be a result of irritation of the pupil-dilating centre or fibres or of paralysis of the pupil-contracting centre or fibres, or maximum mydriasis will occur by a combination of both.

It has been experimentally proven that drugs instilled into an eye which contract and dilate the pupil, act directly upon the nerve terminals in the iris, through the medium of the aqueous humor. Miotics, such as eserine, produce a maximum contraction, hence they paralyze the peripheral endings of the sympathetic and stimulate the motor oculi. Mydriatics, such as atropine, are direct antagonists of these miotics, since they produce a paralysis of the peripheral endings of the motor oculi and stimulate the sympathetic. These drugs may therefore be used to differentiate an irritation miosis or mydriasis from a paralytic miosis or mydriasis, for in miosis irritation atropine will produce a maximum dilatation by paralyzing the peripheral endings of the irritated nerve (motor occuli) and irritating the peripheral endings of the unaffected nerve (sympathetic) while in paralytic miosis atropine will only dilate the pupil partially since it can only paralyze the unaffected nerve (motor oculi)and cannot irritate an already paralyzed nerve (sympathetic). In irritation mydriasis, erserine will produce maximum contraction by paralyzing the peripheral endings of the irritated nerve (sympathetic) and by irritating the peripheral endings of the unaffected nerve (motor oculi), but in paralytic mydriasis eserine can only produce partial contraction by paralyzing the unaffected nerve(sympathetic) having no effect upon the already paralyzed motor oculi.

Another easy but unreliable means of differentiating the irritation from the paralytic form may sometimes be of value. I refer to the reaction to light and convergence. In irritation miosis the pupil does not react to light or convergence, while paralytic miosis reacts to both (excepting in the case of Argyll-Robertson pupil). And in irritation midriasis reaction to light takes place, but dilatation to sensitive or psychical stimuli does not, while in paralytic mydriasis reaction to sensitive and physical stimuli is present, and reaction to light and convergence, may, or may not be present, depending upon the seat of the lesion.

According to Swanzey and other authorities, irritation miosis is found in: (1) The early stages at least of all inflammatory affections of the brain and its meninges, in simple, tubercular

and cerebro-spinal meningitis. When in these diseases the medium miosis gives place to mydriasis, the change is a serious prognostic sign, indicating the stage of depression with paralysis of the third nerve. (2) In cerebral apoplexy the pupil is at first contracted, according to Berthold, who points out that this contraction is a diagnostic sign between apoplexy and embolism, in which latter the pupil is unaltered. (3) In the early stages of intracranial tumors situated at the origin of the third nerve or in its course. (4) At the beginning of an hysterical or of an epileptic attack. (5) In tobacco amblyopia, probably from stimulation by nicotine. (6) In persons following certain trades, as a result of long maintained effort at accommodation (watchmakers, etc.) the pupil contracting centre being subect to an almost constant stimulus. (7) As a reflex action in ciliary neurosis; consequently in many diseased conditions of those parts of the eye supplied by the fifth nerve. (8) In iritis.

Paralytic miosis occurs: (1) In spinal lesions above the dorsal region, e. g., injuries and inflammations of the chronic form. (2) In general paralysis of the insane. (In acute mania the pupil is usually much dilated, and when miosis developes, approaching general paralysis may be prognosticated.) (3) In myelitis of the cervical portion of the cord, following irritation mydriasis. (4) In bulbar paralysis with progressive muscular atrophy or sclerosis of the brain and spinal cord. (5) Iu alcoholic amblyopia. (6) In paralysis of the cervical sympathetic, resulting from injury, from pressure of an aneurism of the carotid, innominate or aorta, or from pressure of enlarged lymphatic glands. (7) In apoplexy of the pons Varolii (this may be irritation miosis. (8) In poisoning by certain drugs known as miotics.

Irritation mydriasis occurs: (1) In hyperæmia of the cervical portion of the spinal cord and in cerebro-spinal meningitis. (2) In the early stages of new growths in the cervical portion of the cord. (3) In cases of intracranial tumors and other disesase causing high intracranial pressure (these may cause paralytic mydriasis). (4) In the spinal irritation of chlorotic or anæmic people after severe illness, etc. (5) As a preparatory sign of tabes dorsalis. (6) In cases of intestinal worms, typhoid fever and other forms of intestinal irritation. (7) In psychical excitement, such as acute mania, melancholia, progressive paralysis of the insane (may be miosis on one side, mydriasis on the other).

Paralytic mydriasis occurs: (1) In progressive paralysis following miosis. (2) In various disease processes such as syphilis at the base of the brain affecting the third nerve. (3) In a late stage of thrombosis of the cavernous sinus. (4) In orbital processes which cause pressure on the ciliary nerves. (5) In glaucoma. (6) In cases of large intraocular tumors. (7) In cases of poisoning by alkaloids known as mydriatics and by toxic principles of putrefaction (rotten meat, etc.). (8) Following traumatism to the eyeball.

The Argyll-Robertson pupil is one that reacts to convergence but not to light, and indicates a lesion of the centripetal fibres, in the case of tabes dorsalis, probably Meynert's.

The late Dr. Macdonnell, of Montreal, describes an unilateral dilatation which he states is sometimes present in tuberculosis of the lungs and indicates a cavity on the side of the dilated pupil. I have been unable to find his article upon this subject, or any mention of this symptom in phthisis by other authorities, and do not know how unilateral dilatation arising from this cause can be explained.*

Reaction of the pupil in hemianopsia is of importance in diagnosing the location of a lesion in the brain. A lesion is anterior to the primary optic centers in hemianopsia if miosis takes place when light is thrown upon the seeing side of the retina, and does not take place when thrown upon the blind side. A lesion is posterior to the primary optic centres when miosis occurs when the light is thrown upon either side of the retina.

The action of atropine has been described: of other midratics which act in the same way, hyoscyamine, duboisine, and daturine should be mentioned. Cocaine produces mydriasis by irritating the nerve ending of the sympathetic. The mydriasis produced by strychnine and curare poisoning is due to the retention of carbonic acid in the blood.

Drugs that produce miosis in the same manner as eserine are pilocarpine, muscarine, nicotine and morphine.

The action of chloroform upon the pupil is as follows: First in the excitement stage there is a dilatation due to the stimulation of the pupil dilating centre, followed in the next stage by a gradual contraction, due to paralysis of this centre, when no stimulation will cause dilatation. Further inhalation will cause irritation of the pupil contracting centres producing maximum contraction. If then too much is given a rapid

*Since reading this paper I have obtained a short article by Carey Wood, of Chicago, entitled "Is There a Rampoldi's Sign?" from which I quote the following: "Rampoldi reviews the opinions of several writers on this subject, and publishes his later experiences. At the last International Medical Congress, Destree read a paper in which he claimed that in 97 per cent. of cases of tubercular phthisis he had observed an unequal dilatation of the pupils dependent upon irritation of the sympathetic plexus at the hilus of the lung from disease in the bronchial glands. This sign, he claims, often precedes the invasion of the lung tissue, and is an unfailing indication of tuberculosis of the bronchial glands."

dilatation will follow, indicating paralysis of the pupil contracting centres, a symptom of dangerous significance.

In conclusion the following points may be emphasized:

First—That there is no standard of size for the pupil in health, but that inequality of the pupils is always pathological.

Second—That contraction of the pupil in health should take place upon the application of light stimuli or convergence of the eyes, but not necessarily upon accommodation.

Third—That dilatation of the pupils in health should take place when causes producing contraction are removed, or upon irritation of the sympathetic system.

Fourth—That miosis and mydriasis in disease may be due to irritation or paralysis and that the use of eserine or atropine will determine this point.

Fifth—That the pupil is a valuable guide in the administration of chloroform and in the diagnosis of lesions in the brain.

602 Nicollet Ave.

AN UNUSUAL CASE OF GALL STONE.*

By A. W. Abbott, M. D.

Minneapolis.

Patient, female; married; 37 years old; four children. May, 1893, removed right pus tube and ovary; 1894, after a fresh infection an abscess formed in Douglas' sac which was opened by the vagina. Nov. 23, 1897, opened a thick walled left ovarian abscess. During convalescence had jaundice for one week, improved under sodium phosphate. Dec. 16, another abscess formed above the ilio-pectineal line on the left side; this was opened through the former incision. Patient recovered rapidly with no more jaundice, but during the last two weeks of convalescence a swelling appeared in the region of the right kidney, tender and slightly fluctuating, urine was a little albuminous, patient improved promptly and was about attending to duties as usual until the twenty-fifth of February, 1898, when she began to have nausea, retaining hardly any food, and complaining of burning pains in the right lumbar region.

March 21 saw the case for the first time since December, and found a tumor filling the whole right lumbar and umbilical regions, no distinct fluctuation, no special tenderness. Urine contained a trace of albumen; the urine from the kidney was obtained separately by the Harris instrument, the amount obtained from the right kidney being one-half of that obtained from the left, the urine from the right kidney contained a little pus, that from the left was clear. Patient complained of sharp pains, very severe, requiring morphine. The pains ran down to the region of the bladder. She now had jaundice, nausea, vomited all food, stools normal in color, temperature 103°, pulse 100.

Diagnosis: probable perinephritic abscess, with pyelitis, possible renal calculi, with a probable perihepatitis. Gall stones were not considered probable, as the tumor seemed entirely distinct from the liver. During the examination, under an anæsthetic, and before the incision was made, the tumor seemed to diminish one-third in size and what seemed like the kidney passed to the normal kidney position. To determine whether there had been a hydronephrosis which had been reduced by manipulation the catheter was immediately introduced into the bladder, but only a few drops of urine was obtained. The tumor was so much more prominent in the lower kidney region than elsewhere an incision was made as for nephrotomy, oblique and as far back as possible. After dividing the perirenal fat a mass was felt over the convexity of the kidney and as if it was a part of it. To the touch the sensation was that of a friable abscess wall with stones underneath. The finger was easily pushed through this wall and between 250 and 300 stones removed, most of which I present in this specimen. The stones were in two separate cavities with a thick but friable wall between them. The peritoneal cavity proper was not opened; no pus or bile was seen at any time during the operation. The kidney being now felt in its normal position and not much enlarged, the stones having the appearance of gall stones, there being no stones felt in the kidney or ureter, it seemed that the stones must have at some time ulcerated through the gall bladder wall and peritoneum.

The patient being quite exhausted, there was no further exploration made. A large opening was left for drainage. The patient was never able to retain any food; the pulse was never, except in one instance, below 100; the temperature, however, fell gradually to 98° during the first six days; from that on the temperature and pulse gradually rose until her death, which occurred on the first of April. The wound never became purulent. Bile began to flow only after forty-eight hours, and was thereafter profuse.

A post mortem was made by Dr. J. Clark Stuart, and his report is as follows:

Postmortem, Mrs. Bl——m. Abdominal cavity alone examined. There was a median scar above the pubes, and an open wound three inches long in the right lumbar region.

*Read before the Minnesota Academy of Medicine, April 6, 1898.

There was no fluid in the peritoneum, no general peritonitis, but at the site of the gall bladder the intestines were matted together by fresh adhesions.

Upon separating these there was exposed a cavity of irregular shape about three and a half inches in diameter, which communicated with the sloughing gall bladder above and the lumbar incision below. This cavity passed behind the right kidney and raised it upwards. Its walls were formed by the liver, kidney and colon bound together by adhesions.

Its walls were deeply bile-stained and it contained a small amount of pus, bile and gallstones.

The complete fundus of the gall bladder had sloughed so that its cavity was freely open and both the cystic and common bile ducts contained impacted calculi.

A part of the gall bladder contents had also escaped anteriorly at the time of rupture or later more probably, and passing into the peritoneal cavity between the liver and ribs had set up a local septic peritonitis.

Numerous small gallstones were found here, also in the main cavity and in various places among the adhesions.

In the pelvis was a local old peritonitis about the region of the tubes, which was without connection with the areas about the gall bladder.

There was little pus behind the uterus and right broad ligament and an incision into the vagina.

There was chronic diffuse nephritis, most marked in the left kidney. There was also a marked increase of connective tissue in the liver and spleen.

In the renal pelvis were several small uric acid calculi.

Remarks: It will be seen that the diagnosis was correct in regard to renal calculi, perihepatitis and an abscess near and upon the kidney. It was faulty in that the abscess was intra instead of extra peritoneal, and that the gall stones were not anticipated. It is probable that the sudden diminution in the size of the mass during manifestation was due to the rupture of the already weakened gall bladder with a discharge of its fluid contents and a few of the gall stones into the space just underneath the liver. On account of the many pathological conditions existing in close proximity, the altered relations of the parts, and the fact that the gall stones had already ulcerated through the gall bladder wall and through the parietal peritoneum, it is doubtful if a more correct diagnosis could have been made. As, however, the symptoms pointing to some disease of the liver were fairly prominent, it might have been better surgery to have examined that region first, although it is doubtful if the result would have been better in this case. The general proposition, that where an intra as well as an extra peritoneal disease exists in close proximity it is safer to treat or examine the intra peritoneal disease first, will probably hold good in the majority of cases.

INFANT FOODS.*

By R. O. Beard, M. D.,

Professor of Physiology, University of Minnesota,

Minneapolis.

The American mother is not a good nurser. Whatever causes underlie the impairment of the function of lactation, that it is suffering progressive loss is becoming a very patent fact. It may be that in the course of woman's physical development the principle of germinal selection is pushing in favor of her cerebral centres at the expense of the nutrition of the mammary cells. It may be that the strenuous conditions of our civilized society to which she is subjected, or to which she subjects herself, are determining this form of degeneracy. It may be that the misconducts of pregnancy meet their penalty in this subsequent metabolic poverty. It may be that certain time-worn errors of infant feeding are reacting disastrously upon her nursing power.

Each and all of these possible causes must be considered by the profession in its effort to meet and to modify this emergency of infancy. The mammary gland presents the most perfect type of metabolism in the animal body, and it is not strange therefore that it should easily undergo perversion. Seldom does failure show itself in the matter of the quantity of the milk supply. A secretion of degeneration is always copious. It is shown rather by an increasingly wide variance from the normal standards of quality in human milk and in the multiplying instances of inability upon the part of the mother to sustain the nutrition of her child. There is, undoubtedly, a physiological variance in the composition of the human milk at successive stages of the period of lactation which is in close adjustment to the needs of the infant. That such a correspondence between infantile demand and maternal supply exists is shown by the commonly noted fact that a change of nursers disturbs the nursing infant, a physiologic argument against the employment of the wet nurse.

The only remedy for the decline of this mammary function which I have to suggest is in the extension backwards of the hygienic regimen which the careful physician prescribes for the

*Read before the Hennepin County Medical Society, March 7, 1898.

period of lactation into the period of pregnancy. If the metabolism of the mammary gland is to be improved, it must be by a recognition of the fact that the structural changes which are to determine its functional powers are progressive from the event of impregnation to the event of parturition.

While the profession is thus addressing itself to the study of the degeneracy of the modern nursing mother, it has often to meet the emergency by the substitution of some other means and method of feeding. With what success it has met this emergency, the market full of infant foods, each warranted to serve as a satisfactory substitute for mothers' milk, and each recommended by many physicians, makes answer. With what results the emergency has been met is shown in a death rate among infants of thirty-five per cent. from gastro-intestinal diseases and their sequelæ alone. The New York Infants' Asylum records a death rate varying from sixty to eighty per cent. among bottle-fed babies during the past few years. These stastistics of mortality stand as a monument to professional failure in a world-wide graveyard of human infancy.

The emergency has still to be met, and happily some recent studies justify the hope that this monument may yet be converted into a milestone of progress which shall mark the path of sacrifice along which we have been compelled to come to the solution of the problem.

There are two divisions of the question to be considered: infant foods and infant feeding.

The first of these has fallen to the writer's lot; the second is to be dealt with, more ably, by his successor upon the evening's program.

The end to be desired, a full discussion of the subject, may be best reached, perhaps, by epitomizing it in a series of simple statements:

(1) The substitution for the faulty nursing mother of the professional wet nurse is increasingly impracticable. With the improvement of general social conditions, fewer and fewer women are to be found who will consent to the sacrifice of their own maternal privileges for the benefit of another's child. Those who are still purchasable are, as a rule, of a class whose moral and physical conditions do not make them desirable. Moreover, the natural correlation of maternal supply and infant need is rarely found in the foster nurse.

(2) The milk of the lower animals, and, particularly, of the usually available cow, offers, not a perfect, but the most manageable substitute for human milk. Recent analytical work has brought us into closer acquaintance with its average composition and with its limits of variation in quality. Similarly perfect analyses of human milk permit of a most careful comparison between the two. Dr. T. M. Rotch and Dr. Chas. Harrington, of Harvard, and Dr. L. E. Holt, of New York, have added much to the value of these comparative tables. These analyses have established the need for a scientific modification of animal milk to render it a fit substitute for the human form. In the establishment of milk laboratories lies the best possibility of this scientific modification. The medical profession of this or any other city could engage in no better enterprise than in the organization of such a laboratory.

The first great benefit to be gained by the modification of cow's milk is uniformity. Without the application of laboratory methods this quality can be but roughly secured. In their absence it is most nearly attained by the use of milk derived, not from a single cow, but from a chosen set of animals. The second prerequisite is practical sterilization. This, again, is a quality which is to be safely secured only by suitable apparatus and nicety of process. The so-called Pasteurized milk which is vended by the dairy depots is to be viewed with suspicion. Scurvy, a disease of great rarity prior to the introduction of this article, has appeared in our large cities in the wake of its use. It cannot be regarded as a settled fact that Pasteurization, even when scientifically done, leaves undiminished the nutritive properties of milk.

Simple sterilizers are obtainable for household use. It is well, in default of a milk laboratory, to buy selected milk of good quality and to sterilize or Pasteurize it at home. It is safer to rely upon those whose interest and intelligence will tend to the accuracy of the result, than to repose undue confidence in the integrity of a service exploited for commercial ends.

In cases where a healthy cow is the private property of the consumer, and the source of infant supply, it may be well to remember that practically sterile milk may be obtained, with the exercise of due care in milking, directly from the animal. It is through the orifices of the main ducts in the teat or nipple of the gland that bacterial invasion occurs, and the bacteria which thus find entrance do not penetrate beyond these discharging ducts. Let the milker wear a sterilized apron, sterilize his hands, carefully cleanse the animal's udder, draw off the first supply stored in these ducts, set it aside and then draw into a sterilized vessel the secondary supply, and a "middle milk" will be obtained which is naturally sterile* and can be kept so with due enclosure for a sufficient length of time.

(3) The next object to be attained in the scientific modification of milk is the alteration of its proportional constituents.

Milk sugar is the most constant ingredient of milk, either bovine or human. Its percentage in the latter is in excess of its proportion in the

*Rotch, Pediatrics.

former. Its addition to the cow's milk is therefore necessary in most instances.

The proteids and the fats vary materially; in the cow's milk the former and sometimes the latter are in marked excess of their percentage in the human milk.

While an accurate chemical analysis of these proportions may sometimes prove desirable in the case of both cow's and mother's milk, the physician, armed with a small C. C. graduate and a hydrometer of small capacity, may readily determine, with sufficient accuracy, the excess or deficiency of these two classes of food stuffs. With these instruments the percentage of fat may be readily noted and a comparison of its proportion with the specific gravity of the fluid may be made. Since fats decrease while proteids increase the specific gravity, the relative percentages of the two classes of ingredients may be estimated approximately. Separated milk or cream may be added to meet the conclusions which this rough and ready analysis offers. An acid chemical reaction may be altered by the addition of lime water or the alkaline carbonates. In the milk laboratory these alterations are effected with the greatest nicety, and prescriptions of milk required may be filled for the infant's supply in accordance with its age and digestive conditions. Rotch has exhaustively elaborated these possibilities of modification. They may be imitated at home with partial success under the direction of the physician.

(4) Predigestion of milk is sometimes demanded by the digestive failures of the infant. The methods of its performance are familiar. One caution demands emphasis, however. Digestion should be only partial. Disuse entails atony of the digestive organs and persistent failure of their powers. Starch, if used at all, should be converted into dextrin rather than into sugar. Proteids should be incompletely peptonized. Fats are already sufficiently emulsionized in milk. In fact, by premature complete peptonization, fats suffer, since the albuminous envelopes of the fat globules being dissolved, the emulsion of fat becomes coarser and fatty indigestion, marked by fatty stools, may ensue.

(5) Artificial foods, legionary in name and protean in form, are of value only when suitable milk, suitably modified or carefully predigested, cannot be secured. Their worth is to be measured by the degree of their response to the conditions already cited. In so far as they attain uniformity of composition, absolute sterilization, proportions approximating their ingredients to the natural food supply, and a degree of predigestion conservative of digestive activity, they have a place. Their safe selection demands their chemical and microscopic investigation rather than the testimonial of empyric use.

In my judgment, one of the greatest dangers to which infancy in its later period is subjected is the premature allowance of miscellaneous food in more or less solid form, before either the teeth are fit for its mastication or the digestive organs for its conversion.

Dr. Thos. F. Rumbold, in the St. Louis Med. and Surg. Journal, says in regard to the cause of follicular pharyngitis in people over fifty: As the secretion has for some years been slowly slipping down the pharyngo-nasal passage and pharynx into the œsophagus, it produces a slow and slight grade of irritation on the posterior wall of the pharynx, resulting in what is called follicular pharyngitis. The proof of this is that the follicular pharyngitis will disappear upon the treatment of the pharyngo-nasal and nasal cavities. Because the stomach is frequently affected at the same time, and by the same secretion, it is thought by some good authorities that this pharyngitis has its origin from a diseased condition of the stomach, especially as a remedy that is placed in the stomach relieves the follicular trouble. This only proves that the pharyngeal trouble has become systemic, not alone a local disease, and it also shows the intimate relation of these organs, the one to the other. While stomach treatment frequently relieves the pharyngeal inflammation, it will not cure it. The cure requires both constitutional and local treatment, just as all chronic complaints do.

A writer in the Cleveland Medical Recorder says: A number of years ago I attended a confinement in which a mother gave birth to twin babies. The ladies present had prepared string for tying the cord by twisting several strands of sewing thread. Both cords were tied with this ligature. In about an hour I was called, and found that the cord was bleeding; child had lost a large quantity of blood, and died of marasmus a few weeks later. The threads had not all drawn with equal tightness; one had cut through the coat of an artery.

Dr. R. H. M. Dawburn calls attention to a fact which is not well known that when a quantity of plain water, instead of the normal salt solution, even though it be sterile, be put into the circulation of an animal, death invariably follows. The fatal result is brought about by the rapid solvent action of the non-saline water on the blood corpscles. This ought to be kept in mind, for through carelessness, either on the part of the physician or his assistant, plain water might easily be used in place of the saline.—Western Medical Review.

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THE QUARANTINE OF MEASLES.

Since the middle of the winter there has been an extensive epidemic of measles in Minnesota, particularly in the cities of Minneapolis and St. Paul, where the children of the public schools have suffered to an astonishing extent, some school rooms that were formerly overcrowded having their attendance reduced to a baker's dozen. So thorough has been the exposure everywhere, that practically every susceptible school child has had or will have the measles and an epidemic of equal severity cannot come again until a new crop of unprotected children has come along to take the places of those in attendance at present.

The epidemic offers a capital object lesson in the study of the quarantine of measles for the reason that while the nearness of the two cities to one another and the similarity of their physical and political features places them on an equality in other respects, it happens that they differ in this particular, namely, that Minneapolis requires cases of measles to be reported and imposes a ten days' quarantine, while in St. Paul no notice is taken of the disease by the health office. The value of the quarantine may, therefore, be judged to some extent by a comparison of the statistics of the disease in the two cities.

This is what is shown by the figures taken from the health reports of the two cities.

Minneapolis.

January, 1898. Deaths from measles.....	2
February, 1898. Deaths from measles.....	9
March, 1898. Deaths from measles.....	29
Total	40

St. Paul.

January, 1898. Deaths from measles.....	0
February, 1898. Deaths from measles.....	5
March, 1898. Deaths from measles.....	8
Total	13

The population of Minneapolis may be taken in round numbers to be 200,000; that of St. Paul as 150,000. Minneapolis being one-third larger would be entitled to a death rate from measles thirty-three per cent. greater than that of St. Paul. The figures above given show that there have been during the last three months three deaths from measles in Minneapolis to one in St. Paul. Making the widest allowance for all kinds of variations in the basis of comparison it would appear that Minneapolis had gained nothing by its quarantine.

It is unfortunate that cases of measles are not reported in St. Paul so that a comparison might be made of the actual number of cases in the two cities. Evidence of this kind would be much more satisfactory than the mortuary returns. In Minneapolis the cases reported in January numbered 350; in February, 1,148; in March, 1,644. Here on the face of things is evidence of the uselessness of a quarantine which cannot prevent the appearance of 1,644 cases of measles in a single month in a city of 200,000 people. Is it likely that the number would have been appreciably greater without the quarantine? Although the actual number of cases of measles in St. Paul cannot be shown the widespread character of the epidemic is universally testified to by physicians and by the depopulation of the schools. There is no reason to suppose that the disease prevailed more generally in one city than in the other. Indeed, so close is the communication between the two cities, thousands of people passing to and fro

daily, that it would be impossible for a disease communicated by personal contact to prevail in the one place without thoroughly infecting the other.

One of the things for which allowance must be made is the fact that measles is chiefly fatal through some form of pneumonia. No doubt some deaths that should be recorded under the head of measles are to be found in the column devoted to diseases of the respiratory organs, but in the absence of any reason why this error should have been more likely to be made in one city than in the other, it is impossible to correct the statistics in this respect.

The reason why quarantine is powerless to prevent the spread of measles is plainly apparent from a consideration of the natural history of the disease and of the method of communication. The secretion from the mucous membrane of the air passages is the chief medium of contagion, and the first cough or sneeze may be infectious. As the period of invasion is a long one and its symptoms are often only those of a common cold, it is the rule in this disease that by the time its presence is suspected the subject of the attack has been spreading the infection abroad for two or three days, and to quarantine him now is much like locking the stable door after the horse has been stolen. It is true that there would be something to be gained by quarantining the well children in a household where measles appeared, but such quarantine, to be effective, must continue at least two weeks after the recovery of the last case.

It may be said that if the quarantine of measles does little good, it at least does less harm. This is not quite true. In its battle for the protection of the public health medical science finds active foes in the forces of prejudice, ignorance and superstition that array themselves relentlessly against all progress. Hygienic measures can never be successfully carried out unless supported by public opinion. Useless measures will quickly be detected and arouse an opposition that is likely to be indiscriminately applied to useful quarantine as well. The colored card of the health office places a house under a ban and is hated by every householder, for quarantine even for a disease as mild as measles is attended by many vexations.

CORRESPONDENCE.

HYPNOTISM AND THERAPEUTICS.

Editor of Northwestern Lancet:

Sir: In your last issue is an editorial article on "Hypnotism and Therapeutics." Will you kindly allow me space to correct a few misstatements in said article?

1st. You state that Wetterstrand is a German. This is wrong. Dr. Anton Wetterstrand is a Swedish physician, educated in Sweden and for many years in active practice in Stockholm, where he for years has devoted his time to investigations and his practice to suggestive therapeutics. Probably a more acute and painstaking observer in this special field cannot be found in the whole of Europe.

2d. In regard to your statement that those who have practised hypnotism in this country, upon American-born subjects, have found them not so sensitive to suggestive methods as are those amongst his countrymen (Germans), and for the reasons that American surroundings and government should foster independent thoughts. These reasons may hold good in Germany (?) or Russia, but not in Sweden or Norway, where the forms of government are equally free and democratic as in the United States, and from Sweden and Norway is the principal sources from which Dr. Wetterstrand has drawn his clientage.

As far as my own limited experience goes (a few hundred cases), I have observed the more intelligent the subject the more easily he becomes submissive to suggestion, and naturally so. One principal law in suggestive therapeutics is that no person can be hypnotized against his or her will. Therefore, if I have to deal with an intelligent person, and after explaining to him or her my aims and my "modus operandi," he or she will readily become submissive and permit himself or herself to fall into a suggestive mood, whilst one dull or less intelligent, who cannot comprehend my aims or "modus operandi," but sees something supernatural in the performance, will resist me by all means and only after long resistance and subsequent exhaustion can be brought into the hypnotic state and fit for suggestion, and if his autosuggestion and resistance is strong enough it will be impossible to bring him under the suggestive influence at all. There are a few other errors, but of no importance, and I will, therefore, close my remarks.

Oscar A. Fliesburg, Ph. D., M. D.

Minneapolis, April 25, 1898.

[The Lancet accepts the correction as to the nationality of Dr. Wetterstrand with thanks.

The error was through inadvertence. As to the susceptibility of the people of various countries, what was said was given upon the authority of other observers, who must defend their own statements.—Ed.]

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated meeting, Wednesday evening, April 6, 1898, at the West Hotel, Minneapolis: the President, Dr. J. W. Chamberlin, in the chair.

Dr. A. W. Abbott, of Minneapolis, presented a paper entitled

AN UNUSUAL CASE OF GALL STONE.

See page 171.

Dr. J. H. Dunn, of Minneapolis, remembered two cases of ulcerated gall bladder. One case, that of a male patient, had suffered for fifteen years from recurrent abscesses in the back and loins; these had opened at several points. Finally a large abscess formed, presenting above Poupart's ligament, and was opened. In it were found four large gall stones. The probe was passed upward toward the liver. By subsequent operations the track of the abscess was followed up, other gall stones being found. The gall bladder, which had ruptured fifteen years before, was obliterated. The patient ultimately recovered. It was evident that the old backward route of the abscess had become closed and the new downward route from the old site of the gall bladder had formed.

The other case was that of an old lady, who had suffered an acute attack of supposed obstruction of the bowels. The case was seen on the fourth day. A tumor presented in a situation which suggested the seat of the right kidney. It was surrounded by an area of great tenderness. Exploratory incision revealed free bile, and upon following up the track of its flow the gall bladder was found ruptured near its neck. The contents were evacuated and a drainage tube introduced. The patient made an uninterrupted recovery.

Dr. Frank C. Todd, of Minneapolis, read his inaugural thesis, entitled,

THE PHYSIOLOGICAL AND PATHOLOGICAL PUPIL.

See page 167.

In the discussion which followed, Dr. J. W. Chamberlin, of St. Paul, said that the paper was so ably written and its conclusions so succinctly stated that it must be of great value to the general practitioner.

Dr. J. W. Bell, of Minneapolis, referred to the pupillary symptom of Dr. Macdonald in cases of pulmonary disease, and said that he had seen it exhibited in one case of pulmonary tuberculosis with a cavity of large size in the left lung.

Dr. R. O. Beard, of Minneapolis, suggested that the cause of this symptom lay in an irrritation of the cervical sympathies. He referred to a case of angina pectoris, characterized by severe præcordial pain, acceleration of the heart beat, dyspepsia and marked bilateral dilatation of the pupil. Death followed a severe seizure, and the autopsy showed no valvular or coronary lesion, but an interstitial degeneration of the cervical ganglia.

HENNEPIN COUNTY MEDICAL SOCIETY.

Willard B. Pineo, M. D., Secretary.

Regular monthly meeting at the society's rooms in the Public Library building, Minneapolis, Monday evening, March 7, 1898. The president, Dr. J. C. Cockburn, in the chair.

The name of Dr. Wm. G. W. Tupper was proposed for membership.

Dr. J. H. Stuart presented a specimen of cirrhosis of the liver. Remarks were made by Drs. H. L. Staples and J. W. Bell. Dr. A. W. Abbott presented a specimen of extra-uterine pregnancy. Remarks were made by Dr. D. E. Smith.

Dr. R. O. Beard then read a paper on

INFANT FOODS.

See page 172.

Dr. C. M. Carlaw read a paper on

INFANT FEEDING.

See page 141.

These papers were discussed by Drs. Nippert, Chapman, Hooslef, Barber, Bell, Sweetser, D. E. Smith, Erdman and Cockburn.

BOOK NOTICES.

The Year-Book of Treatment for 1898. By Many Contributors. Phila.: Lea Brothers & Co. [Price, $1.50.]

The fourteenth year of this well known publication finds it so well established in popular favor that it needs no recommendation. In the words of the old saying, "Good wine needs no bush." Its price is so moderate that all can buy it without feeling the expense, and there is no outlay of money in medical books that will bring

so full a return. The practitioner in the United States will find the work of added value because it is written by English authors, and so deals with the subject of therapeutics from a standpoint somewhat different from that in this country, and so all the more instructive.

Sexual Neurasthenia. By George M. Beard, A. M., M. D., formerly Lecturer on Nervous Diseases in the University of the City of New York; edited with notes and additions by A. D. Rockwell, A. M., M. D., formerly Professor of Electro-Therapeutics in the New York Post-Graduate Medical School and Hospital. Fifth edition. New York: E. B. Treat & Company. 1898. [Price, $2.00.]

The posthumous work of the late Dr. Beard which goes by the above title has always enjoyed a high reputation, and the successive editions have been most enthusiastically received by the medical profession. Dr. Rockwell, in editing the work, has had the good sense to leave it for the most part unchanged from the original manuscript of Dr. Beard, adding, however, such new illustrative cases and improvements in method of treatment as followed naturally from increased experience.

The Nervous System and Its Diseases. By Charles K. Mills, M. D., Professor of Mental Diseases and of Medical Jurisprudence in the University of Pennsylvania; etc. Illustrated. Phila.: J. B. Lippincott Company. 1898.

Great interest attaches to the appearance of this the first elaborate work by Dr. Mills upon the specialty with which his name has been long associated, both through his teaching position in the University of Pennsylvania and through his contributions to periodic medical literature. The importance of the work justifies the interest felt, as there has been no more noteworthy medical book published for some time.

The whole subject of diseases of the nervous system is not covered by this work, but only that part relating to the brain and cranial nerves. It is the purpose of the author to write a second volume dealing with disease arising from the other portions of the nervous system. Nevertheless, this volume is complete in itself and is an entirely independant work.

The first few chapters are devoted to a consideration of the nervous system as a whole, its anatomy, physiology, chemistry, etc. Then follows a chapter upon general pathology and etiology, with a consideration of electricity and general therapeutics. This is introductory to the systematic study of the meninges, brain and cranial nerves in detail.

The book is not an epitome or a simple text book, although designed for the use of students as well as of practitioners. It is a full and elaborate treatise upon the subjects with which it deals, and is by far the most complete work upon nervous disease that has been written on this side of the water, a work of which the medical profession of this country may well feel proud.

It is claimed that cannabis indica is a specific for a type of headache that is continuous or nearly continuous, lasting weeks or even years, usually dull, but liable to become aggravated, and felt over the whole head. Give one-fourth to one-half grain of the extract in pill, morning and evening. If the case proves rebellious, gradually increase the dose.

Marfan combats the idea that is so widespread among the laity that sterilized milk is safe. He has had an occasion to report an epidemic-like outbreak of severe gastro-enteritis in young children. These children were all fed from milk that had been carefully sterilized and then delivered by the company. Upon investigation, it appeared that the milk was sterilized sixteen hours after milking. While the sterilization was abundantly able to kill the bacilli, they had had time in the meanwhile to multiply and develop toxic substances, which were the cause of the outbreak.—American Medico-Surgical Bulletin.

NOTES.

Hints in the Treatment of Subinvolution.

Among the conditions concerned in the causation of uterine diseases subinvolution is one of the most frequent and important. The reason for this is obvious. If, after childbirth or miscarriage the uterus does not undergo completely the normal retrograde process, if it remains enlarged, engorged with a hypertrophied mucous membrane, inflammatory changes are readily developed, and endometritis displacements and serious pelvic diseases may result. One of the chief obstacles to effcient local medication has been the lack of topical remedy

Grand Rapids, Mich.

which could be safely entrusted to the patient. This want has now been fully supplied in Macajah's Medicated Uterine Wafers. These wafers are cleanly, unirritating, easily applied, and their ingredients exert a depleting effect upon the engorged mucous membrane of the uterus, establishing normal circulation, and thereby causing the absorption of exudates into the tissues and aiding the natural process of involution.

Removal Notice.

The well known house of Victor Koechl & Co., importers of medicinal preparations, such as Antipyrine, Lanoline, Behring's Antitoxine, Argonin, Orthoform, etc., etc., announce their removal from No. 79 Murray street to the new modern six story building No. 122 Hudson street, corner of North Moore street. The necessity of obtaining larger and more commodious quarters and better shipping facilities is the reason for making this change.

Cured Quickly.

"One evening I was called to attend a gentleman, a member of my own family, who had just returned from a trip during which he had contracted a well developed case of catarrhal fever as the result of a severe cold. His pulse was 120, temperature 102½°, skin hot and dry, pain all over the body and a splitting headache; all the mucous tissues were inflamed, involving the nasal tract, throat and bronchial tubes; the eyes were watery, the nose was running, throat sore; in fact, his whole system was thoroughly congested.

"It was very important that he should be able to travel within a day or two. I ordered him to take a hot foot bath, then drink a hot lemonade and go to bed. I left with him six Tongaline and Quinine Tablets, with instructions to take one every half hour, washing it down with plenty of hot water.

"I saw him about 7 o'clock the next morning and received the following report: About one hour after going to bed he commenced perspiring freely and began to experience a feeling of drowsiness, so that before he had taken all of the Tongaline and Quinine Tablets he fell into a refreshing sleep, from which he did not awake until 5 o'clock. I found his pulse was normal, temperature 99°, skin moist, the pain entirely gone and all the unfavorable symptoms decidedly improved; in fact, the trouble was thoroughly under control. I prescribed a mild cathartic, and by the following day he was able to go on his way rejoicing.

"Since then I have frequently given Tongaline and Quinine Tablets in similar conditions with marked success in each instance."

Frank A. Barber, M. D., Chicago.

Practice vs. Theory.

Fanciful theories (a la hammer and board test) cannot exist in opposition to years of practical application of William R. Warner & Co.'s standard pill formulæ—years which has demonstrated the rapid disintegrating properties and consequent therapeutic value of Warner's soluble pills. Millions of William R. Warner & Co.'s pills have been used by practitioners throughout the world, and the immense number of professional enodrsements we have attest their solubility and potency.

Commenting on the "hammer and board" test, the Monthly Retrospect of Medicine and Pharmacy sums up the whole matter in a few words:

"Is it possible that physicians have prescribed an 'insoluble and inert' class of preparations throughout their career? If so, the question naturally presents itself, To what can be traced the excellent results following the administration of mass pill in numberless instances? If the ingredients of these mass pills did not oppose and correct a diseased condition, what did?

"Any remedial agent which has 'deteriorated with age' and is 'insoluble' would have no effect when taken. Therefore, if the desired results are obtained, and the patient has been cured, that is prima facie evidence that the said remedy has not 'deteriorated' and that it is entirely soluble."

Physicians relying on an experience of over forty years with "Warner's Soluble Pills" with satisfactory results, will continue to prescribe the pill which disintegrates in twenty minutes (Warner's Pil. Cathartic Compound) in preference to the one that disintegrates in one hour and five minutes (Friable Pil. Cathartic Compound), even though the former will "dent a board" and the latter will not.

Warner's Pills are soluble, potent, permanent and reliable, because they are PREPARED FROM PURE DRUGS, in a scientific manner. The coating (sugar or gelatin) hermetically seals and protects the contents indefinitely, and upon ingestion of the pills, the coating dissolves in a few minutes, thus liberating its ingredients in a condition favoring rapid assimilation.

Back Numbers.

Carron Oil, Iodoform and Picric Acid are back numbers in the treatment of burns. Carron Oil possesses no antiseptic qualities whatever, while Idoform, owing to its strong toxic effects and odor, is very objectionable to the patient, and in some cases dangerous to use.

In regard to treating burns with Picric Acid, its disadvantages are staining of the hands and bed clothes, and its utter uselessness in allaying the inflammation or assisting in granulation. Then again: Walther in the Gazette Hebdon. de Medicine et de Chirurgie, reports a case of two children he treated for burns with compresses of Picric Acid, in which there was much pain, severe smarting, and vomiting. A second

application was made, with the same result, and this mode of dressing had to be discontinued.

In Unguestine we have a thoroughly antiseptic, healing and restorative dressing, nontoxic, inodorous and clean. It readily subdues inflammation and assists in granulation, and was used in the hospital barracks at Key West, Florida, where the wounded soldiers of the Maine were taken for treatment from Havana.

Sanmetto the Standard Preparation for Genito-Urinary Diseases.

For some years I have been a very warm admirer of Sanmetto, and have found its action marked and well defined in cases wherein I have used it. In cases of prostatitis, with loss of virile power in elderly men, I find its action superb. In chronic specific urethritis, cystitis and all irritable conditions of the urinary tract I find Sanmetto very efficacious. I do not hesitate to recommend it as a standard preparation in cases where the action of pure santal and saw-palmetto is indicated.

Jos. Marshall, M. D.

Durand, Mich.

In Acute Coryza.

In my experience with Blennostasine I have found one grain, given half-hourly, to produce the best results in acute coryza. Blennostasine is particularly applicable to colds of singers and speakers, as the blennostatic effect is preferable to that of belladonna, and certainly produces a tonic effect on the vocal mechanism.

(Signed) Dwight L. Hubbard, M. D.

New York City.

Nervous Exhaustion.

The phosphates of iron, soda, lime and potash, dissolved in an excess of phosphoric acid, is a valuable combination to prescribe in nervous exhaustion, general debility, etc. Robinson's Phosphoric Elixir is an elegant solution of these chemicals.

Let Doctors Prescribe It.

Some of the prepared foods are advertised in newspapers and circulars on the cure all and "save the doctor bill" plan. We have noticed some of their advertisements wherein the wonderful properties of the foods are extolled as cures for a long list of diseases. The Imperial Granum Food, however, is advertised only in the medical press and is sold through the recommendation of the profession. It deserves the support of physicians on this account, therefore, as well as for its merits as an ideal prepared food. —The Wisconsin Medical Recorder, February, 1898.

A Nerve Stimulant.

"Cocoa" has maintained its reputation as a powerful nerve stimulant, being used with good results in nervous debility, opium and alcohol habit, etc. The highly variable character of the commercial drug makes it uncertain, however. Robinson's Wine Cocoa we believe to be a uniformly active article, it being prepared from assayed leaves, the percentage of Cocaine being always determined by careful assay.

Sanmetto an Invaluable Addition to Our Materia Medica.

It gives me pleasure to state that Sanmetto at my hands has proven all that its manufacturers claim for it. I consider it an invaluable addition to our materia medica.

Grand Rapids, Mich.

Schuyler C. Graves, M. D.,
Dean and Professor of the Principles of Surgery and Clinical Surgery, and Clinical Professor of Abdominal Surgery, in the Grand Rapids Medical College.

Practice in Minneapolis For Sale.

A Minneapolis physician who is about to retire from general practice to take up a specialty, offers for sale his household and office furniture and his horse and carriages. All articles in good condition and are of good quality.

To the purchaser he will turn over his practice without charge, giving him a proper introduction, and doing whatever he can to install such successor in his practice, which has been established eleven years.

The publisher of the Lancet believes this to be an excellent and an unusual opportunity for any one wishing to begin practice in Minneapolis.

For full particulars address "Doctor," care of N. W. Lancet, 734 and 735 Lumber Exchange, Minneapolis.

A PURE WATER.

Endorsed by Physicians.

The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

THE INDIAN MEDICAL SPRING WATER CO.,
404 Masonic Temple, Minneapolis.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

(Contined from LANCET of May 1.)

As Hippocrates was the first physician to recognize and insist upon the distinctiveness of medicine, both as a science and an art, so was he the first to realize the importance of teaching medicine methodically, so that the knowledge of his time might be perpetuated by pupils, who would carry on investigations according to his methods and continue to advance the science, in the study of which his life was spent. Indeed, it is very largely through the writings of his pupils that we have preserved to us the medical knowledge of Hippocrates and his methods of practice. Although in those days there were no medical schools as we have them now, Hippocrates taught both clinically and by didactic lectures among students and he was always ready to impart his knowledge to all who sought it. The Hippocratic oath, which will live as long as medicine exists, contains the essence of what is held today to be the proper ethics of our profession. It should be familiar to every physician. The following is an accurate translation of it:

"I swear by Apollo the physician, and Æsculapius, and by Hygeia and Panacea, and all the gods and goddesses, that, according to my ability and judgment, I will keep this oath and this stipulation—to reckon him who taught me this art equally dear to me as my parents, to share my substance with him, and relieve his necessities if required; to look upon his offspring on the same footing as my own brothers, to teach them this art, if they should wish to learn it, without fee or stipulation; and by precept, lecture and every mode of instruction, I will impart the knowledge of the art to my sons, and those of my teachers, and to disciples bound by stipulation and oath according to the law of medicine, but to none others. I will follow that system of regimen, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious and mischievous. I will give no deadly medicine to any one if asked, nor suggest any such counsel; and in like manner I will not give to a woman a pessary to produce abortion. With purity and with holiness I will pass my life and practice my art. I will not cut persons laboring under the stone, but will leave this to be done by men who are practitioners of this work. Into whatever houses I enter, I will go into them for the benefit of the sick, and will abstain from every voluntary act of mischief and corruption; and, further, from the seduction of females or males, of freemen and slaves. Whatever in connection with my professional practice or not in connection with I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge, as reckoning that all such should be kept secret. While I continue to keep this oath unviolated, may it be granted to me to enjoy life and the practice of the art, respected by all men, in all times. But, should I trespass and violate this oath, may the reverse be my lot."

For many centuries it was the custom to administer this oath to all medical graduates.

The conspicuous feature of the medical doctrine of Hippocrates is his consideration of the human body as a whole, without pretending to penetrate to its internal mechanism, and thus his chief observations were concerning the relations of the body with the outer world. In this way he was led to attribute most diseases to the influence of climate, seasons and age. Thus was founded the doctrine of medical constitutions corresponding to particular atmospheric conditions, and although many of his conclusions were erroneous, some of them have come down to us unchanged and are the basis of our present knowledge. Hippocrates regarded ages as the seasons of life, and he attributed not incorrectly certain diseases to certain periods of life. He also studied and minutely described acute fevers and established the theory of crises in their course, a theory which, despite the stern test of modern criticism, survives today. His most important principle of treatment lay in his application of the "vis medicatrix naturæ." He contended that the physician's duty lay chiefly in studying nature's methods, in "relieving nature when she was oppressed, in succoring her when she was weak, in restraining her when she was outrageous," and assisting her to expell disease, by regulating so far as possible the hygiene of the patient and stimulating all the natural functions of the body to healthy and normal action.

In reviewing the history of Hippocratic medicine, by far the most brilliant epoch of the history of the medicine of antiquity, we cannot but be impressed chiefly by the fact that in no preceding or subsequent age has so much ever been accomplished for the advancement of any one department of human knowledge by the labor of a single individual. Hippocrates was so conspicuously preëminent in his time that scarcely another name, among his contemporaries, has

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

come down to us, as having contributed to the knowledge of medicine. His co-workers, his associates and his pupils were but disciples of the Great Master, and their writings were little more than transcripts of his teachings and of his knowledge. To us, calmly reviewing the history of past ages, aided by the light of our present knowledge, the true value of the work of Hippocrates is apparent, and we can not but appreciate the genius of that man who brought so much form out of the existing chaos.

Strangely enough, however, the medicine of the immediately succeeding centuries, influenced by the false, although it must be acknowledged the ingenious, philosophy of the times, steadily degenerated to its former irrational, fantastic and superstitious character. The explanation of this must be found in the fact that Hippocrates was one of those characters so frequently found in the history of the world, whose genius was far in advance of the time in which he lived, but who was able by force of character and by a remarkable personality to influence the spirit of his age; but unfortunately this influence died with him. The Grecian spirit of that time was speculative, philosophical, theoretical and superstitious, a spirit entirely opposed to the careful observation and study of natural facts and phenomena and of making deductions therefrom which characterized the work of Hippocrates.

The next period of the history of medicine which we must study was influenced by the spirit of dogmatism which prevailed in all departments of human thought and which originated in the teachings and writings of Plato, who, although rather a philosopher than a physician, considered the science of medicine an important part of human knowledge, and as such paid much attention to its study. Plato was in some respects the most versatile thinker and the profoundest moralist who ever lived, and the philosophy of idealism was created by him. He insisted that beauty and virtue were abstract qualities, and discussed them as having existence independently of things or of individuals. His study of disease was of an intuitive, speculative, theoretical nature, and he repudiates many of the conclusions of Hippocrates which had been reached by the only logical and scientific processes of observation and deduction. The philosophical writings of Plato, which were chiefly in the form of dialogues, and which record conversations with most of the great men of his time, have been justly admired by scholars and thinkers of all ages, and no classical education can be considered complete without some knowledge of them. The Republic of Plato, one of the most beautiful as well as the most profound of his writings, is written in a perfection of style which is marvellous considering the time when it was written. Many of the modern philosophical treatises, concerning the laws, customs and social and moral conditons of ideal and imaginary communities have been founded upon the conceptions of Plato's Republic.

Another great thinker and philosopher of a different type, a contemporary and ardent admirer of Plato, who exercised upon the development of medicine a much greater influence, in some respects, than the latter, was Aristotle, who gained quite early in his life such an extensive reputation as a student and a teacher, that King Philip, of Macedon, made him the tutor of his son Alexander, who afterwards became known as Alexander the Great. Although, as I have said, Aristotle was an admirer and pupil of Plato, and was fascinated by his teachings, he departed from the philosophy of idealism and speculation and adopted a more rational and analytical method of study which founded the principals of modern realism. Aristotle was the first great naturalist and was the founder of the first great museum of natural history, the funds for which were supplied by his former pupil, Alexander the Great. Although he never dissected human bodies, he studied very extensively the anatomy of animals, and thus obtained tolerably correct ideas of human anatomy and physiology by comparison.

He describes quite accurately several hitherto unrecognized organs, vessels and nerves. He made extensive studies in the comparative anatomy of many different animals and birds; indeed, until the great French naturalist, Cuvier, who lived some twenty centuries later, Aristotle's work on natural history and comparative anatomy was the entire storehouse of the world's knowledge of these sciences. These two great philosophers, Plato and Aristotle, although in their methods directly antagonistic to each other, have left an impression upon human knowledge which is recognized by even the most advanced scholars of today, and their influence, like their fame, is imperishable.

At about this period—that is, after the Peloponnesian or thirty years' war—began the rapid decline of Grecian supremacy, as well intellectually as politically and socially, and although human knowledge, and with it medical knowledge, continued slowly to advance, its progress during the succeeding centuries was slow and halting when compared with the age which began with Hippocrates and closed with Plato and Aristotle.

We will next consider the medicine of the Alexandrian school, which period began with the founding of the Alexandrian library in the year 320 B. C. Greece had been conquered by Philip of Macedon, and his young son, Alexander the Great, soon became the ruler. The great philosopher Aristotle having been his teacher,

he had early acquired a strong appreciation for Greek learning and Greek culture, and being himself a man of considerable scholarly attainments, he was a very generous patron of all the arts and sciences. The proud spirit of the Greeks, however, which had during the days of their supremacy led them to make such strides in all the paths of learning, while not broken, was so thoroughly subdued by their long series of national misfortunes that even the generous encouragement of Alexander could not stimulate them to their former activity. There were, however, a considerable number of men who during this period labored earnestly and not without avail in the study of scientific medicine, and the school of Alexandria will always be conspicuous in the history of medicine as having founded the study of anatomy. For the first time in all antiquity, in spite of the still existing prejudice against contact with dead bodies, material for dissection was freely placed at the disposition of the students of medicine, and an accurate knowledge of human anatomy marked a new era in the study and treatment of disease. The first to appreciate the value of the study of practical anatomy was Herophilus, of Chalcedon, who had originally studied medicine under Praxagoras on the island of Cos, the birthplace of Hippocrates. He was born about 335 B. C., and was physician in ordinary to the first Ptolemy, who was himself a powerful patron of anatomical study. Herophilus recognized the nerves, their capacity for sensation and their origin from the brain, and the latter organ is quite accurately described by him. He discovered the lymphatics, described the liver, the epididymis, the duodenum (which he named), the vitreous humor, the retina and the ciliary bodies. He described the veins and arteries, and knew that the latter contained blood. It is difficult to understand why the circulation of the blood should have been overlooked for so many centuries after his time. The torcular Herophili, where the venus sinuses meet at the occiput, was described by him and perpetuates his name. He wrote much on therapeutics and was familiar with the action of many drugs. In obstetrics he was familiar with transverse and other faulty positions of the fœtus, with incomplete dilatation of the cervix and with non-rupture of the membranes as causes of difficult labor.

A contemporary and rival of Herophilus was Erasistratus, who afterwards became physician to the second Ptolemy. Erasistratus was also an enthusiastic student of anatomy, and made many independent discoveries, among the most important being the distinction between the nerves of motion and those of sensation. These two men were the chief anatomists of their time, and if you, who have studied your anatomy in a well appointed dissecting room, with bodies carefully prepared and injected, assisted by plates and diagrams and detailed descriptions of all the parts of the body and instructed in your work by competent demonstrators and teachers, if you, I say, have found human anatomy a hard subject to master, what must have been the labors and difficulties of these primitive workers in a hitherto unexplored field? We do not wonder that the actual knowledge they obtained was so slight when compared to ours; we must rather marvel that they learned and appreciated so much. These two men were the founders of separate schools of medicine, to which their names were given, and which were somewhat bitterly opposed to each other in some of their beliefs and theories, although agreeing in others. This is not surprising when we find that where they agreed they were in most cases both right, and where they disagreed they were both wrong. The disciples of these two schools, although numerous, added very little to the knowledge taught them by their two distinguished masters, and in fact there seems to have been a distinct deterioration in the condition of medical knowledge, which made little or no progress for a century or more. In the second century before Christ there arose the school of empirics, which seems to have been inspired by the philosophy of skepticism, which was then popular, and there seems to have been for a time, to some slight extent, a revival of the rational principles of the study of diseases and their treatment and a tendency to return to the scientific methods of Hippocrates, although, strangely enough, they failed to appreciate the importance of anatomical knowledge, and this science was temporarily abandoned.

It would be only tedious and would hardly profit us to dwell upon this barren period in the history of medicine; a period conspicuous for the absence of originality, and a period in which those who were engaged in the practice of medicine for the most part failed even to appreciate what was really valuable in the teachings and records of their predecessors. From the time of the Macedonian supremacy, Greece never recovered her former position as an independent nation, although her national spirit of intellectual superiority, which had already achieved so much in literature, art, science and philosophy could not be obliterated; and to its influence is chiefly due the advancement in all departments of knowledge which took place during the Alexandrian age and during the early days of the Roman Empire.

The Romans were the next most highly civilized people of antiquity, and we will now take up the study of the history of medicine as it existed among them. The early history of the Romans shows that, although in political science, in art, and, to some extent, in literature, they had

made no inconsiderable progress, their medicine can hardly be said to have existed as anything like a distinct science; indeed, the only attempt at medical knowledge preceding the subjugation of Greece was such as was imported from that country. Among the Romans it had long been considered that the study and treatment of disease was a degrading occupation, and even at a time when in many respects they had attained a very high degree of civilization, they still regarded bodily ailments and diseases as beyond the sphere of human knowledge, and attempted little in the way of their relief beyond appeals and sacrifices to their various divinities. Even their mythology, so far as the presiding deities of sickness and health were concerned, was not original with them, but was borrowed from the Greeks, and gives special prominence to the Grecian gods and goddesses, Apollo, Æsculapius, Hygieia and others. Among the legends of ancient Rome is one which is very significant and which has become an integral part of their medical history. It relates that in about the year 300 B. C. a terrible pestilence had raged for some three years among the Romans, with a frightful mortality. Finally, as a last resort, having exhausted their own divinities without abating the pestilence, it was decided to send a special embassy to Greece to invite the god, Æsculapius, to come to Rome and give his aid to them in their affliction. The embassy went to Epidaurus, where there existed the most famous temple of Æsculapius, and having made known their errand, one of the sacred snakes (the accepted symbol of Æsculapius) crawled forth from the temple and accompanied the ambassadors in their ship back to Rome. Having reached the Tiber, the snake crawled from the ship into the water and swam to a small island in the middle of the river where he seemed inclined to remain. Accordingly a temple was erected to Æsculapius at this place, as it was considered that the god himself had chosen this spot. The memory of this story has come down to the present day in connection with this little island, and it is known that such a temple actually existed there.

Probably as early as the third century before Christ Greek physicians had begun to emigrate to various parts of Italy, and although often regarded with suspicion and sometimes persecuted and driven out, some of them acquired extensive practices and were given honorable positions in Rome. At least two hundred years before the military and political supremacy of Rome she had begun to realize and to appreciate the remarkable intellectual power of the Greeks, and their influence began to be apparent in Roman literature, art and general culture. This influence was so strong that during the later days of the Alexandrian era Greek scholars and scientists were invited to Rome and treated with the greatest distinction, and even the Greek language was adopted for a time as the language of learning. The progress of medicine, therefore, during the period generally described in history as that of the Roman Empire, is really but a continuance of the methods and spirit of the Greeks encouraged and stimulated by Roman patronage as in an earlier day it had been by Alexander the Great and his successors. Surely a unique and marvellous people were the Greeks to preserve their creative power and their intellectual supremacy through these centuries of political subjugation by two such different nations as the Macedonians and the Romans. It should be constantly borne in mind, while studying the intellectual progress of the time of the Roman Empire, and while admiring as we must the variety of culture which then existed, that in literature, art, philosophy, oratory, science, in short in all departments of learning, they were indebted to the Greeks for instruction and for their methods of investigation and research.

The most important name in medicine during the first century before Christ was Asclepiades of Bithynia, who lived from 128 to 156 B. C. His early education was acquired at Alexandria, and he afterwards lived and practised at Athens, but came finally to Rome, where the best part of his life was spent, and where he gained his chief reputation. He was an accomplished rhetorician, and he first taught rhetoric in Rome, where he became intimate with Cicero, Crassus, and with most of the chief orators and public men of the time. His early training and his natural leaning towards medicine made him finally abandon all else and devote himself entirely to its study and practice. He founded the so-called school of methodism, which was in harmony with the then popular philosophy of Epicurus. He conceived that all matter was composed of minute particles or atoms which had a regular and rhythmical motion in health, but that disease was the result of an irregular or disturbed motion, which favored the admission of morbid principles. Asclepiades recognized and described dropsy as a chronic diesase, and practised scarification in dropsy of the extremities. He wrote extensively concerning fevers and their treatment, and advocated bleeding, cupping and massage. His chief reliance in therapeutics was on proper diet, hygiene and exercise and various kinds of baths followed by massage. In surgery he was familiar with fractures and dislocations, with the treatment of hemorrhage by compression of the limbs, but we have no records of his having performed any major operations with the single exception of tracheotomy, which was devised by him to prevent strangulation in cases of what was then called angina, but which was probably what is familiar to us as diphtheria.

Among the most prominent of the followers

of Asclepiades was Themison, of Laodicea, who flourished about fifty years before Christ. He described for the first time elephantiasis, which was probably a variety of leprosy. He also wrote a book on chronic diseases, and is one of the earliest medical men to have described rabies in both men and dogs. This was a time which has been famous in history as the Augustan age (it being the period during which the Emperor Augustus reigned), and was an age remarkable for the development and progress of literature, art and intellectual pursuits in general. It was then that the famous poets, Virgil, Horace and Ovid, lived, and that Livy, the great historian of antiquity, wrote his immortal works.

Another celebrated physician of this school was Soranus, of Ephesus, who lived in Rome during the reigns of Trajan and of Hadrian, from 98-138 A. D. Soranus wrote extensively concerning obstetrics and gynæcology, and possessed very accurate knowledge of the processes of conception and generation, gave careful directions for the care of pregnant women and for the treatment of difficult labor. He was accustomed to use the speculum and the catheter, and described digital examination in the diagnosis of the diseases of women. Cælius Aurelianus, a physician who lived in Rome some 400 years later, although not himself conspicuous for any original medical knowledge, was evidently a careful student of the writings of his predecessors and was himself a prolific writer, and it is chiefly from his writings, which are still extant, that we have preserved to us the knowledge of the founders of this so-called school of methodism.

The condition of medicine during these early days of the Roman Empire, a condition, indeed, which prevailed for several centuries, was such that much actual progress in the way of establishing new knowledge was not to be expected. The Romans as a nation had always held the practice of medicine as a profession in great contempt, and Pliny, who wrote in the first century after Christ, states that "the dignity of the Roman does not permit him to make a profession of medicine, and the few Romans who begin to study it are venal renegades to the Greeks." They did, however, appreciate the value and importance of the services of physicians, and they were accustomed to import from foreign lands, chiefly from Greece and Egypt, those who had medical knowledge; and, although they were regarded as servants and slaves, they were encouraged to continue their studies and investigations of the treatment of disease.

Many of those who were thus brought to Rome as slaves were afterwards made free men, and became known as "freedmen physicians," and were employed in their professional capacity in the public service, and some of them acquired extensive and lucrative private practices. Gradually, but slowly, the social position of medical men advanced as their number increased, until under the Emperor Hadrian in the year 133 A. D. they began to be accorded the highest honors of citizenship and received many public favors, and were granted immunity from taxes and from military service. Court physicians and physicians in ordinary were appointed who not only held a high social position, but were generously remunerated for their services. At about this time, also, there were appointed physicians to treat the poor, and these appointments were much sought after as they were considered highly honorable and were paid from appropriations from the public funds.

Notwithstanding, however, this recognition of medicine as an honorable profession, the Romans themselves, influenced by their ancient prejudices were very slow to undertake its practice and it continued for several hundred years chiefly in the hands of Greeks, of Egyptians from Alexandria and other foreigners. We can thus understand in a measure the reasons for the stagnation and degeneration of the science of medicine which continued so long. Nothing could be expected in the way of progress from the Romans themselves, and the Greeks, deprived by long subjugation of that spirit of national pride which had in earlier times stimulated them to make such tremendous progress in all departments of knowledge, were content to practise medicine among foreigners for gain, and to make use of the knowlede handed down to them by their ancestors; but they had little inducement to make new investigations or to search for new knowledge.

This was an age peculiarly adopted for the existence of charlatans and pretenders, who appeared in great numbers and who made no pretence of possessing even the crude medical knowledge of the regular physicians, but who invented new and mysterious theories of disease and played upon the credulity of the people, much as they do now, by adopting fantastic and curious methods of treatment. As their methods of treatment were at least harmless, it is probable that their patients recovered as well as did the majority of those who were treated by the then known methods of regular medicine, so that it is not strange that they gained large and profitable practices.

Recent excavations among the ruins of Pompei which for nearly 2,000 years have been buried beneath the lava of Vesuvius have brought to light some very interesting relics of the surgical practice of the kind of which we are speaking, in the shape of a collection of surgical instruments, which were found in a house which must have belonged to a Pompeian surgeon in active practice. You will see in the illustration which I have had made that there were some instruments

not unlike those in use today, such as forceps, catheters and specula of various forms. The cutting operations then performed were chiefly bleeding, cupping, extraction of foreign bodies and opening of abscesses. There are also various instruments for cauterizing. Curiously, there are no evidences of needles in this collection, and it is probable that the suturing of wounds was not known at this time.

In the days of the Republic of Rome and of the first emperors, attempts were made to establish both public and private hospitals; retreats for parturient women and foundling asylums also existed. A most important hygienic institution of the Romans was their system of public baths, which were constructed at the public expense and were at the disposal of all the people at a very nominal charge. Cleanliness was a most important virtue in their estimation. Apothecaries, or compounders of drugs and prescriptions, were not known in those days, physicians as a rule being accustomed to prepare and dispense their own medicine. Special formulæ and preparations which had gained repute and were in common use were, however, prepared in large quantities by persons who made this their business. There were also persons who made a business of collecting and drying herbs and roots and mineral substances which were used in medicine, and selling them to the physicians, who prepared them and dispensed them to their patients. At the time of which we are now speaking, which includes the century before and the century after the birth of Christ, medicine was rather a trade than a profession. Its followers, many of them brilliant and accomplished men, were apparently more desirous of establishing by their methods of treatment a wide and extensive reputation which would bring them many patients than of adding anything to the actual knowledge of their profession, from purely scientific and unselfish motives. In spite, however, of the unscientific spirit of the times, a very considerable advance was made in some departments of medicine and of surgery, while there was a marked tendency to retrograde in others. The most important medical author of the time was Aulus Cornelius Celsus, who, although not a practising physician, was a careful student of medicine, and moreover a man of very extensive general culture and learning. Many of the writings of Celsus are extant, and it is from them that we gather most of our information concerning the details of the medical and surgical practice then in vogue. Throughout his writings there is apparent a profound and keen knowledge of human nature and a very acute and fair appreciation of the true principles of the profession of medicine, of its possibilities and its natural limitations, and a just criticism of the selfish and unscientific motives which existed among most of the physicians of his time, in spite of the skill which many of them possessed and for which he gives them due credit. His most interesting and valuable works were on surgery, and we find that his surgical knowledge was very extensive. The ideal qualifications which he believed to be essential to a surgeon were a firm, steady hand, a keen, quick eye, boldness in action and an ability so to control the sympathies as not to be affected by the suffering of the patient, and the quality of being ambidextrous, so that either hand could be used at will. He describes the treatment of fractures and dislocations, of wounds and burns, the removal of tumors and the opening and draining of abscesses. He also describes operations for fistula, for hernia, amputations, and for the repair of ununited fractures. He was familiar with plastic operations for the repair of defects of the nose, hare lip, etc. In operative obstetrics he describes extraction by means of hooks, version, craniotomy and decapitation. His works also contain the first accurate account of the use of both the male and female catheter, describing in detail their size and shape, with minute directions as to using them. There may have been, and doubtless were, medical and surgical writings, both before and contemporary with those of Celsus, which were more extensive and more learned, but if so they have been lost, and his remain, and through them we gain our most accurate and detailed knowledge of the medical practice of his time. Celsus lived in Rome, and died about the year 50 A. D.

The name of Caius Pliny, a scientist, but not a physician, should be mentioned in connection with the history of medicine in this age, although he is chiefly conspicuous for his hatred of physicians and his contempt for the profession of medicine; in spite of which, however, he did not fail to call in a physician when he was ill. He gives us in some of his writings the reverse picture of the condition of medicine in his time, delighting to dwell upon the failings and inconsistencies of physicians, which were, indeed, very numerous and apparent, but utterly refusing to give them any credit where it was due. Pliny's chief fame as an author and scientist rests upon an extensive work on natural history.

Towards the end of the first century after Christ their arose in Rome a school of physicians, founded by Athenæus, a physician of considerable reputation, who invented and adopted a name which, in its strict meaning, indicates more than any other name that has ever been selected the true principles which should predominate in the practice of medicine. They called themselves Eclectics, meaning by the name that they were bound by no special system, but selected from each and all whatever seemed to them the best. They had no fixed principles

and were committed to no doctrines, so that they could not properly be said to belong to any school, as schools were understood at that time. True eclecticism is the only proper basis of modern scientific medicine, although, unfortunately, the name has been perverted and misused so that today it is synonymous with ignorance and empiricism. The best known and most distinguished of these so-called eclectics, at first, was Aretæus, of Cappodocia, who lived from 30-90 A. D. Aretæus in his manner of observation, and in many of his theories, followed Hippocrates, with whose writings he was evidently familiar, although he failed to appreciate the simplicity of style and expression of the great master, and adopted a pompous and affected method of expression which rather detracts from than adds to the attractiveness of his writings. He has left accurate descriptions of some hitherto undescribed diseases, and from his writings we must judge him to have been an earnest and careful student and a physician of unusual ability and skill. He described various forms of paralysis, both of sensation and motion, and records the fact that injury to one side of the brain causes paralysis on the opposite side of the body. He divided mental diseases into mania, melancholia and settled insanity, a classification not much improved upon by the alienists of today. He was the first to attribute jaundice to a stoppage of the biliary ducts, and he unmistakably describes diabetes, pneumonia, gonorrhœa and elephantiasis. In his therapeutics he inclined to the Hippocratic simplicity of aiding nature, and depended largely on dietetics, hygiene and external measures in general, although he was familiar with many drugs, and did not hesitate to use them in cases where the milder methods seemed insufficient.

During the first half of the second century after Christ there lived in Rome a man whose name has become permanently and ineradicably connected with the history of medicine; a name than which that of Hippocrates only is more familiar to every student of our profession. I refer to Claudius Galen, of Pergamus, who lived from 131-210 A. D. Galen probably exercised a more profound and a more important influence, not only upon the medicine of his time, but upon the medicine of the succeeding thousand or twelve hundred years, than any physician who had as yet appeared. Galen was an eclectic in the best sense of the name, and was absolutely untrammelled by any system or special doctrine, but selected from all the knowledge he could find what seemed to him the best, and made use of whatever method of treatment seemed appropriate in any special case.

(To be continued).

ORIGINAL ARTICLES.

EMBOLISM, WITH REMARKS ON A CASE OF EMBOLISM OF THE AXILLARY ARTERY.

By Arnold Schwyzer, M. D.

St. Paul.

At our last meeting I showed you a specimen of mummification of the hand and moist gangrene of the forearm in a case of embolism of the axillary artery. I was unable to find such a case in the literature, so far as I had the oportunity to look it up, and I will, therefore, relate to you some of its details.

A gentleman of forty-one came running in great hurry into my office on the morning of February 24 of this year. He looked extremely pale. Sweat was profuse on his forehead, and while moving hastily about he told me that his left arm was dead, but caused him in the meantime most excruciating pains. The arm, over which he had lost control, and which was very strikingly pale in comparison to the right one, hung down death-like. Not a trace of radial pulse, nor cubital or brachial was to be felt, while in the right arm the pulsation was very plain.

The diagnosis was given.

The patient made the exact statement that he woke up at about 7 o'clock, feeling comfortably well, and that he stayed in bed, resting on his back for about an hour. He started dressing, when all at once he began to feel a formication in his left hand and arm. It grew rapidly worse and went over, as the patient thinks, in about five minutes into the mentioned agonizing pains. At 9 o'clock I had the patient, who lived one-half a block from my office, at his home again. The pains remained severe, notwithstanding large doses of morphine.

The heart gave no clue to the embolism. Thrombosis was very little probable on account of the sudden appearance of the symptoms without any preceding sign or local cause. The only possibility could have been a sudden rupturing of an atheromatous pulpy mass through the intima of the axillary artery, while the patient was dressing himself. This possibility of a local thrombosis could not be absolutely excluded. A sudden rupture of an atheromatous focus into the lumen of the bloodvessel happens, but it was very improbable at this point of the body in an individual who did not show any other signs of arterio-sclerosis; and furthermore with this diag-

*Read before the Ramsey County Medical Society, March 28, 1898.

nosis the case had to be considered as much more hopeless as concerned the arm.

The patient admitted to have used liquor somewhat too abundantly the three previous days, while before this he did not use any for many months.

Years ago the patient broke a number of ribs on the left side, but there was no cause for the obstruction of his artery to be revealed even at a later careful examination of the whole person.

The axillary artery was now found to be beating well on the right (healthy) side, and could be followed when becoming brachial down to the elbow. On the left side it was beating somewhat weaker and the pulsations stopped neatly at a point in the axilla, which corresponded with the branching off of the large subscapular artery, a little above the departure of the two circumflexæ. The continuation of the beating part of the axillary artery was a short, thick, solid cord, which was especially distinct at the point where the pulsation stopped.

At 9:25 there was the same condition; finger nails dark blue, while the forearm and the lower part of the upper arm were completely pale and cold. No sensation for touch or pain on the whole hand to the wrist. Reduced sensation on forearm and lower part of upper arm. Examination on account of the pain somewhat uncertain.

These and the following notes were dictated at the time being to the patient's wife. But let me add here some remarks. I saw that there were only two chances for the arm: either I had to cut as quick as possible into the artery and remove the embolus, or, though I do not know if anything like this was ever tried, I had to try to divide it by pressure into smaller particles, which could be washed into smaller branches, where they would do much less harm and where through other unobstructed branches the circulation could restore itself. I decided not to operate for the following reasons:

(1) The patient was in very serious condition of shock; his pulse was high; the whole man was collapsed from the excessive pain and the three days excesses in Baccho.

(2) Then I feared a serious trouble in the heart, aorta or lungs, which I could not detect, but which had to be suspected as the cause of the embolus.

(3) Some time had elapsed already, and until I had the patient and things ready for an exact operation of this kind more time must be lost.

(4) Was it surely an embolus of non-infectious character, that would not immediately let follow a local disintegration of the intima, and, therefore, a thrombosis?

(5) Was the axillary artery at this outer point of the axilla not already too small for a successful suture? I had in my memory an experiment which I had made on the femoral artery of a medium sized dog. The artery was too small for useful suture, and though the suture could be done and the patient recovered very easily, I never could detect a pulsation below the point of suturing.

(6) If I operated, I was not allowed to use any local pressure afterwards in case of thrombosis following.

(7) Everything was lost in case I found a thrombosis instead of an embolus at my incision.

All these points made me refrain from operating, though it looks to be the ideal measure.

I tried then forcible pressure over the obstructed artery, and the thickened cord disappeared under the finger tips while side motions were made. The artery was immediately felt beating down to the middle of the upper arm. Supination and pronation could be executed, though slowly and weakly, but there were no motions of the hand or fingers possible.

At 9:35 strong pressure and rolling motion over the lower part of the brachial artery brought on pulsation down to one finger's breadth from the fold of the elbow joint. While at 9 o'clock the severe pain existed in the whole arm, there was no pain now in the upper arm. Pain in forearm and hand excruciating. Continued rubbing in elbow region.

At 9:40 pulsation at the elbow was very weak and thready. Rubbing of the whole upper arm improved the circulation near the elbow at once. Under continued rubbing of the upper part of the forearm, the elbow lost the dead paleness and began to look red.

At 9:50 the upper half of forearm was little painful. Severe pain in the hand.

At 9:55 the patient was able to bend and stretch the fingers actively, though the stretching was not quite complete (muscles of the hand, interossei and lumbricales).

At 10:05 the sensibility was restored on the back of the hand, on the dorsal part of the fifth and the first phalanx of the fourth finger (dorsal side). Sensibility came now also in the first phalanx of the second and third finger (dorsal side).

At 10:10 a well heated object could be felt on the palm of the hand; moderate differences in temperature were not recognized.

At 10:15 the artery was felt pulsating a little below the elbow line to the point where it plunges into the muscular masses.

A fist could now be made perfectly. Finger nails very blue. The hand had the appearance of death yet, except on the palm, where there

seemed to be a slightly reddish color; forearm much reddened where the rubbing was done.

At 10:25 sensibility the same.

At 10:37 sensibility a little decreased. While on the elbow strong pulsation existed, there was absolutely no pulsation of the radial; therefore, forcible massage over the forearm arteries was tried; deep thumb pressure let suddenly appear full radial pulsation, which was easily controlled by the patient's wife. After motions in the wrist joint under corresponding pressure and rubbing of the radial region the pulsation could be followed into the volar metacarpal branch of the radial artery, where it ran over the base of the short thumb muscles, while the main branch of the radial artery could not be made out as pulsating beyond the wrist joint.

There was now a slight degree of color coming into the dorsum of the hand and the fourth finger. Finger nails dark blue.

At 10:47 the volar metacarpal branch no longer beats.

At 11 pulsation in the whole radial artery had stopped. Strong massage of the forearm was without result, but the palm of the hand seemed somewhat colored (interosseous artery?).

At 11:30 strychnine had to be given. There was distinct but reduced sensitiveness on the palm and dorsum of the hand.

At 11:33, after severe pressure near the division of the brachial artery below the elbow, the radial pulse was felt again and was quite full. At no time could the ulnar artery be made out pulsating.

At 11:38 pulsation of the radial artery was only one-third as strong as it was two minutes ago, and pressure at the elbow brought on again full strength.

At 11:43 pulse in radial artery again ceased. Massage was stopped, as too much bruising was feared.

At 11:46 retarded and reduced sense of pain in the hand.

At 12 pulse at the elbow not to be felt. No pulse was now felt in the middle of upper arm, and above it was indistinct and thready. The arm was kept warm and quiet from now on.

Two days afterwards, Feb. 26, the hand was completely mummified, brownish, dried up, and on the forearm there was the first start of demarcation noticed, which ran on the radial side almost down to the middle of the forearm, while it was near the elbow joint on the ulnar side.

On Feb. 27 the arm was amputated closely above the epiphysis of the humerus. An oblique flap corresponding with the direction of the line of demarcation was used.

It hardly needs mentioning that Esmarch's constriction was not used in order not to injure the remaining blood vessels. It was, furthermore, not necessary, and the brachial artery, which was severed together with the muscles, did not bleed one drop.

The wound healed without any trouble, but the patient, who comes to my office for control, has a pulse of 120 while standing, and 100 while sitting. Whether it is a weakened condition from the terrible pain and shock he went through, or whether there is some deeper reason, which was also the cause of the embolus, I do not dare to decide yet.*

On examination of the amputated arm there could be found a long embolus of dark coagulated blood, filling the lower end of the brachial artery completely. It was a soft fresh clot, and must have originated from secondary thrombotic processes further up in the arterial tube. On the forearm the effect of massage was very distinct. From the full, round and thick brachial artery you could see the radial branch off as a flat, collapsed, empty bloodvessel, as all the arteries are ordinarily after death, while the cubital was large, round and filled apparently to its full capacity. The intima of the arterial tube did not give any signs of disintegration on examining with the naked eye.

What good did our treatment do? Did it do any? It may be disputed. The obstruction of the artery was so sudden that there was no time for the formation of collateral circulation. Besides, what branches could help? There would only be the deltoid branches of the acromial artery and some very minute skin branches from the shoulder region, which could come into consideration, and with those alone the arm was probably lost clear up at the shoulder region, while through freeing the circumflexæ and the profunda and a number of side branches of minor caliber in the upper arm, a very useful stump of very nearly the full length of the upper arm was saved. The retarding of the obstruction for three hours alone would be useful for the collateral circulation to develop somewhat, and, furthermore, the circulation seemed to remain in the upper part of the brachial artery for some time, though after those first three hours only thready. On the other hand, however, we have to mention that there was some reduced feeling found down to the forearm, when I first saw the patient. There was, therefore, some circulation, especially in the skin branches.

Allow me to add here some remarks on embolism in general. As concerns the origin of embolism we know that such an embolus may come from the heart, from the mitral or aortic valves, or from the wall of the left auricle or the left ventricle. It might, furthermore, have its origin in a pulmonary vein and be brought from

*Note: At the time the proof of this paper was read, May 12, 1898, the patient was well and the pulse normal.

there through the left heart into the arterial system of the body. We have to examine heart and lungs very carefully. There are thrombotic processes in atheroma of the aorta, or in aortitis of different origins which might give rise to an embolus.

An atheromatous patch in the aorta or a larger artery may break through the intima, and we have then masses of atheromatous pulp or even calcareous particles washed toward the smaller more peripheral branches. The atheromatous spot itself has now the character of an ulcer, and will give rise to thrombotic deposits, parts of which may again form emboli. It is further in aneurisms, where we find thrombi, and from here the largest emboli originate.

If a thrombus of the portal system is loosened, the embolus goes into the liver. Strange to say, there is also a retrograde embolism observed in the liver through the hepatic veins from the inferior cava. This must be explained by slow and weakened circulation combined with the effect of gravitation and, I think, forced expiration, say coughing.

In Dennis' popular "System of Surgery," 1895, you find that emboli which originate from a thrombus of the left heart or of the arteries of the large circulatory system are found in the arteries of this system, while those coming from peripheral veins go to the lungs. There are, however, exceptions to this. I remember a specimen of a heart which Prof. Zahn, of Geneva, demonstrated in his lectures on pathology, where you could see in a widely open foramen Botalli a large embolus, which was caught there on account of its shape. It must have come from a bifurcation of a large vein and was formed like the letter Y.

This foramen Botalli remains open not so very rarely, and the blood from the inferior cava especially is thrown, as we know from the fœtal circulation, toward this opening. Therefore, we may have an embolus from a vein of the large blood system into an artery of the large blood system and not into the lungs. This is called crossed or paradoxical embolism. Beside thrombi and atheromatous masses we may find as causes for embolism particles of malignant growths, that grew through the walls of blood vessels and were washed away.

There is, furthermore, fat embolism of the lungs and kidneys observed, where you find a part of the capillaries obstructed by fat globules. Air embolism is a well known danger to the surgeon operating near the large branches of the superior vena cava. We may also have animal and vegetable parasites as emboli; for instance, a cysticercus, etc.

What are the symptoms of embolism? In air embolism the patient may aspirate with a deep inspiration a large quantity of air into the jugular vein and fill the greater part of his lung capillaries with air. This changed capillary adhesion would require a much greater power on the part of the right ventricle and life may cease almost instantaneously through this stoppage of the pulmonary circulation. Foamy blood from being whipped with air may be found in the right heart.

Fat embolism is feared in operations and extensive bruises on very fat persons and in extensive bone fractures. The fat cell breaks up and the fat globule takes the place of the air bubble in the former case, but the effect is not such a severe one; the symptoms in a case of fracture appear between the third and the fifth day usually. Long before embolic processes usually take place there is the picture of secondary shock, dyspnœa, Cheyne-Stokes respiration, irregular pulse, rise of temperature, twitching of muscles and paralysis of certain muscles; fat globules were also found in the urine.*

Of embolism of the lungs by loosened thrombi let me mention in short three types as I happened to observe them:

First, embolism and complete, or very near complete, obstruction of the whole pulmonary artery: A lady about 30 years old, operated upon for myoma of the uterus, made one week after the operation a slight motion while the bedpan was put under her. A sudden gasp for air. One or two minutes later I saw her, as assistant of the hospital. She was unconscious, breathing extremely deep, pulseless. Death a few moments later.

Second, partial obstruction of the pulmonary artery or of one of its principal divisions: A young man of about 22 years was run over by a heavy wagon. The wheel went over the abdomen. Moderate shock, no signs of internal serious lesions. In the urine macroscopically no blood noticed. Microscopic examination unfortunately omitted. Patient seemed to do well, when suddenly he had to breathe unreasonably deep and fast. He could not get enough air, though the respiration was free in itself. Pulse very small and fast. The patient had absolutely no pain, and this was very striking in the picture. He was fully conscious, but used every muscle that might assist his respiration. After about two or three hours, death. The autopsy showed rupture of the right kidney; a linear tear with comparatively little hemorrhage, but a thrombus in the renal vein reaching for some distance into the cava, and an embolus in the pulmonary artery.

Third, smaller emboli forming a hemorrhagic

*Dennis, l. c.

infarct of the lungs. If septic infection is added either from the bronchi or the embolus itself gangrene of the lungs or lung abscess follows. These cases and their clinical appearance are observed so frequently that it does not need anything but mention of them here.

Emboli in the portal system may make little or no symptoms if they are not large or septic, but the infected emboli are very much feared. Abscess of the liver after operations on the rectum was always a well known danger.

Emboli in the arteries of the aortic system are very numerous and differ in their symptoms according to the organs affected. In the brain we get either the common picture of apoplexy, with its general and local symptoms, or we may only have local symptoms if smaller districts are affected. The smaller brain arteries are end arteries; that is, they have no side anastomoses. If they are obstructed, necrotic softening follows in their district with the symptoms characteristic to that location.

In the coronary arteries of the heart embolism brings on sudden death, as the heart muscle is deprived of its own circulation. Only a very small embolus would confine itself to local disturbance by producing softening (myomalacia) of a certain small district in the heart muscle. The coronary arteries are also end arteries.

The most accurate study of the changes produced can be made in embolism of the central artery of the retina. The arterial branches have become abnormally small and bloodless, and the smaller ones cannot be seen any more; the retina is pale. According to Fuchs* it is only over the papilla that the veins are narrowed to a pronounced degree. Meyer† mentions that while the retina becomes white and opake, the following symptom is to be found, which is seen first in the veins, later on sometimes in the arteries, and which is a sign of utmost weakening of the circulation: "The thread of blood seen in the blood vessels is separated by colorless interstices into isolated pieces, which move very slowly and irregularly. Sometimes it is seen that the direction of the motion is in the arteries toward the periphery and in the veins toward the papilla. The patient first notices that he does not see clearly, as though there was fog before his eyes, and in a few minutes the sight disappears completely, while in cases where only a branch of a retinal artery was obstructed the sight sometimes is reëstablished by side anastomosis." I quote this here as the changes in the circulation can be observed directly in the blood vessels and the corresponding tissue.

*Fuchs, Lehrbuch der Augenheilkunde, 1891.

†Ed. Meyer, Handbuch der Augenheilkunde.

In the abdominal organs, as the spleen, liver (hepatic artery), pancreas, kidneys, the clinical picture depends all upon the size and the character of the embolus. In cases of infected embolus we shall have (beside the symptoms of arterial obstruction) different degrees of local inflammation (suppuration) and general sepsis. If it is not infected, we may not have any or little clinical symptoms. In the kidneys, for instance, we would expect either no symptoms, if the embolus be small enough, or only a little blood or some traces of albumen in the urine following the disintegration of the affected district. Remnants of such embolic processes are found frequently in post-mortem examinations. Only a fibrous spot in the tissue or a retraction on the surface is left.

In the liver or spleen we might have some signs in the case the necrosed area reached the surface. A fibrinous deposit and a localized peritonitis would bring on some local friction pain, say with the respiratory motion of the organ, and so forth.

Larger emboli will give signs of more or less pronounced shock and the symptoms that correspond with the destruction of larger parts of or of the whole affected organ.

If a branch of the mesenteric artery is obstructed, all depends upon the side anastomosis. Emboli are a frequent and important cause for gastric and duodenal ulcers.

Besides these more macroscopic embolic processes, the microscopic ones are very numerous and manifold.

Passing over the microbic embolisms in order not to lose ourselves, let me name as the last class the microscopic embolisms of solid dust particles, and I will close my already too long remarks with calling your attention to those cases of non-infectious embolic osteitis of pearl grinders and working people of wool factories, the cause of which Gussenbauer found to be pearl and other dust.

THE SURGICAL TREATMENT OF MENINGITIS.*

By Cornelius Williams, M. D.,

St. Paul.

The problem is that of an inflammation of one of the closed spaces of the body, which exactly contains the cerebro-spinal axis, together

*Read before the Ramsey County Medical Society, March 28, 1898.

with its fluid. The nature of the contained tissues is such that any considerable increase of pressure suddenly applied and continued for a period of hours even, will invariably cause grave lesions of nutrition.

The anatomical conformation of the cranio-spinal space is of the nature that certain nerves more than others have continued upon them the meninges in such a way that after their emergence through their respective foramina, those membranes from a sheath about the nerve trunk and then return upon themselves. This is notably true of the optic nerve and the spinal nerves. These nerve sheaths freely communicate with the arachnoid space, and are normally occupied by the nerve trunk and cerebro-spinal fluid.

Let us consider first the effect of increased tension within the cerebro-spinal space upon the optic nerve, from an effusion within that space. The fluid is driven in increased quantity into the subvaginal space beyond the optic foramen and distends the sheath; the constriction of the unyielding ring of bone causes a bladder-like expansion of the sheath, and very much greater pressure is exerted upon the trunk of the nerve at this place than upon the general surface of the brain. The fluid is pressed with relatively great force aginst the ocular extremity of the sheath and through the lamina cribrosa into the tissue of the nerve itself, return circulation is hindered and we have strangulation of the nerve with all that this implies. Acute optic nerve strangulation is soon followed by a degree of swelling and infiltration of the optic disk, and may be by hemorrhages, which phenomena bear a certain relation to the amount of pressure. A further result of the distension of the sheath of the nerve is an inflammation of the sheath itself, aside from any participation in the general meningitis. This vaginitis is apt to be followed by bands of adhesion which may later destroy what might have been left of sight. It has often occurred to me that the palsies of certain of the spinal nerves following meningitis of the cord, would reasonably be accounted for upon the hypothesis of mechanical pressure alone, as in the case of the optic nerve, though I do not know if authorities give this as such cause, or one of the causes. The atrophy of the optic nerve and of the auditory nerve, and consequent blindness and deafness following meningitis, and due to pressure from effused liquid, speak eloquently in favor of a method of treatment which shall be conservative in the properest sense of the word.

The purpose of this paper is to propose, as a procedure imperatively required, in meningitis with effusion, the free opening in one or more places of the cerebro-spinal space. This operation should be done as soon as the physician is satisfied that the effusion has produced the degree of pressure necessary to bring about a well marked swelling of the optic disks. For, while it is not pretended that such cases do not recover without an operation, or that in all such cases complete blindness or deafness will needs result, it is claimed that when choked disk appears the safest and surest remedial measure in this day of aseptic surgery is operative removal of the destructive pressure. Long ago it was found that simple aspiration of the chest, in simple pleuritis with effusion, would generally so alter the processes of nutrition as to result in the resorbing of the effusion, even though but little of the fluid was withdrawn. My own experience in a case of non-purulent meningitis with effusion has satisfied me that such a result may follow a similar procedure in meningitis.

Let us suppose, however, that the meningitis is not simple, and that the effusion is purulent. In that case, make as many openings as may be deemed necessary, drain and irrigate, if possible, the cerebro-spinal space. This should be done even though the patient is comatose. The brilliant success of Macewen in operations for cerebral abscess, in cases apparently hopeless, go far in argument for early conservative interference. Indeed, the work of this able Scotchman will prove to the Laodicean a book of revelations.

By way of emphasis I wish to insist that in my opinion meningitis, of whatever kind, should be treated by opening the cranio-spinal space, thus draining away the excess of fluid, and affording opportunity for irrigation, in all cases in which unmistakable evidence of effusion in hurtful quantity is present.

COCAINE AS A SUPERIOR ANTIDOTE FOR MORPHINE POISONING, WITH HISTORY OF A CASE.*

By C. W. Williams, M. D.,

Professor of Materia Medica, Medical Department of Hamline University.

Minneapolis.

About two years ago my attention was attracted to an article embodying the histories of several cases of morphine poisoning treated with cocaine, which led me to investigate carefully the physiological action of each drug, with the result that I came to the conclusion that should I ever have another case of morphine poisoning I would at least give cocaine a trial. In order to understand the subject thoroughly, it may be well to review briefly the principal physiological properties of each drug.

*Read before the Hennepin County Medical Society, April 4, 1898.

We know that opium, even in small or medicinal doses, diminishes all secretions with the exception of sweat. In poisonous doses the mouth becomes dry, the secretion of gastric and intestinal juices is diminished, and the paralyzing effect of the drug on peristalsis, due to stimulation of the nerve centers (splanchnics), increases the constipating action of the drug and lessens excretion. In large doses opium depresses the heart's action. This effect can be produced by local application, which shows that it either acts directly on the heart muscle or on its nerve endings. But this action is slightly increased by the action of the drug on the vagus center.

Opium is a direct poison to the respiratory centers. The breathing becomes slow and labored, death taking place from failure of respiration. On the nervous system opium acts on the nerve centers in the brain. The pupils are contracted from the effect of the drug on the pupillary center in the floor of the aqueduct, but immediately before death they become widely dilated. Opium lessens the amount of urine, and also deadens the sensibility of the bladder, causing retention, and with it reabsorption of the drug from the bladder. Thus, generally speaking, we see that opium produces its effect by acting on the nerve centers.

In dealing with opium I have considered its action in large or poisonous doses, but with cocaine will confine myself to small or medicinal doses. Here we find that cocaine increases the secretions with the exception of those of the liver and pancreas, which are seemingly not affected. On the heart its action is quickened. Cocaine acts directly on the respiratory center, stimulating both the number and the depth of the respirations per minute. The pupil, after the first transitory contraction, is dilated, while on the brain the drug produces wakefulness. It also increases peristalsis largely through its effect on the sympathetic nerves. The amount of urine is also increased, both as to liquids and solids, with the exception of the nitrogenous elements. Thus we see that opium and cocaine act very largely on the nervous centers, but in an opposite direction. Opium retards respiration, cocaine stimulates; opium slows the pulse, cocaine accelerates it; opium checks the secretions, except sweat, cocaine increases them; opium contracts while cocaine dilates the pupils; opium produces a sleep, cocaine wakefulness; opium retards peristalsis, cocaine increases it. The same opposing effects are noticed also in their action on the kidneys.

At about 8:30 p. m., April 18 last, I was called to see Mrs. W., who had taken an ounce of laudanum some time before 5:30 the same evening, as at that time she asked members of a family living in the same house to go for her husband and a doctor, saying that she had taken poison. They sent for her husband, a street car conductor, and told him to go for a doctor, but he went home first to see what was the trouble, which accounts for the length of time before medical help arrived. On my arrival I found my patient sound asleep, and was informed by those present that they had been unable to awaken her for an hour. Her respiration was so slow that I hardly knew whether she would take another breath. There was no radial putse. Her skin was cyanosed, the finger nails blue, the lips and gums blue-black, and a cold sweat suffused the entire body. The pupils were very widely dilated. I immediately gave her a quarter of a grain of apomorphine hypodermically, with a quarter of cocaine hydrochlorate and a thirtieth of strychnia. I also sent for a solution of potassium permanganate containing, as I thought, two and a half grains to the drachm, but found afterwards that it contained only a grain and a quarter. In fifteen minutes, seeing no effect from the apomorphine, I repeated the dose, but without effect other than that much more morphine in the system. A half hour after the first dose the potassium permanganate arrived, and I gave a drachm of the solution hypodermically, as the patient could not swallow. With this I gave another quarter grain of cocaine and repeated the dose in another half hour.

About ten minutes after my arrival respiration had ceased and artificial breathing was employed constantly for an hour, and at intervals for a half hour longer, when her breathing gradually improved, but at twelve thirty a. m. it was still impossible to arouse her to consciousness. At that time I was called away, but returned in an hour to give another dose of the permanganate, which she was now able to swallow, though still unconscious to pain. I saw her again at nine-thirty that morning. She could then be aroused, but on the following day had no recollection of my having been there before. She required the catheter for four days, and it was the same length of time before the bowels could be made to act.

The reason that I did not use atropia was because it acts almost entirely on the periphery, and in my past experience I did not see that it gave sufficient results to justify its use in large doses when I had given the cocaine. The potassium permanganate was given with the thought that it might possibly do some good, and could certainly do no harm, although it must be admitted that there is no good reason for giving it in morphine poisoning unless early enough for some hope of its acting as a chemical antidote, and in this case, even if the patient could have swallowed it, there would have been very little likelihood of its coming into contact

with any of the opium in the stomach after so long an interval, and in order to attribute the result, in any degree, to the permanganate, it must be conceded that it either acted chemically on the opium in the body fluids after absorption, or physiologically, neither of which is at all probable.

Another reason why I do not consider the result due to the permanganate is the smallness of the dose. Only the full effect of one dose of one and a quarter grains can be taken into account, as the patient showed beginning of improvement an hour after the first dose of cocaine, and half an hour after the first dose of permanganate. I am, therfeore, thoroughly convinced that the patient owes her life to the cocaine taken, though I am fully aware that one case is usually not sufficient evidence from which to draw positive conclusions, but in this case consider it sufficient to at least be entitled to consideration.

506 Masonic Temple.

HOSPITAL AND CLINICAL MEMORANDA.

FOREIGN BODY IN THE LEFT NASAL CAVITY AND SEQUELÆ.

November 19, 1897, Helen N., age six, was brought to my office by her mother, who at the time was under my treatment for opacity of the vitreous, with the request that I should examine Helen's nose to discover the cause of the fœtid odor which had for some time existed in that region.

Externally, there seemed to be little change from the normal, with this exception, that there was some excoriation of the left ala and upper lip on that side, with a certain amount of mucopurulent discharge.

On examination of the anterior nares I found a large amount of semiconsistent debris of a grayish green color, mixed with hard lumps, which proved to be calcareous in character upon further examination.

After removing a large amount with the forceps a fenestrated curette was used to complete the process. Everything yielded to the curettage, so much so that I found my way through the septrum without using the slightest amount of force. The anterior two-thirds of the inferior turbinal disappeared under the curette. Up to this time there was no hemorrhage of any account. I proceeded to complete the cleansing of the cavity, keeping in mind the possibility of finding a foreign body. Using the same precaution as hertofore while working on the outer wall, I found my way into the antrum and proceeded to break down its inner wall, which fell, as the inferior turbinal had, upon the slightest touch of my curette. Seiler's solution was then used, followed by a four per cent. cocaine solution, and the search continued. I had now an opening into the antrum large enough to pass a small hazel nut. With a bent probe I soon discovered a foreign body in the antrum, of stony hardness, which upon removal proved to be a shoe button covered with a thick, hard, calcareous envelope. How long it had been there no one knows, as the child refused to tell when she had pushed it up her nose.

Queer to say, upon transilluminating the antra no disturbance could be detected, nor did the child complain of any pain in that region.

Antiseptic and stimulating treatment was begun after removal of all necrosed and offensive material, resulting in the closing of the naso-antrum orifice. When I saw the patient last the septum perforation was present and will probably never close, the anterior two-thirds of the inferior turbinal being entirely gone. The patient after two months' treatment is free from nauseating odor which existed at the time of the operation, and apparently none the worse for the defective nasal anatomy above mentioned.

I am, however, certain that if the foreign body had been overlooked serious complications might have ensued—i. e., a permanent opening in the antrum accompanied undoubtedly by a chronic inflammation and suppuration, both to the detriment of the patient's health and comfort, and later necrosis of the antrum walls. For this reason I urge the careful search for foreign causes in necrosis of the intranasal contents, and of their walls proper, when no constitutional cause can be ascribed.

Henry A. Beaudoux, M. D.

Fargo, N. Dakota.

According to Jasewicz in the Journal de Clin. et Ther. de l'Enfance, the immunity from vaccination lasts a much shorter time in infants than is generally supposed. A study of the statistics of the subject showed a proportion of 7.35 per cent. out of twenty-three children under six years of age in whom vaccination was successfully performed. The author, therefore, recommends more frequent revaccination in childhood, and expresses the opinion that children are also protected from other infectious diseases thereby.

Chervin has made studies on the subject of cutting the fraenum for tongue-tie, and finds that outside of cases where the shortness of the fraenum prevents the child from nursing, the operation is useless, as far as improving speech is concerned.

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MODERN GUNSHOT WOUNDS.

In these times of war there is an added interest to the consideration of the injuries inflicted by the weapons of modern warfare, a subject that even in peace forms a branch of the department of surgery. At this time of writing there has been no engagement of land forces, and no casualties of consequence of any kind; but since the introduction of the most recent models of small arms there have been a sufficient number of engagements in various parts of the world to make it possible to predict with some accuracy the kind of wounds with which the army surgeon will have to deal while the troops are engaged in driving the Spaniards out of Cuba.

So rare are sword cuts and bayonet stabs in modern battles that wounds from these sources form an inconsiderable part of the casualties of the battlefield. Missiles from the artillery do a good deal of damage, but the character of this class of wounds has not changed. Almost all of the injuries inflicted in battle come from rifle balls, and in this firearm there have been great changes within a few years, the calibre of the weapon in this and other countries having been greatly reduced, while the range has been enormously increased by giving the bullet a high initial velocity. Another recent feature which greatly modifies the character of gunshot wounds is the jacketing of the leaden bullet with a harder metal, such as nickel or German silver, preventing deformity of the missile even after contact with hard substances. The United States has adopted as the regulation arm the Krag-Jorgenson rifle, which has a calibre of 30 one-hundredths of an inch. As the supply on hand of this weapon amounts to but one hundred thousand, only the regulars will be armed with this rifle, the volunteers being provided with the Springfield rifle of 45 calibre. The Spanish troops are likewise furnished with two kinds of rifles, the Mauser of 7 m. m. calibre, equal to about 28 one-hundredths of an inch, and the Remington army rifle of 43 calibre. It will thus be seen that the armies about to oppose one another in Cuba will be on a practical equality in the matter of firearms, and that the wounds inflicted on the two sides will be much the same in character.

At very short ranges the small calibre ball with high velocity produces an effect described as "explosive," the injury to the tissues being so great and so widely spread that when these wounds were first observed in battle the enemy were accused of using explosive bullets. Explosive effects are noted particularly in the brain and liver, these organs being largely destroyed by the passage through them of a single bullet. In the soft parts of limbs the destruction of tissue is described as "frightful," while the long bones are fractured and comminuted to an astonishing extent, the splinters and fragments of bone being driven to great distances.

The limit of range at which explosive effects are observed is variously stated by different observers. In experiments made upon cadavers at the Frankford arsenal in Philadelphia, the range was given as 250 yards for the 45 calibre rifle and 350 yards for the 30 calibre.

At greater distances, up to 2,000 yards, covering the ranges at which the majority of wounds are inflicted on the battlefield, the small calibre ball of high velocity produces less severe wounds than did its larger and slower prede-

cessors. This is particularly true of the jacketed bullet that does not become flattened or "mushroomed" on striking a hard substance. The small, swift-moving bullet perforates the skin with a round, narrow orifice with clean edges. In fibrous tissue it makes a narrow slit; in muscle a fistulous track a little larger than itself; in bone a hole sometimes as cleanly cut as if punched out, sometimes with splintered edges, according to the velocity. An important difference between the old and the new wounds is where an artery is involved. The danger of hemorrhage upon the battlefield used to be lightly esteemed, but the bullet with high velocity cuts arteries as sharply as does the knife, and there is no doubt that the danger from primary hemorrhage will be greatly increased.

Beyond the limit of its explosive action the bullet from the new rifle justifies the claim made for it that as compared with the old rifle ball it inflicts wounds less severe and more easily recovered from. Wounds of soft tissues, even of the lungs themselves, are found to be much diminished in severity. Indeed, the mildness of the injury it inflicts is urged as a serious objection to the new rifle. The object of the soldier is to disable the enemy as quickly as possible. In general, the shock of even a flesh wound may be depended upon to prevent a man from taking further part in the battle, but the swift moving, small calibre bullet, with a hardened case preventing its deformity, produces so little shock that the stopping power of the new rifle is comparatively small, and there is a great question as to its effectiveness in stopping a rush of fanatical and barbarous men like the Dervishes of the Soudan or the Abyssinians. The shock to horses is also so much less that it is doubtful if the new rifle can be depended upon to stop a cavalry charge as did the old weapon. Without reference to the part hit, the shock depends upon the loss of energy of the ball in its passage through the body. As it is evident that a bullet that passes through the body undeformed will lose much less energy than one that becomes "mushroomed" on the way, experiments have been made upon the use of bullets with soft tops that will spread out when they meet with an obstacle and be so slowed as to increase the amount of shock produced.

THE ASSOCIATION MEETING.

Attention is called to the notice in another column of special cars from Minneapolis and St. Paul to Denver on June 4, to carry those members of the profession in Minnesota and the neighborhood who propose to attend the meeting of the American Medical Association. These cars will run over the Northwestern line, and that road has arranged to have them attached at Omaha to the special that is to be run from Chicago to the place of meeting.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

H. Snévé, M. D., Secretary.

Regular meeting March 28, 1898, at the Society's rooms. The President, Dr. Quinn, in the chair. Dr. Cornelius Williams read a paper on

THE SURGICAL TREATMENT OF MENINGITIS.

See page 191.

Dr. Ohage opened the discussion and spoke favorably of the idea advanced in the paper. He discussed the results obtained in peritoneal tuberculosis, and thought that in cases of circumscribed meningitis the operation might at times be of value, but thought that it ought not to be practised in the diffuse forms. In operations on the cranium he was now in the habit of using the chisel and mallet instead of the trephine. Symptoms of meningitis are not always reliable; headache is at times absent. The great advances of late years in brain surgery would lead us to hope that we might invade the skull cavity with the same impunity that we opened the peritoneum. In pus or abscess formation we ought to open the skull.

Dr. Boeckmann spoke of lumbar puncture in cases where there is increased pressure within the cranial cavity, and in this connection also referred to Estlander's treatment of cerebral meningitis in cases of tuberculosis, which consisted in rubbing in iodoform ointment on the shaved scalp; this treatment in Estlander's hands had proven of great value. He thinks that lumbar puncture would not be dangerous and might be adopted in some cases of meningitis. Wecker of Paris opened the sheath of the optic nerve to relieve pressure.

Dr. Abbott had aspirated in three cases of supposed tubercular meningitis in children with only temporary relief. Thinks that if they were

operated upon earlier a better result might have resulted.

Dr. Davis said: This is an interesting subject to the general practitioner. Nearly all cases of meningitis in children are tubercular from miliary tuberculosis and would die anyhow. I have had a case recently of meningitis where lumbar puncture was performed; the patient died forty-eight hours afterwards. I think that the operation was performed too late.

If operation would save a single case it would be a great boon to humanity.

Dr. Rothrock spoke of the post mortem appearances of most cases of meningitis. There is not much effusion. He referred to the literature showing that most cases die when operated upon by lumbar puncture. He thinks that lumbar puncture is of very limited value in such cases.

Dr. Ohage: Speaking of lumbar puncture, it is made only for the relief of pressure. In spina bifida removal of the fluid produces amelioration of symptoms. I think that the result would be just the same in both cases, that there would only be relief of symptoms.

Dr. Williams closed the discussion. It is the duty of the surgeon to offer the patient any remedy that he may have, but the patient may die after the operation, of course.

Dr. Arnold Schwyzer then read a paper on

EMBOLISM.

See page 187.

Dr. Abbott: I have had a case something like Dr. Schwyzer's. Woman about 30 years old with mitral stenosis was awakened in the night with pain in the right foot; the next morning the right leg from the knee down was cold; the following day a complete hemiplegia was present of the left half of the body. Found the right leg cold up to the knee. A patch of dry gangrene four inches long and four and a half inches wide over tibia, with shrunken toes and pains in the whole leg came on a few days later. Temperature was 102° at the time; amputation was performed at middle of leg; found thrombus in both artery and vein below amputation. General condition improved.

Dr. Rothrock congratulated Dr. Schwyzer upon his management of this case.

Dr. E. Boeckmann showed a specimen of adenoma mammæ. Dr. R. O. Earl one of extra-uterine pregnancy.

HENNEPIN COUNTY MEDICAL SOCIETY.

Willard B. Pineo, M. D., Secretary.

Regular monthly meeting at the rooms of the society in the Public Library building, Monday evening, April 4, 1898. The president, Dr. J. C. Cockburn, in the chair.

The names of Drs. John S. Macme, Bert E. Howard, M. C. Johnston and D. G. Beebe were proposed for membership and referred to the board of censors.

Dr. Knute Hoegh reported a very interesting case of Heineke-Mikulicz's operation for pyloric stenosis. Perfect recovery.

Dr. G. D. Haggard reported a case of apendicitis, surgical.

Dr. C. W. Williams then read a paper on

COCAINE AS AN ANTIDOTE FOR MORPHINE POISONING, WITH HISTORY OF A CASE.

See page 192.

This paper was discussed by Drs. Barber and Haggard.

Dr. C. H. Hunter read a paper on

TRAUMA IN RELATION TO ACUTE ARTICULAR RHEUMATISM.

Discussion followed by Drs. J. E. Moore, Carlaw, Head, Hoegh, Chas. Simpson, Barton, Chapman, Haggard and Phillips. Discussion closed by Dr. Hunter.

Appropriate resolutions on the death of Dr. A. Ortman were read by Dr. Chas. Simpson and adopted by the society.

MISCELLANY.

MEETING OF THE AMERICAN MEDICAL ASSOCIATION.

The most delightful pleasure trip ever furnished by the annual meeting of the American Medical Association is promised for next month; for Denver is an ideal location for a summer convention, and the short side trips to the mountains will be highly enjoyable. Besides this, the thirty day time limit of the tickets will allow ample time to visit the Omaha Exposition, which, it is said, will be inferior to the World's Fair only in extent. Indeed, the Exposition is going to be a surprise to everybody, and it will be well worth visiting.

The arrangements for the somewhat long trip are also first-class. The "Northwestern Line," with its superb and unequaled equipment, will reserve one or more Wagner coaches for the exclusive use of Northwestern physicians, and it has arranged to have these coaches attached at Omaha to the special train which carries the physicians from Chicago, thus giving the physicians from the Northwest opportunity to travel the greater part of the way with the

physicians of Chicago and all who join the special train in that city.

Time of Leaving, Rates, etc.

The train carrying these special cars leaves over the Northwestern Line, Saturday, June 4, at 7:10 p. m., from St. Paul, and at 7:45 p. m. from Minneapolis. The round-trip fare is $27.90, and tickets are good for thirty days. Berths may be engaged of the ticket agents of the Northwestern Line in St. Paul or Minneapolis, or by letter from the passenger department of the road in St. Paul.

MINNEAPOLIS MEDICAL CLUB.

The final meeting of the year of the Minneapolis Medical Club will be held May 19, at 8 p. m., at the Holmes Hotel.

Program: President's address "The Value of a Leucocyte Count in the Diagnosis of Abdominal Diseases," by Geo. D. Head, M. D.

"Notes on the Widal Reaction," by L. B. Wilson, M. D.

Dinner.

KOCHER'S METHOD OF AMPUTATION OF THE BREAST.

In the February number of the Annals of Surgery, Dr. George B. Wood, in writing of Kocher's operation says: The salient points of difference between this operation and the one mostly in vogue in America, that of Halsted, are, first, the incisions are different; the axillary incision of Kocher allowing a free entrance to the armpit, and not necessitating the loss of time required in dissecting back the triangular skin-flap of Halsted's operation. By Kocher the axilla is cleaned from above downward and inward toward the chest, while Halsted makes the dissection from within outward and upward. Here it is claimed for the Halsted operation that the removing of fascia in this direction is easier and attended with less hemorrhage. The vessels supplying the axilla begin above and run downward, and it is easier to dissect out a vessel from the base toward the periphery than in the other direction. But where the operation of Kocher saves time, as compared with that of Halsted, is in the removal of the pectoral muscles; it being much easier to strip these muscles downward and inward off the chest and then to cut through the origins than it is to dissect off each rib attachment separately, as is required where the pectoral muscles are removed upward and outward. Also, in the Kocher method no extra dissection of the pectoralis minor is required. By beginning as advised by Kocher the annoyance of having a large loose mass of tumor, fat and muscle to take care of during the dissection of the axilla is avoided. The idea of sawing through the clavicle in case of involvement of the supra-clavicular glands belongs to Kocher, and though it may seem to some unnecessary, it certainly gives a much better chance to dissect the lymphatics from around the vessels.

Escherich demonstrated that the most usual common cause of infantile diarrhœa are the bacterium coli and the bacillus lactis. The French claim to have tried with satisfactory results the treatment of infantile diarrhœa by free administration of water, temporarily supplanting milk and washing out the microbes. The child is allowed no nourishment for eight, twelve, or twenty-four hours, and during this time it is given at half-hour intervals or every time it is thirsty, water which has been boiled and cooled to a suitable temperature. The quantity of water administered may reach a litre and a half per day. Of course the principle of this treatment is to rest and cleanse the overworked intestines, at the same time maintaining the blood pressure by the quick absorption of the water.—Pediatrics.

It is said that there is hardly an instance in natural history of a plant so universally detested by the animal world as the castor-oil plant. No sort of a bird, beast or creeping thing will touch one. It seems to be a rank poison to all the animal world; even a goat will starve before biting off a leaf, and a horse will sniff at it and turn up his upper lip as if it had the most detestable odor on the face of the earth. Army worms and the locust will pass it by, though they may eat every other green thing in sight, and there is no surer way to drive moles away from a lawn than to plant a few castor beans here and there. Even the tobacco worm will refuse to be fed on its leaves.—Western Druggist.

Messrs. Lea Brothers & Co. announce for early publication the following books by eminent authorities. Complete catalogues of the publications of this firm may be had by addressing either their Philadelphia or New York house:

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The Principles and Practice of Obstetrics. By American Authors. Edited by Charles Jewett, M. D., Professor of Obstetrics in the Long Island College Hospital, Brooklyn, N. Y. In one handsome octavo volume, with many illustrations in black and in colors.

THE MAY MAGAZINES.

The Hon. Richard Olney opens in the May Atlantic with a timely and very valuable article on the "International Isolation of the United States"; and even since the article was written events have occurred to confirm his view that we must depart from our tradition of isolation and join the family of nations.

Mr. Henry J. Fletcher, a Minneapolis lawyer, discusses a question of interest to all, but especially so to all those living in the great Western states,—the land booms of the eighties, their cause, rise, and progress down to their final collapse in the panic of 1893, with their consequences and the lessons to be drawn from them. He believes that the lessons have been learned, and that the people of the West are rebuilding their prosperity on a surer foundation and resuming the task of developing their mighty resources.

The Rev. S. M. Crothers, of St. Paul, also contributes to this issue. His subject, "The Evolution of a Gentleman," is treated in a delightful manner, and shows its author to be an essayist worthy to hold a place with the best writers of the day.

Ainsworth R. Spofford, for many years librarian of Congress, begins a series of Washington reminiscences, which gives promise of many delightful things.

The sketches by Paul Bourget which have attracted attention as presented in translation in The Living Age, will be followed by one or two delightful groups of sketches by that other master of style, Pierre Loti. These are specially interesting just now because they relate to Spanish life and character.

In its issue for May 28, The Living Age will begin the publication of the most striking English serial of the year, "John Splendid," by Neil Munro, now in course of publication in Blackwood's Magazine. The Living Age has bought the right to print this story from the owners of the American copyright, and will continue its publication in weekly instalments until it is completed.

Harper's has for its special features "Awakened Russia," by Julian Ralph; "The Transond edition, entirely rewritten and much en-

Isthmian Canal Problem," by Colonel William Ludlow; and "University Life in the Middle Ages," by Prof. W. T. Hewett. But these special features are only a part of the good things in this number of this great magazine, which is unequaled in the world's illustrated literature.

No family should be without Harper's Weekly, especially in these times of history-making. Its illustrations are magnificent, and its reading matter is not only intensely interesting, but it is of the highest educational value. The editors of the Weekly have been opposed to war, but now that war is on, they heartily favor every measure that tends to its successful and speedy end. Harper's Weekly is rightly called "A Journal of Civilization," and it stands for all that is best and ennobling in the American life, the American home, and the American republic.

The Review of Reviews, though a monthly, gives the movements of events in the world's progress with a freshness and vigor that make almost its entire table of contents seem real news. In the May issue there is more fresh matter about the war, especially fresh reliable matter, than is to be found in many a weekly or daily; and this matter is such as will give one a clearer comprehension of the causes leading to the war than can be obtainable anywhere else in so compact a form.

The Outlook, with its monthly magazine number, not to be outdone in war matter, announces that it has engaged George Kennan, now connected with the Red Cross Society, to write weekly war letters from Cuba and elsewhere; and we are sure the friends of the Outlook will be glad of its arrangement, for Mr. Kennan is specially qualified to give us a view of Cuba that few other writers could promise.

NOTES.

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G. W. Gaines, M. D.,
April 9th, 1898. Hickory Flat, Ky.

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LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

(Contined from LANCET of May 15.)

The ancient city of Pergamus, in Asia Minor, where there still exist the remains of its Acropolis, temples, amphitheater and many marvellous fragments of its sculpture has a manifold interest attached to it. Its early history has been lost in the mist of antiquity, but we know that it was the seat of a flourishing civilization for at least two or three centuries before the Christian era. There existed there an enormous library and a school of learning rivalling that of Alexandria; at Pergamus, parchment (at first called charta Pergamenta) was invented, and by no means among the least of its glories is the fact that it was the birthplace of Claudius Galen. His father was a wealthy and distinguished architect, and gave his son every advantage of education. Galen studied at Alexandria, then traveled mostly on foot (like a true peripatetic philosopher) through Cilicia, Palestine, Italy, Thrace, Macedonia, Crete, Cyprus and into Syria. At the age of 28 he came back to Alexandria, where he remained for several years and gained an extensive reputation as a surgeon. Afterwards he returned to Pergamus, where he practised for a time, and while there he had charge of the school of gladiators. He did not remain long at Pergamus, however, as he had determined to go to Rome to settle; but although at Rome he enjoyed considerable practice among the best people (it is related that he received 400 pieces of gold for curing the wife of the Consul Bœthus), he incurred the jealousy and hostility of the physicians there to such an extent that he again, after a few years, returned to his native city. His fame for skill and medical learning, however, caused him to be recalled to Rome by the emperor, Marcus Aurelius (two of whose sons he had successfully treated), and the rest of his life was spent there, where he gained the greatest prominence both as a teacher and a practitioner of medicine.

He was a most prolific writer, and fortunately the greater part of his writings have been preserved to us. He recorded not only the best of the medical knowledge of his contemporaries, but he selected with a remarkable degree of scientific appreciation the most correct views and the most intelligent and sensible methods and principles of all those who had preceded him. He was not only a scholar in medicine, but he studied and wrote extensively concerning philosophy, rhetoric, mathematics and even law. Of his works, which either in their entirety have been preserved, or of which there exist descriptions by other writers, there are supposed to have been 389. Many of his manuscripts were deposited in the Temple of Peace at Rome and destroyed by fire when that temple was burned. It is not always possible to determine by his writings exactly how much of his knowledge was original and independent and how much was learned from others, but certainly a vast number of accurate anatomical, physiological and pathological observations and truths are recorded for the first time by him. He was the first to practice vivisection, and by so doing he inaugurated the physiology of the nervous system. He observed that after section of the fifth cervical nerve in a living animal there resulted loss of motion in the supra- and intraspinatus muscles. His knowledge of practical anatomy, although entirely gained from the dissection of animals (human dissection having fallen into disrepute in his time), was very extensive, and his anatomical works were scarcely improved upon, and were used as text books until the time of Vesalius in the sixteenth century. He was the first to describe the cranial nerves, seven of which he recognized correctly as we know them now; he described the tendo Achillis, the poplitæus, six muscles of the eye, the muscles of the larynx and the foramen ovale. In short, he took up anatomy where it had been left by Herophilus and Erasistratus, nearly 500 years before, and, although he had not the opportunities for the dissection of human bodies which they enjoyed, corrected many of their errors and added a very great number of new facts not previously known.

It seems curious to us that the great stumbling blocks of these early investigators of anatomy and physiology were the functions of circulation and respiration. Of the action of the heart and lungs they were entirely ignorant, and they advanced concerning them the most fantastic and absurd theories. For instance, although Galen knew that air was taken in by the lungs (a fact which could hardly escape even a more careless observer), he declared that it was taken in for the purpose of cooling the heart. He certainly knew that the arteries (at least at times) contained blood, but he taught that the veins contained air, which he thought they received through the pores of the skin, and he utterly failed to appreciate the first principles of the

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

phenomena of the circulation. In spite of this the pulse was carefully studied and described, and recognized as being dependent upon the action of the heart. Galen was known and revered in his own time not only as a great physician, a man of universal education and general culture, but also as an honest, incorruptible and thoroughly noble man. That famous philosopher and moralist, the Emperor Marcus Aurelius, described him in almost the identical words which Napoleon at a later day used in speaking of his great surgeon, Baron Larrey, as the only perfectly upright man he had ever known. For more than 1500 years the name of Galen continued to be the greatest name in medicine. His writings were studied by all students of medicine during all this time, and although considerable advance in medical knowledge was made and many new facts were discovered and recorded, no man achieved or deserved renown or eminence equal to his. I doubt if all history records an instance where in any department of knowledge the influence of one man predominated for so many centuries as did that of Claudius Galen.

A surgeon of very considerable, and apparently well deserved, reputation of Galen's time was Leonides, of Alexandria, who lived about 200 A. D. He performed many amputations, operated for cancer of the breast, made a radical operation for the cure of hydrocele, by cautery and incision, was familiar with hernia, fistula in ano, and wrote extensively and quite intelligently concerning venereal disease, although like all the early physicians, even down to the time of Hunter, syphilis, chancroid and gonorrhœa were all considered by him the same disease. The only other physician of this country who seems worthy of any special mention was Antyllus, also a surgeon of considerable knowledge and ability. He operated successfully for cataract, but his special service to surgery was his study of aneurism, which he understood quite thoroughly, and he originated the method of operation (which has retained his name) by double ligation above and below the sack, followed by incision and evacuation of its contents.

The immediate influence of Galen and his contemporaries, in spite of the general and rapid decline of intellectuality which was already apparent in their lifetime, and which was the beginning of the end of Roman greatness, continued to be felt in the practice of medicine for another century. Historians of this age have advanced many and various reasons for the physical and mental decay, the national degeneracy and social rottenness which gradually afflicted and overwhelmed the Roman people, and which finally accomplished the destruction and the absolute dissolution of the great Roman Empire, which for centuries had maintained its sway as the most powerful nation of the world. A long period of extravagance, wanton and wasteful luxury, of dissipation and debauchery, and of every sort of vice and corruption, had the natural result of blotting out all finer instincts, not only discouraging, but actually crushing, all tendency to intellectual progress and reducing the human mind to its original condition of ignorance and superstition.

The fifth century after Christ has been generally described as the termination of the period of antiquity, and as the beginning of that long period of intellectual stagnation which lasted for nearly a thousand years, during which civilization, in the highest sense of the word, seemed often to step backward instead of forward, and which is spoken of as the Middle Ages. When we take a general survey of this period of the world's history, comparing it as we cannot but do with the variegated brilliancy of the different periods of antiquity, our first and most natural thought is that it was a period of absolute intellectual darkness, and we find it difficult to understand the causes which should have so completely obstructed the progress of learning. A more careful study of the contemporary history of the time, however, helps us to explain this curious condition, and also shows us that all was not lost; that here and there among the general darkness and degeneracy of the time there appeared an opening in the clouds, and we have a view from time to time of some strivers after knowledge, who had not only inherited something from the brilliancy of the past, but who possessed an originality which enabled them to add new facts and to pursue new investigations. The Roman Empire, corrupted and weakened by its social rottenness, by internal dissensions and by political and military reverses from without, gradually lost its unity, and Rome was no longer its center or its capital. The supremacy of Rome itself had begun to fade after the Emperor Constantine, in the year 330 A. D., founded a new capital, known as the capital of the eastern empire, on the shores of the Bosphorus, where the Byzantine Greeks had long maintained a flourishing colony, and which became the great and powerful city of Constantinople. The empire thus divided, and to some extent divided against itself, soon lost its ancient power and prestige and yielded in various ways to the encroachments and invasions into different parts of its original territory by other nations.

The Goths, the Vandals, the Germans and the Huns, people of great antiquity who had hitherto scarcely emerged from the stage of barbarism, but who had by this time grown powerful in numbers and in strength, gradually forced their way into different parts of the hitherto exclusively Roman countries and established communities of their own, sometimes driving out or retaining as their slaves the previous inhabitants,

and sometimes settling down and assuming amicable relations with them. This mingling of races naturally brought about a change of national character, and partly because of the superiority in strength and number of the invaders, and partly because of the already vitiated and debilitated condition of the Romans, the influence of the former prevailed and in the place of what had been a highly developed civilization with a tendency to progress, there was a temporary return to a condition of semibarbarism. This condition, deplorable as it seems to us when compared to what had previously existed, was, of course, infinitely superior to what these barbarous people had been accustomed to, for they could not fail to appreciate the practical and material features of civilized communities, which added so much to the comforts and conveniences of life, and which had been hitherto unknown to them. But science, literature and art were beyond their comprehension, and although these indispensable adjuncts of civilization could not perish, they fell into a deep slumber, which had but fitful periods of awakening for many centuries.

It would be intensely interesting if we had the time, while studying the history and progress of medicine during the different centuries, to take up somewhat in detail the contemporary social and political history of the people, but an attempt to do so would far exceed the limits of our time, and we must be content with brief reference to such of the more prominent events of the different epochs as are of special importance in connection with our immediate subject. As I have said, during this long night of darkness and obscurity we must expect to find occasional and brilliant flashes of light, and the first of these which attracts our attention, so far as medicine is concerned, is Alexander of Tralles, who lived from 525-605. He was born in Lydia, but most of his life was spent in Rome, although according to some historians he also lived, for a time, in Constantinople, the capital of the eastern empire. He enjoyed an extensive reputation and a large practice for many years, and finally during his old age he devoted himself to writing, and his "twelve books on medicine" give us a very complete account of the knowledge and methods of practice of his time. Although Alexander's knowledge was largely based upon the writings of Hippocrates and Galen, he by no means blindly accepted their teachings, but advanced many original views, and often corrected errors in their theories and methods. His descriptions of fevers show a remarkable appreciation of pathological processes, and he also studied and wrote extensively concerning mental diseases. He departed from the Hippocratic doctrine of always bleeding from the part of the body which was diseased, and held that the result was the same no matter where the bleeding was performed. He had a considerable knowledge of anatomy, described in his diagnostic methods, palpation of various internal organs, percussion, and inspection of the urine. He was, however, by no means free from the superstitious and mystic follies of the time, and believed in the virtues of talismans and amulets and other fantastic devices.

During the seventeenth century there lived among the Byzantine Greeks in the eastern part of the Roman Empire another physician who possessed quite extensive knowledge, especially in surgery and obstetrics, Paul of Ægina. He traveled extensively and practised in various parts of Egypt and Asia Minor, and his reputation was such that he was often sent for from very remote parts of the world. He was especially esteemed among the Arabs, and his writings, which were numerous, were preserved and translated by them long after his death. He described various methods of operating for hernia, practised the double ligature for variocele, was familiar with many uterine diseases and displacements, with venereal disease in both sexes, and with amputations, fractures and dislocations. Paul, although probably possessing much less knowledge and ability than many of those who lived some hundreds of years before him, must certainly be considered a remarkable figure in medical history, as an example of genius rising far superior to the general darkness of his age, and illuminating by his individual brilliancy the night of ignorance in which he lived; a night whose blackness and gloom may be imagined from the fact that during a period of four hundred years, Alexander of Tralles and Paul of Ægina are the only two physicans whose work has gained for them a conspicuous place in the history of medicine.

The history of medicine during the latter part of the middle ages, that is from the end of the seventh century to the fourteenth century, has been described as belonging to the Arabic period, or more properly, as it seems to me, to the Græco-Arabic period. The Roman Empire of the west had almost ceased to exist, having yielded, little by little to the inroads of the various barbarous or semi-barbarous nations, which had descended from the north and had finally succeeded in splitting up its territory into more or less independent governments which retained but little of the Roman character of civilization. The empire of the east, however, in spite of the many powerful and hostile nations, the Turks, the Persians and the Arabians, who were continually harassing it, maintained its supremacy and something of its ancient glory for a considerably longer period. It was during the sev-

enth century that the great Mohammed was born and became the prophet of a new religion. In a marvelously short time Mohammedanism seized the spirit of the Arabians, among whom it first appeared, and as the Arabian conquests spread and the power of Arabia became more and more supreme, it soon became the national religion of India, Syria and Egypt. The Arabians had never been an original or creative people, but long before the days of their political glory and supremacy they had, through their commercial relations become familiar with the literary and scientific progress of the Greeks, the Romans and the Egyptians, and the influence of Alexandrian learning had been appreciated among them, and the celebrated Greek physicians had often gone to Arabia both to practise and to teach.

The Arabians were distinctly appreciative of medicine as a rational science and vehemently opposed the superstitious fancies, the invoking of special deities, the use of amulets and charms, and the general mysticism which had prevailed in the declining days of the Roman Empire. Their medicine was founded and built upon that of the earlier Greeks, and the works of Galen and his contemporaries and followers were translated and assiduously studied by them. A peculiarity of the early days of culture, during this so-called Arabian period, was that their wise men and scholars did not confine themselves to any one department of knowledge, but their education was made to include all, so far as it could; and a man of general education was at once a lawyer, a theologian, a philosopher, a mathematician (and mathematics was the greatest of their sciences), a general scientist, as well as a physician. It naturally followed that while they studied and compiled extensively the learning of the best writers of antiquity, they had little time or ability for original investigation and their medicine is chiefly remarkable as being an awakening of knowledge which had long slumbered and been forgotten. In some departments of culture the Arabians were really a remarkable people. They were passionately fond of poetry and music, and it is not generally known that the violin was invented by them. Their chief original contributions to knowledge, however, were in mathematics, and in the sciences of optics and astronomy. They discovered and established facts and principles which have not since been disputed, and have formed the basis of these sciences in modern times. The highest point of intellectual development, as well as the summit of political greatness among the Arabians was reached in the tenth century. At that time there existed universities and libraries in Bagdad, Bassora, Samarcand, Damascus, Bokhara and Khurdistan. The famous universities in Cordova, Seville, Toledo and Granada were founded after the conquests and settlements of the Arabians in Spain; and through their influence the Arabian universities formed the model for our modern ones, consisting of many buildings, containing dormitories and lecture halls and libraries and even hospitals for clinical teaching, built close together where all branches of learning were taught. It is recorded that in the university of Bagdad there were at one time 6,000 students who had come from all parts of the world to enjoy the educational advantages which existed there. University requirements were strict, vigorous examinations were required and it was not permitted to any one to practise medecine unless he had received a certificate of proficiency from boards of medical examiners.

It seems strange that we have been so slow to follow their example in this respect. Although not the originators of public hospitals, the Arabians appreciated their importance more than any previous nation had done, and they existed in all their larger cities, usually in connection with the universities where they were used for clinical instruction. Surgery made little progress among the Arabians, and except in the treatment of wounds, fractures and dislocations, and the ordinary external accidents its practice was not encouraged. This must be explained by the fact that practical anatomy had not been studied since the time of the Ptolemies in Egypt, and although the Arabians had translated and studied the anatomical works then written, they failed to apply this knowledge and made no attempts to add to it. There were lithomists among them, and they must have had skill, for they cured their patients; but they were looked down upon, and lithotomy was never practised by regular physicians. Some of the more evidently demanded surgical procedures, such as tracheotomy, operations for hernia and fistula, cataract extraction, and the repair of hare-lip and nasal deformities were practised, but the early Greek methods were followed and no attempt was made to improve upon them. A remarkable surgical achievement with which they were familiar and which is believed to have been originated by the Hindus of a much earlier date, was the plastic rebuilding of the nose by flaps taken from the cheek or forehead, which is still known in surgery as the Indian operation.

Many of the Arabian caliphs displayed a sincere appreciation of all the arts and sciences and encouraged by all means in their power the pursuit of learning, and were especially generous and earnest in their support and assistance to those who were engaged in the study and practise of medicine. The most renowned of these rulers was the caliph of Bagdad, Haroun-al-Raschid (768-809), who has been called Aaron

the Just, and whose name is familiar to all children, or should be, since it has been preserved as the hero of that most beautiful of childhood's books, "The Arabian Nights." His reign has been generally considered the golden age of Arabian supremacy, and many tributes to his wisdom and justice have come down to us in poetry and romance as well as in history. He collected about his court scholars, poets, literateurs and scientists from all parts of the known world, and sent special ambassadors abroad in all directions to purchase manuscripts, especially such philosophical, scientific and medical works as they could find and these were translated into Arabic and were extensively studied. His son, Al-Mamum, followed in his footsteps and spent immense sums of money in the advancement of science and letters. The famous academy of Bagdad, the most celebrated seat of learning of its century, was founded by him.

One of the most famous Arabian physicians was Rhazes, who was also distinguished as an astronomer, a mathematician and a musician, although he devoted the best of his life and intellect to medicine. He was a professor in the university of Bagdad, and was the chief physician of the great hospital in that city. His writings were numerous and extensive, although they consisted chiefly of translations and compositions from the works of the ancient Greeks. His "Liber Continens," and his "Aphorisms" were esteemed as the greatest books of the age, and regarded as classics for centuries after his death.

Another conspicuous figure in medical history of a little later date was Avicenna, of Bokhara, who lived from 980-1037. If we may believe the testimony of his biographers, he must have been a most precocious genius, for it is related of him that he knew the Koran by heart when he was ten years old. It is certain that he was from a very early age a most enthusiastic and persistent student in all departments of learning, and knew all that was to be known of mathematics, astronomy and philosophy, as well as medicine. He studied and afterwards taught in the university of Bagdad, and practised chiefly in that city. During middle life he attained high public honor and was made a vizier (a sort of prime minister), but later, through some political offense, was deprived of his office and imprisoned for a long time, and most of his medical works which enjoyed equal, if not greater, reputation than those of his predecessor, Rhazes, were written while in prison. He was after two or three years restored to liberty and again rose high in public favor, but it is said that he fell into a disreputable and licentious life, which undermined his health, and he died at the age of 58. His chief work was called the "Canon Medicinæ," which included philosophy and metaphysics with medicine. Although like all the Arabian medical writings, it was in no way original, still it showed an enormous amount of research and appreciative study of the best Egyptian and Greek writers, and soon became an authority in the universities, and long continued as such, and Avicenna was honored among the Arabians of his own and of much later times as "the Prince of Physicians."

As I have said before, the Arabian conquests and settlements in Spain were the beginning of the literary and scientific history of that country, and among the early physicians of prominence in Spain were Avenzoar and his pupil Averroes, both of whom practised in Seville during the twelfth century and acquired prominence and reputation as practitioners and as medical authors. The latter was a philosopher as well as a physician, and an enthusiastic student and follower of Aristotle, whose works he was thoroughly familiar with, and on account of his freedom of thought and belief and his refusal to accept blindly the narrow religious creeds then taught, he was bitterly hated by the church and was during the latter part of his life made the victim of religious persecution. He died in Morocco in the year 1198, and he was the last of the prominent figures in Arabian medicine. Thirty-eight years after, in 1236, Cordova was conquered by Ferdinand III. of Castile, and twenty-two years later Bagdad yielded to the invasion of the Tartar tribes, and from this time Arabian influence which had done so much to illuminate the darkness of intellectual progress in mediæval times, began to fade.

In reviewing the influence of the Arabian civilization upon the history of medicine, its chief value and importance lies in their scientific appreciativeness of the good and the true of the medical culture of the ancients, and their efforts to preserve and to hand down the knowledge which had so long slumbered and been neglected. If they had done nothing else they would still have earned the eternal gratitude of posterity for having preserved many Greek and Egyptian writings which would otherwise have been lost for all time. We must also give them credit for having been the first people to recognize the importance of clinical methods of instruction and the first to systematically establish large general hospitals in connection with their medical schools. They also rescued medicine from the ignorance and superstition of the priests and monks of the early Christian Church, into whose hands it had gradually fallen before their time, and in whose hands for the most part it remained for some centuries in all non-Mohammedan countries. It seems strange

that in the early days of Christianity, that religion which has since become the grandest and noblest and purest of the religions of the world, the countries in which it flourished were, and long continued to be, steeped in the darkest, the most deplorable and the most hopeless ignorance. As the civilization deteriorated after the fall of the Roman Empire of the west, so did all the methods of education; and intellectual progress ceased, and such knowledge as existed was repudiated, neglected and forgotten. Little by little all educational matters and methods fell into the hands of the monks, and outside of those connected in some way with the church there was little pretense to learning of any sort. It was, indeed, by encouraging and then presuming upon the ignorance of the people, and by indulging in the most exaggerated superstitious fancies and methods that the early Christian Church gained its power and kept control over its adherents. Religious orders and monasteries sprang up in all parts of Western Europe and the number of monks rapidly increased. They assumed and gradually acquired entire control of the practice of medicine, and although here and there among these early Christian people there appeared from time to time foreign physicians, Arabians or Greeks, the power of the monks was so great that they were received with but little favor and made little progress. The methods of these monkish practitioners were pitiably crude, and there was but little attempt at rational methods of treatment. Indeed, from its very beginning the Christian Church was bitterly opposed to all scientific investigation, and to all attempts to study or to explain natural phenomena, and the battle between science and Christianity has continued to wage almost down to the present time: until within a comparatively few years these, the two chief supports upon which our civilization rests have begun to appreciate each other and to join hands on a common ground, striving, each according to its own light, and by mutual aid, to accomplish the best that lies in human power for the general welfare and for the elevation of mankind.

(To be continued).

Dr. J. Lewis Smith finds digitalis useful in the heart disease of children, and says: "I believe it is efficient and safe when given to children over the age of five to six years, but it should not be given oftener than six to eight hours. To children of eight years the dose of the infusion is a teaspoonful, which should be discontinued or given less frequently when the characteristic symptoms begin to occur. Six or eight drops of the tincture may be given in place of the infusion and with an alcoholic stimulant or camphor."—Therapeutic Gazette.

ORIGINAL ARTICLES.

RETRO-DISPLACEMENTS OF THE UTERUS.*

By F. A. Dunsmoor, M. D.

Minneapolis.

In beginning this paper the writer yields to the temptation to relate the report of an observer upon the progress of science regarding the reason for the ability of the fly to walk upon the ceiling, who stated that when he was a boy at college, it was definitely announced that the fly possessed a vacuum in the bottom of his foot, and by expelling the air therefrom, was enabled to retain the inverted position in spite of the laws of gravity. Going back twenty years later to the same hall of learning, he was astonished to find that the teaching was that the fly had in his foot glands, which exuded a sticky substance that enabled him to walk bottom side up. Returning at the present day, he is still further astonished to discover that the bottom of the fly's foot is covered with millions of hair-like projections, and it is due to capillary attraction alone that the fly proceeds with his locomotion in this absurd posture. The observer pauses here to remark that the scientists have had time enough to settle this question, and, God knows, they have had flies enough.

So in our article, from the general practitioner to the gynæcologist, there is no field so prolific, either for occupation or finance, as the uterine displacements under consideration. From the abundance of material and the ready submission of the patient to any procedure suggested by the medical adviser, we should, long ago, have arrived at a definite solution of at least the best surgical procedure for the relief of the symptoms resulting from the conditions of this misplacement, and the retention of the uterus in its proper position.

If we first establish in our mind the normal position of the uterus, and how much it varies in perfect health, we may the sooner arrive at what may be called pathological displacements in either direction. The writer believes that in a mature woman in the erect posture, the longitudinal axis of the uterus will be nearly horizontal. The deviations from this line being such, that the fundus may be slightly lower than the cervix when the bladder is empty, and a trifle higher when the bladder is over distended.

The majority of digital or instrumental examinations are made with the patient in dorsal posi-

*Read before the Hennepin County Medical Society, May 2, 1898.

tion, and the pressure on the abdominal viscera is reduced to the minimum, while the bladder and its contents continue to displace the fundus slightly upward or backward. The overfilling of the rectum and the colon with hardened fæcal matter, may as materially deviate the uterus from its normal position. These views, with the fact that the normal uterus possesses a slight anterior curve in its longitudinal axis, make it easy to understand why many practitioners find an anteversion, which the writer fails to recognize as a pathological condition.

Briefly, we all recognize as the important supports for the uterus, the utero-vesical and the cellular tissue, uniting the anterior wall of the uterus to the bladder. The sacro-uterine ligaments being of service in preventing prolapse, and retaining the cervix in the posterior portion of the vagina, the broad ligaments being prominent in preventing lateral deviations. We believe that the uterus is not retained in a normal position by reason of the cervix or os resting on the floor of the pelvis. The pressure of the intestines assists in maintaining the uterus in its normal position, and also in preventing its return to such position, once the fundus descends or bends posteriorly. The importance of the muscles at the vaginal outlet, and indeed of the entire perineum, in holding the uterus in position, we believe to have been grossly overestimated.

We are sure that the general practitioner, even oftener than the gynæcologist, sees cases where the perineum has been destroyed, so that the rectum and the vagina have a common outlet, with the uterus in a perfectly normal position. The contrary has been observed when there has been a complete retroversion or retroflexion, with the most distressing symptoms, in women who have normal perineums, and indeed too often in virgins and sterile women. As to etiology. Trauma and accidents while straining or lifting may immediately provide retroversion. In those deviations known to be congenital, the cause must be owing to arrest of development of certain of the elements that go to make up the uterus, or the destruction by nutritive disturbances, pressure changes, abnormalities of the Mullerian ducts, and possibly, physiological maternal impressions while in utero, of which the writer has no satisfactory knowledge.

As a second class, anything which vitiates the tone of the uterine structure may produce sufficient weakness of the supporting ligaments, and be also cause for retroflexion. Abortions, septic infiltrations and lacerations of the cervix induce such tissue changes, and make the body of the uterus susceptible to retroversion, which surely precedes and nearly always accompanies retroflexion. Retroversion is frequently present when the uterine body itself is perfectly normal, but the bladder and rectum have been overfilled.

If such condition is associated with that bane of the century, pernicious constipation, and the consequent stretching of the utero-sacral ligaments, or the patient makes straining effort, either at lifting, or in attempts at defæcation, we have a reasonable theory for the beginning and maintenance of a retroversion, and by a continuance of the same causes, a rapidly following retroflexion. Most writers and teachers assert that pelvic peritonitis, salpingitis, adhesions in Douglas' cul-de-sac, endometritis, subinvolution, stenosis of the internal os, obstructions to menstruation, anæmia and general muscular relaxation, are among the causes of these displacements.

We all unite in assuring our patients that the retroflexion which is present produces obstruction of the cervical canal, endometritis, congestion of the womb, stenosis, straining at stool, salpingitis, local peritonitis, anæmia and exhaustion with reflex neurotic symptoms. This similarity of cause and effect suggests to my mind an occurrence in a class in physiology, in one of our public schools. The teacher asked the pupil, "Where does the hen come from?" Pupil—"From the egg." Teacher—"Where does the egg come from?" Pupil—"From the hen." Whereupon a little boy in the back of the room who had been listening, snapped his fingers and called out, "Teacher! Say Teacher! How does that game begin?"

If we were undecided as to which were causes and which were effects, it would not be the first instance in the science of medicine where the treatment for the relief of symptoms has been adopted for the cure of the disease. Many of those who pose as conservatives or specialists in other departments, particularly neurologists and the oculists, inform us that there are many women who have retro-displacements without symptoms, and the knowledge of the deformity has been brought to the patients by some ambitious gynæcologist. I wish to state that it has never been my good fortune to find a retro-displaced uterus without symptoms, which to my mind were the result of this pathological condition, although I have frequently found a patient with displacements who had not noticed that there was any abnormality with the uterus, attributing her trouble to other sources. It is also true that many an individual does not know that he is color blind, or has distorted vision, until symptoms reveal the fact to the intelligent oculist, and that many of the patients with catarrh are cured when the expert rhinologist saws off a part of the deviated septum. Also, that patients who are sure that they have serious brain lesions and have paid good fees to the neurologist, have been cured by taking diastase.

It must not seem strange that retro-deviation

is overlooked as a cause of many reflex symptoms, when the writer truthfully states, that he has never yet found a stone in the bladder that it had not previously been pronounced absent. We shall surely find some symptoms like backache, painful menstruation, profuse leucorrhœa, pain on walking, straining at stool with rectum empty, sterility, abortions, dragging sensation, vesical irritability, occipital headache, melancholia and so on through the gamut of nervous disturbances and gastric derangements, where malposition exists.

Diagnosis.

The diagnosis is not always so easily made, since prolapsed ovary, ovarian tumor, hardened fæces, abnormal growths of the rectum or sacrum, or small fibroids, may mislead the examiner. An anteflexed and retroverted uterus, is occasionally mistaken for retroflexion. Such a case was brought to me in the present month, and the subjective symptoms of the latter are oftentimes similar to those of the former. Bimanual examination and the sound carefully introduced within the uterine canal, establish the diagnosis.

Treatment.

All recognize the desirability of returning the uterus to its proper position and keeping it there. When there is perimetritis, or adhesions, it is often impossible or unadvisable to forcibly replace the uterus, without opening the abdomen through the anterior abdominal wall, or through the vagina, not only to facilitate the division of the adhesions, but to control the possible hemorrhage, to establish drainage, to remove or resect diseased ovaries, in short, do what is required. It must be remembered that when an adhesion has been divided, nature's own effort toward a cure makes the reunion of the divided part at the earliest possible moment, therefore, it is necessary to separate as far as may be possible those surfaces which have been connected by pathological adhesions.

Whatever method may be employed in restoring the organ to its normal position, if there has been leucorrhœa, endometritis or allied conditions, it would be advisable to dilate the cervical canal, curette the cavity and apply iodine to the denuded surface. If retroversion alone be present, the reposition can be easily accomplished by putting the patient in the knee-chest posture, retracting the perineum, crowding the cervix into the hollow of the sacrum, and with the left hand over or really under the abdomen push the fundus beneath the pubes. Oftimes this can be accomplished with the patient in the dorsal position. If misplacement has been recent, Hodge's pessary, ordinarily, will be sufficient to maintain the uterus in its proper position. In slender women, with thin abdominal walls suffering with extreme retroflexion, with firm adhesions, it is possible, by the bimanual process, to separate all of the adhesions between the uterus and the rectum, and by crowding the fingers of the left hand between the promontory of the sacrum and the uterus, with the thumb of the right hand in the vagina, and the index and possibly the second finger in the rectum, make such manipulations as shall turn gradually and crowd the organ into its normal position.

In such cases, after curettage and the application of iodine, the introduction of as large a glass stem as can be successfully fitted to the canal without touching the fundus, will assist in maintaining the position, particularly if the vagina be filled loosely with iodoform gauze, anterior to the cervix. The latter may be changed every four days, until all signs of inflammation have subsided, when Hodge's pessary may be introduced, and the daily antiseptic douche employed. While patients are in bed following any of these manipulations, it is well to have them lie upon the face, or at least upon the side, turning as much as possible to the abdominal wall.

Gratifying success often follows a method of treatment which requires much more time and patience, but which avoids that bête noir of timid females, a surgical procedure. It consists of massage at the site of adhesions, followed by an application of an elastic wool tampon saturated with boro-glyceride, which in turn, is followed by graduated layers of wool or cotton, to support the tampon in its position firmly. This assists in a rapid absorption of the exudate. The chemical affinity of the glycerine for the water, makes it a valuable aid in this procedure.

Instead of relying chiefly on hot vaginal douches, even if prolonged, to assist in reducing the prominent inflammatory conditions, I am in the habit of directing the use of rectal enemata, of normal salt solution, as hot as can be comfortably borne, to be retained as long as possible.

In operative treatment comes the greatest diversity of opinion, from the patients, specialists and general practitioners. The Alexander method is certainly applicable to all those cases of retroversion or retroflexion which are uncomplicated, and may be controlled or held in place by any pessary. It seems desirable not to employ this method where there is salpingitis, endometritis, perimetritis or adhesions.

The steps of the operation, as described by the author, have not been improved upon at this date, and may certainly be relied upon to govern the technique at this time. Against the operation it may be stated that it is liable to the same septic contamination as any other operation which is made for maintaining the uterus in position. Dr. DeGarmo has, up to 1898, operated for herina upon over 50 patients who have had Alexander operations. Another operator in New

York reports having five patients in the month of January of this year with hernia following the Alexander operation, and the writer has seen a sufficient number to know that this disaster is not uncommon, while experience shows that hernia occurs more frequently following operations which involve the inguinal canal.

Second, ventral suspension, by which we mean those steps which result in the formation of a ligament extending from the peritoneum of the uterus to the peritoneum of the anterior abdominal wall. The operation for ventral suspension has very properly superseded the earlier operation for ventral fixation, in which a portion of the body of the uterus was practically wedged into the median incision. We have all found that fixation of the uterus is not desirable, and that the plan which permits the position nearest to normal, and the greatest freedom of movement, must necessarily commend itself to the intelligent operator or patient.

Hence the adhesion of a small portion of the peritoneum, from the anterior abdominal wall in the median line, immediately adjacent to the bladder, to the peritoneum of the uterus on its anterior surface, slightly below the line, dividing its anterior from the posterior surface, must be the favorite point of suspension for the following reasons: We have found that shortly after union has taken place, that the site of adhesion becomes a band or cord, which gradually lengthens and permits movements of the uterus in any direction to the limit of its length, and allows it to follow the movement of the bladder or rectum. It does not interfere with the progress of pregnancy, in contra-distinction to the result which follow the faulty adhesions upon the posterior surface of the uterus, to the mural peritoneum in this vicinity, which, I need not say, have been disastrous in more than one case, sometimes making the Porro operation necessary.

I believe that no suture other than catgut should be buried here, since in order to permit the elongation of the ligaments, it is necessary that no silk worm gut, or any inelastic, foreign material be left at the point of union. In cœliotomy for ventral suspension, as for any other reason, there is always possible the danger of producing adhesions in undesirable locations, following such slight abrasions of the delicate peritoneum as may be produced by handling, by the fingers or by the application of gauze sponges, and more certainly if either are moistened by antiseptic solutions.

The patient who has the uterus suspended by the ligaments, usually reports twinges of pain occurring from time to time, when some sudden movement, lifting or some change in posture, puts a strain upon the supplemental ligament. Extreme care is required in every case where the abdomen is entered from whatsoever point, to prevent omental adhesions to the site of the operation, which are often the cause for darting pains in that region.

The method of vaginal fixation, which is so warmly advocated by Vineberg and J. R. Goffe, necessitates vaginal incision anterior to the cervix, and the most careful and painstaking dissection between the uterus and the bladder, and is associated with all the difficulties which attend this manœuver in vaginal hysterectomy, among which are the dangers of wounding the ureters and uterine arteries.

I cannot speak of this operation from personal experience, since my operations through the anterior wall have been limited to vaginal hysterectomy and drainage of cysts. But in the hysterectomies I have found the greatest difficulty in any case, in delivering the fundus anteriorly, and really impossibility with safety when there were infiltrations or adhesions posteriorly. I therefore long ago adopted a rule to make such delivery or division of adhesions only through the posterior cul-de-sac. The vaginal operation would seem to be limited at least to those cases which might properly be done by the Adams-Alexander method.

There has been objection made to this operation, the Wylie-Mann method, and even to the Adams-Alexander operation, that when sufficient strain is put upon the round ligaments, the cornua of the uterus are too sharply bent forward, and it would seem, theoretically at least, that where the round ligaments would be stitched together across the front of the uterus, or to the single incision anteriorly, that there would be great restriction to the development incidental to pregnancy. Dr. Vineberg himself admits that out of four persons who had become pregnant since having this operation made, two miscarriages had occurred, and it is quite possible to infer that the above mentioned condition may have been the cause of the abortions.

If those operators who intend following the method of Alexander should advocate the vaginal incision for the purpose of freeing the uterus from the adhesions, in order that it might be freely suspended by the distal shortening of the round ligaments, it would seem much better to finish the operation through this vaginal incision, providing that time and experience prove that such fixation is efficient, and does not tend to induce abortions in pregnancies following the operation.

It is the habit of the writer when making an operation for the ventral suspension of the uterus, for any retro-deviation, to first curette the cavity of the uterus and apply iodine, to repair whatever laceration there may be at the cervix, and also to make such plastic operation for the support of the bladder and upon the posterior vaginal wall as may be necessary, making the

suspension last if there are adhesions. When the peritoneum is ruptured and the posterior vaginal wall has lost its tone, the denudation is carried to rather an exaggerated width, the extreme length of the vagina ending convexly in the posterior cul-de-sac.

The wound is united by three layers of sutures in the following manner: Using Bœckmann's catgut, Martin's curved needle is introduced ½ in. to the right of the median line, going directly across, emerging for one-half of an inch in middle line, and is inserted in like position upon the left side and stitch tied. In like manner this is repeated four times to each inch, depressing median line until we get to the muscular portion at the outlet. For the second row of sutures, again the needle is introduced at the uppermost portion, about one-fourth inch from the mucous membrane, and is carried to a like point upon the left side and tied. The next stitch is introduced about one-eighth of an inch from the first, but goes around the first layers of sutures, piercing the depressed part of the median line, and includes all of the denuded tissue within its grasp, save one-fourth inch on either side. The next stitch approximates a point like the first, and so on alternately, until the vaginal outlet is reached. The final series of stitches is the silk worm gut, the first stitch simply abutting the edges at the uppermost of the vaginal mucous membrane at the opposite sides. The second stitch girdles the entire denuded portion, barely avoiding entering the rectum. This is done to the vaginal outlet, every alternate stitch approximating the edges of the vaginal mucous membrane, exactly as if it were a flap in an operation.

This method materially elongates the vagina antero-posteriorly, and narrows it from side to side. The silk worm gut stitches include a sufficient amount of the pelvic fascia to overcome the deficiency which necessitated the operation.

This method refers particularly to the manœuvre which was applied above the sphincter levator muscles. If there has been a complete rupture of the perineum, involving the sphincter of the anus, the first stitches are introduced at that point, by the method of Emmett, after which the procedure is as if the laceration extended through the vulva only.

To summarize, retro-deviations are pathological conditions, and the local symptoms immediately resulting should be treated as certainly as if there were to be no operation made. Those retro-deviations which may be replaced and maintained without surgical procedure, should be treated by pessary, tampons, massage or posture.

Retroversions and retroflexions, without adhesions, uncomplicated, in which the pessary is undesirable, or which are not retained in position after replacement, are best treated by the Alexander operation. Those displacements which are complicated by adhesions, pelvic inflammation, diseased ovaries or tubes, adventitious growths, require cœliotomy, and preferably, ventral suspension. The ligament in this case should be made sufficiently low on the anterior surface of the uterus not to interfere with the development of possible pregnancies.

The operation of vaginal fixation will probably be done only by a few experts who wish to demonstrate the efficacy of the theory of support by either of the round ligaments, without surgical band or ligament posterior to the bladder. Least of all the supports to the maintenance of the uterus in its normal position is the perineum, but when this is ruptured and the patient is asleep, the operation for its restoration should be made at the same time as that for the maintenance of the normal position of the uterus, and in such a manner as shall not shorten the posterior wall of the vagina, but on the contrary, decidedly elongate it, and narrow the vagina with sutures which shall include the lower pelvic fascia, the stitches in the vagina being left from three to four weeks.

213 New York Life Building.

DELAYED UNION AND NON-UNION OF FRACTURES.

A PRELIMINARY COMMUNICATION.

By Haldor Snévé, M. D.,

St. Paul.

In November, 1889, a German farmer, 33 years old, was struck in the middle of the left arm by a piece of iron from a boiler which exploded while he was threshing, producing a direct transverse fracture of the left humerus at the middle third. The fracture was properly reduced and treated in the usual manner by the late Dr. Lamothe Ramsey, of St. Cloud, Minnesota. Bony union not having taken place at the end of three months, Dr. Ramsey operated; after four months more, bony union not having occurred, Dr. Ramsey again operated without result.

In the fall of 1890, a year after the injury, the patient came to consult Dr. Dunsmoor, of Minneapolis, with whom I saw him. The man was in perfect health, tall, well developed and of splendid physique. He said that he had never been sick, was married and had healthy children.

*Read before the Minnesota Academy of Medicine, May 4, 1898.

The left arm was helpless, and examination revealed a complete paralysis of the biceps and brachialis anticus muscles, with considerable atrophy. The other muscles of the arm were in fairly good conditon. I assisted Dr. Dunsmoor to operate on the arm by Brainerd's method, i. e., drilling into the bones at and around the seat of fracture, which last contained some fibrous tissue. Three months afterward there was no sign of bony union, although the arm had been put up with great care in a plaster cast, and we again operated by sawing off the ends of the fragments and uniting the bone by means of steel nails.

In the interval between operations I practised passive motion and massage and used douches and electricity locally.

Nearly three months elapsed after the second operation before we decided to make another attempt. I had in the meantime carefully investigated the arm and found that the only tissues besides the bone which were involved were, as above stated, the biceps and brachialis anticus, and an anæsthetic area of skin along the radial side of the forearm, revealing the existence of some local lesion of the musculo-cutaneous nerve. The man was therefore suffering from an ununited fracture of the left humerus and a complete paralysis of the musculo-cutaneous nerve.

More than any case of non-union of bone that had ever come to my notice did this case puzzle me. It seemed impossible that a man in such perfect health could not secure the usual callus formation. It struck me that there must be some other element in this case than those usually advanced for such non-union, and there being a coincident paralysis, this naturally suggested a nervous cause, and in looking up the anatomy of the humerus I found that a branch of the musculo-cutaneous entered the nutrient foramen with the artery, and further, that all bones had nutrient nerves of considerable size. Herein lay a probable explanation. The case seemed to me so plain that I induced Drs. Dunsmoor and Dunn to search for the musculo-cutaneous nerve above the seat of the fracture. Half an hour was consumed in a vain search for the nerve, when it was abandoned and it was decided to go ahead with the ends of the bone, which were sawn off and united with buried silver sutures.

The patient returned to his home in the country unrelieved. Within a year thereafter the bones began to unite coincident with a return of motion in the paralyzed muscles, so that two years and some months after the infliction of the injury, the humerus had reunited perfectly.

This case led me to a study of the literature of the healing of bones, and to the firm conviction that non-union of bones is not a matter of dyscrasia or of the other reasons advanced in our text-books, but wholly and entirely a trophic matter dependent upon injuries to the nervous supply of the bones.

Since 1891 I have been engaged in an attempt to furnish experimental proof of that which seems so plain. I have dissected dogs, rabbits, cats, frogs, guinea pigs, calves and chickens, in an endeavor to find the animal most suitable for such experiments.

Let us examine briefly the supposed causes of delayed union and non-union of fractures. I will name only some of the supposed causes:

General	Syphilis. Old age. Pregnancy. Paralysis. Hemorrhage. General debility. Sexual intercourse. Scurvy. Erysipelas. Fevers.
Local	Wide separation. Wet dressing. Tight bandaging. Mechanical obstacles. Necrosis. Ligation of main artery of limb.

Of the general, the first we find is syphilis. It would be useless to recite the number of cases of fracture occurring in this common disease which unite without any difficulty. The influence of a poison of this kind is only general and does not interfere with the healing of the bone, unless the bone itself be the seat of local disease.

Old age is not a factor, because delayed union occurs with greatest frequency between the ages of 20 and 35.

Pregnancy can be dismissed with a word, as the great majority of these cases occur in males.

Paralysis merits some attention for the reasons suggested above in my case.

Hemorrhage is not a constant accident in connection with non-union, at least to a degree sufficient to cause marked anæmia. General debility is sometimes coincident, but certainly cannot be considered a cause.

Sexual intercourse has been cited in a few cases by a French author, who secured bony union by making his patients abstain for a time. This shows how ridiculous the search has been for the causes of this frequent accident in surgery.

Scurvy, erysipelas and fevers come under the head of the foregoing, which are supposed to act upon the organism in a toxic manner, thereby lessening reparative power, but the thousands of

cases where bony union has occurred in spite of the coincidence of the causes above enumerated, amply disproves an etiological relation.

Of the local causes, wide separation has undoubtedly an influence, but it is not the factor that we are searching here. In non-union of the neck of the femur the cause is in all probability the fact that the fragments are not held in apposition.

Wet dressings are supposed to exert a local retarding effect, but these are seldom used, and need not be considered.

Tight bandaging must be of small moment as it can rarely exist long enough to interfere with union.

We hear a great deal of mechanical obstacles to union, such as the interposition of muscle and other tissue. (One case is cited in Ashhurst's Encyclopædia of Surgery where a muscle ossified between the ends of a fractured clavicle). The possibility of such a cause must be admitted, but I think it very rare, as the fibrous tissue which is the first step in callus formation between the bones is often mistaken for foreign tissue.

Necrosis must be an exceedingly rare cause.

Ligation of the main artery of the limb would of course have some effect upon the growth and nutrition of all the tissues.

The above review shows us that the factors advanced are almost as various as the various diseases that afflict the human body, and the absence of any one constant cause destroys the value of all of them. We are familiar with the fact that both delayed union and non-union of fractures occur in healthy individuals who have the very best of surgical care, so that there must be a cause beyond all the ones advanced. Interpreting delayed union and non-union of fractures in the light of my case, there is at once a flood of light over the whole subject; dyscrasiæ, intoxications, improper care, etc., immediately fall to the ground.

A case of delayed union or non-union becomes then merely a matter of injury of nerves, varying from contusion to complete destruction. This explains why we so often have success from the various operative procedures advocated, especially where two or three operations have been performed. It also explains why in so many cases union occurs when the patient is allowed to run about without operation. It is not the mechanical irritation, but it is the time required for the nerve or nerves presiding over trophic changes to resume function: this may occur in from one month to two and a half years, or even longer. I have furnished neither authors nor cases in support of my remarks on causes, because the material is contained in all textbooks even, and I think that all of us who have given the matter thought, have decided that the causes enumerated are entirely insufficient. Now I would, however, like to go a litle deeper into the trophic function of the nerves to see if we can find support for our theory.

The more we advance in biological studies, the more we see that it is impossible to ascribe the normal nutrition of tissues to a normal supply of blood alone. Experimental studies have limits that are difficult to pass, but here clinical studies must aid us. Research in changes in cell life from experimental section of the central and peripheral nervous system is yet in its infancy.

The late Prof. Heiberg, of Christiania, called attention to the changes occurring in the soft and hard tissues in anæsthetic or mutilating leprosy as offering a rich material in this connection, of which more anon. Older pathologists ascribed nutritive functions to the sympathetic system, but when experimental researches demonstrated the function of the vaso-motor nerves, the mistake was committed of confounding the vegetative nerves with the vaso-motor, and conceiving the influence of nerves on nutrition to be only intermediate, as regulators of blood supply.

Ludwig and Heidenhain have shown us, however, that the salivary secretion is due to a direct trophic function of the nerves. Heidenhain spoke of "secretory" nerves whose action he could study on the protoplasma of the salivary cells. By irritation of the nerves, the mucous cells became mucousless protoplasma cells.

Samuel proposed a system of special trophic nerves, but they have not yet been demonstrated. It was thought that the changes in the cornea following section of the trigeminus were due to lack of tropic influence, but Snellen, Feuer, Boeckmann and others showed that these were traumatic apparently. Mitchell, Morehouse and Keen of Philadelphia, gave to the world an important series of cases of wounds of nerves with secondary nutritive changes in the skin, muscles and bones. Charcot demonstrated trophic changes in diseases of the brain, cord and peripheral nerves, and showed bone affections and arthropathies especially in tabes. Pitres and Vaillard have found changes in nerves in "mal perforant du pied," and studied carefully two cases of spontaneous gangrene of the feet without a trace of circulatory disturbance or change in the arteries, where neuritis existed. Syringomyelia, as we know, produces nutritive disturbances of various kinds, especially that form known as Morvan's disease where we have painless whitlows.

A whole series of clinical observations could be cited which can best be explained by neurotic affections, such as acute decubitus, etc. A great many of these clinical observations have been supported by anatomical examinations of the nerves, and all agree that nutritional disturbances do not usually develop when there is com-

plete destruction or section of the nerve, or in pure paralysis and anæsthesias, but on the contrary, in those cases where injuries and partial lesions are accompanied by inflammation, or in spontaneous inflammatory conditions of the nerves which complicate a central or a peripheral paralysis, and which among other things is recognized by pain in the anæsthetic or paralytic area. "It is not therefore the loss of innervation but it is the morbid excitation, the irritation of the nerves or nervous centers, which produces the changes in cell life, and dystrophies or inflammation in the tissues" (Charcot).

Herein clearly lies the reason for the meager support which experimental physiologic investigations have been able to give the subject. It is easy enough to cut a nerve across or sever it partially and then study the effect on nutrition, but it is most difficult to produce the inflammation within the nerve sheath which is probably a most important factor. The nutritional disturbances which have been ascribed to a nervous origin are of the most various conditions and have been divided by Samuel into three groups: Atrophies, hypertrophies and dystrophies (inflammation, gangrene, etc.). Atrophies of bones, joints, muscles and the skin occur; these atrophies must not be confounded with the atrophy of inactivity. They are differentiated from these last by their appearance and form and especially by their rapid development, which cannot be explained through lack of use; and because they appear most often after preceding pain, which points to nerve inflammation. Thereto it is not rare to see atrophy in parts which are not paralytic. As other examples of this trophic condition can be mentioned herpes zoster and pemphigus after traumatic nervous affections, periostitis, necrosis, chronic arthropathies, perforating ulcer of the foot, Samuel's decubitus acutus, various eye affections, etc. Opinion today is that there are no special trophic nerves but that nerves have trophic function.

As Heiberg pointed out, anæsthetic leprosy is an affection which shows nearly all of the above mentioned nutritional disturbances. Atrophy of the muscles, bones and cartilages occurs; the skin atrophies, becomes pigmented and glossy; sometimes even a whole foot will be lost through a pure concentric atrophy of nervous origin. The greatest part of these big mutilations are not of slow mummifying nature, but appear through inflammatory, ulcerating and necrotic processes which not infrequently begin as a perforating ulcer of the foot.

What interests us most here is the effect on the bones, and these show concentric atrophy. All these changes depend upon a leprous neuritis which does not produce a total destruction of the nerve, but a partial one, just as the traumatic, and especially war surgery tropho-neuroses develop.

W. Ogle has collected most of the cases of bone lesion following injuries of nerves. According to him the most frequent lesion appears to be atrophy of the bone, although cases of necrosis have been recorded.

Lobstein observed a remarkable case of atrophy of the femur in a man who had received a serious wound of the thigh involving the sciatic and crural nerves.

In a case of Blum the histological study of the parts in a man who died seven years after complete section of the median nerve showed the bones rarefied and thinned, the compact layer also being diminished in thickness. Kusmin (Allg. Wiener Med. Zeitung, 1882) appears to be the only investigator who has made any experiments tending to show the influence of the nerves on the growth and regeneration of bones after injury. He cut all the nerves of a limb and broke the bone on that side as well as on the sound one, but the only result seemed to be that the bones on the side where the nerves were cut seemed to grow together better than on the unmolested side.

At present it is impossible to say exactly what condition develops or exists in the nerves injured in fractures, but a consideration of the foregoing seems to point to the fact that a local inflammation is set up, involving the nerve or nerves supplying the shaft of the bone when we have delayed union or non-union.

In delayed union we must assume that there is arrest of function of the nervous supply of bone and that union will occur without operation if time enough be given for the repair of the nerve, and the practical lesson to be drawn from this is: Do not be in a hurry to operate, but if you do operate after six months of delayed union, cut down upon the nerve from which a branch is sent to the shaft of the bone to see if it be severed. A case of non-union should therefore mean to us that the nervous connection existing between the bone and the nerve centers is wholly broken, and unless this can be restored a false joint will develop.

The Reference Hand-Book of the Medical Sciences gives the percentage of occurrence of delayed union to be as follows:

	Per cent.
Humerus	34
Leg	28
Femur	24
Forearm	12

The difficulty of offering experimental proof of the truth of my contention is apparent.

First: A new series of histological studies of nerve ending in bone must be made with the new methods of research. Kölliker, with the old methods said that he could follow the nerves

POSTERIOR SURFACE.

RIGHT FEMUR.

ANTERIOR SURFACE.

LEFT HUMERUS.

RIGHT LEG.

LEFT FOREARM.

The above represents the direction of the openings of the nutrient foramina and nerves from which the nutrient branches are derived.

The dotted lines indicate the probable areas of their distribution and parts supplied by them. The articular extremities are pierced by numerous small branches.

The nerve supplying the femur is a branch of the great sciatic. The tibia and fibula are supplied by the posterior tibial nerve, the humerus by the musculo-cutaneous nerve, and the radius and ulna by the median nerve.

along the vessel some distance in the bone, but then he lost them, and whether they ended in the bone cells or in the vessel walls he did not know.

Second: Section of the nerves or other branches supplying the bone shaft must be made on some animal suited to the experiment, and after some time has elapsed the bone must be studied histologically for changes. It may be that simple section of these nerves will not be enough, but that a local inflammation must in some manner be set up if we are to secure results.

Third: After section, preferably of the nutrient branch of a long bone, the bone must be broken and treated as in an ordinary fracture to see if delayed union occurs or not.

Fourth: Surgeons must study the clinical cases from this standpoint and observe carefully if coincident paralysis exists in a given case, or if trophic changes can be observed in other tissues.

I think that a review of the literature of delayed union will show that the time which elapses before the bone unites is the time required for regeneration of injured nerves.

That the nutrient nerves supplying the shafts of these bones have a function is undoubted, and that this function is one connected with nutrition also seems undoubted in view of the fact that diseases and trauma of nerves produce nutritive changes also in bone. It has been suggested that nature in her wisdom has furnished nerves from these motor-sensory trunks which have a sensory function, so that when a bone is broken movement of the fractured ends will be painful and the animal will seek rest. This is quite plausible, but enough nerves supply the coverings of the bone to furnish such knowledge and besides the bones themselves are not sensitive.

Another function might be ascribed to these nerves when we consider the important function of the bone marrow in relation to the blood. The size of these branches, their protection and their constancy, would seem to indicate an important function, and I feel assured that this function will be found to be a trophic one.

Some Effects of Size on Judgments of Weight.—H. R. Wolfe has experimented extensively on students, both male and female, with pieces of lead and blocks of light wood, the ratio of weight to size being 1 to 25. His experiments were repeated during several years, and showed that the wood blocks were invariably judged to be lighter than they really were, and the lead pieces heavier than they actually were. The illusion was greater for women than for men, and greater for small than for large weights.

The variation for individuals was found to be immense, but, by eliminating 10 per cent of the subjects—those known to be abnormal—the variation is greatly reduced. With both men and women the ratio of wood to lead at first increases with the weight, then decreases more rapidly, till for the heaviest weight the ratio is about two-thirds as great as for the lightest weights. For example: "The men find 4.7 grams of lead equal to 15.5 grams of wood. The women find 3.1 grams of lead equal to 15.5 grams of wood. The men think 229.2 grams of lead feel as heavy as 525 grams of wood, while the women select lead weighing only 145.2 grams as equivalent to 525 grams of wood."

"If we ascribe one-half of the error to each substance, we find that, in comparing lead and wood weights, men estimate the lead at about twice its actual weight, and that they estimate the wood at about two-thirds its actual weight. Under the same conditions, women estimate lead at more than three times its real value, and wood at less than three-fifths its real value."

Methods of lifting did not seem to exert any appreciable influence. As a rule, the lead was lifted in the palm of the hand and the wood between the thumb and fingers. "If the weights be suspended by a cord held between the fingers, so as to give no intimation as to which is lead or wood, and the eyes be closed and all other means of determining size be excluded, the judgment immediately improves, until the error amounts to less than one-tenth of the weight; while, with a knowledge of the relative size, the error may rise to three or even ten times the weight."

Experiments with paper bags filled with cotton or air, and also with brass cylinders, contain the same factors and show similar results. The size of the error of an individual is a function of his personality.—Journal of Mental and Nervous Diseases.

The only English case in which the active principle of aconite has been used as a poison is the case of Dr. Lawson, who poisoned his brother-in-law, Percy Malcolm John, to obtain the sum of £1,500, in which he had a reversionary interest through his wife. The brother-in-law was a youth of eighteen years of age, paralysed in his lower limbs from long standing spinal disease. The youth died in less than four hours after taking a gelatine capsule containing some white powder which he was told was sugar. Lawson was arrested, tried, condemned and hung. The difficulty of proving the presence of a rare vegetable alkaloid in the body after death, was the reason no doubt why Lawson fixed on aconite as the poison he used. —Indian Lancet.

Northwestern Lancet.

A SEMI-MONTHLY MEDICAL JOURNAL

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MENINGITIS.

It must be confessed, although with reluctance, that this community is just now undergoing an epidemic of meningitis. It is a small epidemic at present, to be sure, but when this formidable disease once breaks loose it is impossible to predict where it will go to. The most comforting indication is the fact that whenever the disease has broken out here before it has not spread very widely nor been of long duration.

The health reports for April showed sixteen deaths from meningitis in Minneapolis, and the same number in St. Paul, a very considerable number of deaths from a disease which does not appear upon the roll of mortality every month. The deaths in Minneapolis were classed as meningitis, 13; tubercular meningitis, 3; in St. Paul, meningitis, 8; spinal meningitis, 3; tubercular meningitis, 5. It is probable that all but two or three of the deaths in each city may fairly be attributed to epidemic meningitis, as the difficulty of making positive distinctions among the different forms of this disease are well known.

Those who have seen most of the cases describe them as remarkably acute in their onset, even for so vigorous a disease as meningitis. Beginning with headache, high fever and vomiting, the patient quickly becomes stupid and then comatose. Rigidity of the muscles at the back of the neck is common, and in children there are often convulsions. But few cases have shown an eruption, an exception being one reported by Dr. Talbot Jones at the last meeting of the Minnesota Academy of Medicine. An account of this case wil be found in the proceedings of the Academy, to appear later in the LANCET, and it will be noticed that in this case, as often happens at the beginning of an epidemic, the differential diagnosis between epidemic meningitis and typhus fever presented some difficulty.

Although logically the conclusion is inevitable that epidemic meningitis is a germ disease, proof is waiting of the existence of any single microörganism as its cause. The subject is one that has been much investigated, but the various observers who have found pathogenic germs in connection with the disease have been unable to agree as to any particular causal agent. The pneumococcus lanceolatus is the organism most frequently found to be associated with meningitis, but besides this the disease has been found to be apparently dependent upon other germs, among which are the streptococcus pyogenes, the typhoid bacillus, the Klebs-Loeffler bacillus, and the staphylococcus pyogenes aureus. Even before the pneumonia germ was found in the exudation of meningitis the association of this disease with pneumonia had been more than once observed. It is well known that the pneumococcus lanceolatus is frequently found in the mouth of healthy individuals; how frequently has not been fully determined, but Netter gives the figure as eighty per cent. If therefore meningitis is to be ascribed to this germ, some additional cause besides the presence of the microörganism must be found, either influences which greatly increase the activity and virulence of the coccus itself, or, as is perhaps more likely, those that diminish the power of the human organism to resist the action of the poison.

The detection of the specific germ of epidemic meningitis is of particular importance in connection with the discovery of the method of infection in order that an intelligent system of

prophylaxis against the disease may be inaugurated. At the present time it must be confessed that there is no communicable disease whose method of transmission is so little known. J. Lewis Smith and others have reported cases where it seemed that personal contact alone could account for the communication of the disease. On the other hand it is not generally observed that those in closest connection with a case become infected. It is reported of an epidemic at Cologne that of thirty cases no two occurred in the same house. Common prudence demands that cases of epidemic meningitis should be isolated as much as possible, but the history of the disease is such that those who are called upon to attend the sick may do so without dread of contagion.

If little is known of the specific origin of epidemic meningitis, specific treatment is a still blanker page. It is obvious from the nature of the disease that the patient should be ensued absolute rest and quiet, a bland diet, cold to the head and medicines like the bromides which depress the circulation in the brain. The history of past epidemics has been that early cases are severe and progress rapidly to a fatal termination. Later some cases begin to recover and as the epidemic dies out recovery becomes the rule. There are few diseases against which medical science is more helpless. Trephining for the purpose of drainage has been recommended, and there are a few reports of its success. In view of the hopelessness of the disease operative interference is justifiable, and should be thoroughly tried.

CORRESPONDENCE.

HYPNOTISM AND THERAPEUTICS.

Editor of Northwestern Lancet:

Sir: I notice in your issue of April 15, an allusion to the efficacy of suggestive therepeutics in overcoming vicious habits, eneuresis, masturbation, etc., also criticism of the article by Dr. Fliesburg in the issue of May 1. An adequate comprehension of the manner in which medical hypnotism operates would perhaps suggest to the editor and readers other diseases and conditions which would be benefited by hypnotism treatment.

Suggestion cures by stimulating or inhibiting certain centres. By inhibition we mean the complete or partial arrest of a structure or function by a restraining influence exerted over it through the nerve centres.

Objectivity being allayed and perfect passivity or subjectivity induced, the subconscious mind receives sugestions (provided they are in harmony with the auto-suggestion of the individual) as commands, and they are acted upon by that mind, which exerts the greater control over the functions of the body. Digestion, assimilation, metabolism and elimination can be stimulated and endosmosis and exosmosis, or the alteration of the osmotic powers of the cell wall toward the surrounding plasma hastened by the passage of nerve impulses. Therefore in constipation or its antithesis we stimulate or inhibit peristaltic action through the nerves controlling that function. In dysmenorrhœa, where there is no obstruction, amenorrhœa, menorrhagia, metrorrhagia, we quiet, stimulate or inhibit through the nerve centres. We create loathing, hatred for certain habits, such as perverted sexual inclination, dipsomania, morphinism, etc., and occasionally control the pneumogastric reflexes to the extent of producing nausea when liquor, morphine, etc. is exhibited. As a diagnostic agent in paralysis, suggestion is unexcelled, as the simulated form, i. e., pseudo-paralysis can hardly be differentiated from the true in the waking state, but when the mind is rendered ideoplastic, the subconscious mind being unable to antagonize, the suggestion is executed as a command. Undoubtedly where there is a degenerative change the results will be negative. The science of suggestion is brought into dispute through the attempts of some extremists to cure locomotor ataxy, epithelioma, carcinoma, paresis, cirrhosis, insanity, etc. by that agent. But where there is simply a nervous or functional disorder suggestion will materially aid indicated medication.

Edwin F. Bowers.

401 Masonic Temple,
Minneapolis, May 11, 1898.

MISCELLANY.

MINNEAPOLIS MEDICAL CLUB.

The annual meeting of the Minneapolis Medical Club was held at the Holmes Hotel, May 19. The officers elected were: President, Dr. Henry Cotton; vice-president, Dr. Frank Wright; treasurer, Dr. Frank Todd; secretary, Dr. C. D. Harrington. Adjourned to meet Sept. 15th, 1898.

PROGRAM OF THE MEETING OF THE MINNESOTA STATE MEDICAL SOCIETY, BEGINNING JUNE 15, 1898.

SURGICAL SECTION.

A. E. Spalding, M. D. Chairman.

Modern Surgery and the Microbe.
Reference to Recent Advances and Literature.
By Franklin Staples, M. D.

Contusions of the Abdomen and Their Surgical Treatment.
By John T. Rogers, M. D.

Simple Enucleation Not a Proper Surgical Procedure.
By Howard McI. Morton, M. D.

The Implantation of an Artificial Vitreous as a Substitute for Enucleation of the Eyeball.
By Frank C. Todd, M. D.

Tendon Injuries in the Hand and Forearm.
By William de la Barre, M. D.

Abscess of the Lung.
By W. J. Mayo, M. D.

Asepsis as Practised in the Country.
By P. A. Walling, M. D.

The Passing of Iodoform.
By J. E. Moore, M. D.

Report of a Case.
By P. M. Hall, M. D.

Squint.
By Edward J. Brown, M. D.

Paper. (Title not announced.)
By James H. Dunn, M. D.

Paper. (Title not announced.)
By C. H. Norred, M. D.

1. Prolapsus Recti. Treated by Excision, with Report of Case.
2. Œsophagotomy for the Extraction of an Impacted Tooth Plate of Six Years Standing.
By G. G. Eitel, M. D.

Intestinal Adhesions.
By A. E. Benjamin, M. D.

A Peculiar Case of Ectropion. Both Lower Eyelids, After Years of Eversion, Restored by Operation.
By A. Blitz, M. D.

SECTION OF THE PRACTICE OF MEDICINE.

Charles Lyman Greene, M. D., Chairman.

1. Paper: Bicycle Therapeutics.
By C. H. Hunter, M. D., of Minneapolis.
2. Paper: Diabetes Mellitus.
By J. G. Cross, M. D., of Rochester.
3. Paper: Adenoids in Their Relation to General Disease.
By Albert C. Heath, M. D., of St. Paul.
4. Paper: Points in the Differential Diagnosis of Ascites.
By Arthur R. Edwards, M. D. of Chicago.
5. Paper: The Treatment of Pneumonia by Cold.
By H. Wernicke Gentles, M. D. of Chicago.
6. Case Report: Two Cases of Appendicitis Treated by Calomel and High Injections.
By P. A. Walling, M. D., of Park Rapids.
7. Case Report: Appendicitis from the Standpoint of the General Practitioner.
By Theo. L. Hatch, M. D., of Owatonna.
8. Case Report: Lead Poisoning from an Unusual Source.
By Franklin A. Dodge, M. D., of Le Sueur.
9. Case Report: Subcutaneous Emphysema Occurring During the Act of Vomiting.
By A. W. Dunning, M. D., of St. Paul.
10. Case Report: Induced Abortion—Sepsis—Anurea Lasting Eleven Days—Death.
By Andrew Henderson, M. D., of St. Paul.
11. Presentation of a Case of Valvular Heart Disease of Unusual Interest.
By A. T. Conley, M. D., of Cannon Falls.
12. Case Report: (a) Landry's Paralysis—Complete Respiratory Paralysis—Life Maintained for Forty-two Days by Artificial Respiration.
(b) Spleno-Medullary Leukæmia.
(c) Pernicious Anæmia.
By Charles Lyman Greene, M. D., of St. Paul.
13. Leukæmia.
By Hugh F. McGaughy, M. D., of Winona.
14. Treatment of Tuberculosis.
By C. A. Haas, M. D., of St. Paul.
15. Presentation of Case—Myxœdema.
By Walter Ramsey, M. D., of St. Paul.
16. Case Report: "A Staggering Coincidence."
By F. W. Epley, M. D., of New Richmond.
17. Treatment of Pneumonia by Pilocarpine.
By E. J. Davis, M. D., of Mankato.
18. Widal's Test in the Diagnosis of Typhoid Fever.
By Louis B. Wilson, M. D., of Minneapolis.
19. Diazo-Reaction in Diagnosis of Typhoid Fever.
By J. P. Barber, M. D., of Minneapolis.

SECTION OF OBSTETRICS AND DISEASES OF CHILDREN.

W. T. Adams, M. D., Chairman.

1. Chairman's Address: Injuries to the Cervix Uteri.
By W. T. Adams, M. D., of Elgin.
2. Some Causes of Maternal Dystocia.
By R. E. Cutts, M. D., of Minneapolis.
Discussion opened by C. A. Erdman, M. D.

3. Care of Premature and Feeble Infants.
By S. W. Ranson, M. D., of Dodge Center.
Discussion opened by D. M. Cool, M. D.
4. A Study of the Cellular Elements of the Blood in the Diagnosis of Diseases of Children.
By Geo. Douglass Head, M. D., of Minneapolis.
5. Antitoxine in the Treatment of Diphtheria in Children.
By H. H. Witherstine, M. D., of Rochester,
Discussion opened by C. H. Mayo, M. D.
6. Cretinism in Children, with Report of Case.
By C. Graham, M. D., of Rochester.
Discussion opened by C. L. Greene, M. D.
7. Report of Two Cases of Mastoiditis in Young Children.
By Edward J. Brown, M. D., of Minneapolis.
Discussion opened by C. J. Spratt, M. D.
8. Puerperal Sepsis.
By S. E. Howard, M. D., of Minneapolis.
Discussion opened by A. W. Stinchfield, M. D.
9. Rickets.
By R. C. Dugan, M. D., of Eyota.
Discussion opened by S. W. Ranson, M. D.
10. Obstetric Hints.
By Mary S. Whetstone, M. D., of Minneapolis.
11. Concerning Management in Certain Cases of Obstetric Dystocia.
By Franklin Staples, M. D., of Winona.
Discussion opened by Park Ritchie, M. D.
12. Antipartum Hemorrhage.
By C. R. Keyes, M. D., of Duluth.

SECTION OF GYNÆCOLOGY.

C. A. Stewart, M. D., Chairman.

1. The Treatment of Uterine Fibroids.
By F. A. Dunsmoor, M. D.
2. Peritoneal Drainage.
By A. MacLaren, M. D.
3. The Superiority of Amputation of the Cervix Uteri over Trachelorrhaphy.
By J. H. Rishmiller, M. D.
4. Ectopic Pregnancy—A Symposium:
(a) Its Pathology and Prognosis.
By J. L. Rothrock, M. D.
(b) Its Symptoms and Diagnosis.
By A. W. Abbott, M. D.
(c) Its Treatment.
By W. J. Mayo, M. D.
5. A Report of Four Recent Cases of Ectopic Gestation.
By J. Warren Little, M. D.

SECTION OF MEDICAL EDUCATION, JURS RU DENCE AND STATE MEDICINE.

David Owen Thomas, M. D., Chairman.

1. An Inquiry Into the Possibilities of Artificial Immunity.
By Dr. David Owen Thomas, Minneapolis.
2. The Importance of Traces of Albumen and Casts on the Expectancy of Life. From an Insurance Point of View.
By Dr. C. A. McCollom, Minneapolis.
3. Medical Education.
By Dr. Leo M. Crafts, Minneapolis.
4. Bovine Tuberculosis.
By Dr. M. H. Reynolds, St. Anthony Park.
5. A Contribution to the Subject of Preventive Ophthalmology in Our Public School Systems. Second Paper.
By Dr. Howard McIlvain Morton, Minneapolis.
6. The Climatic Treatment of Pulmonary Tuberculosis.
By Dr. J. W. Bell, Minneapolis.

SECTION OF NERVOUS DISEASES.

F. A. Dodge, M. D. Chairman.

1. Cretinism.
By F. A. Dodge, M. D.
2. The Clinical Resemblance and Pathological Analogy Between Hereditary Chorea and Disseminated Cerebro Spinal Sclerosis in the Insane.
By H. A. Tomlinson, M. A.
3. Some Modern Histological Theories of the Central Nervous System, Illustrated by the Stereoptican.
By C. Eugene Riggs, M. D.
4. Views of Inebriety Derived from a Study of Cases in the Inebriate Department of the Rochester State Hospital.
By R. M. Phelps, M. D.

SECTION OF PATHOLOGY AND PHYSIOLOGY.

S. H. Boyer, M. D., Chairman.

1. The Influence of the Nervous System on Metabolism.
By G. C. Barton, M. D.
2. The Pathology of Gonorrhoeal Septicænua.
By J. M. Robinson, M. D.
3. Paper: Title to be Announced.
By J. L. Rothroek.

NOTES.

Whether or not the military and naval forces of the government, at present under arms, are to see much active service or participate in many pitched battles, certain it is that many minor casualties will occur and that surgeons will be called upon to treat a considerable number of minor wounds such as burns, abrasions, small cuts, etc.; in this connection it would seem as if the new local anaesthetic Orthoform should

prove of peculiar service. For the benefit of the medical officers in charge of large bodies of men, we will state that Orthoform is a fine white powder entirely non-poisonous, possessing the unique power of producing complete and continuous anaesthesia when applied to denuded surfaces or whenever it can be brought in direct contact with sensitive nerve-endings. As the drug is also a distinct antiseptic it needs no sterilization. It can be applied pure as a powder or in 10 to 20 per cent ointment with any desired base.

Messrs. Victor Koechl & Co., 122 Hudson St., New York, the American agents, will be glad to send literature and samples to any medical officer requesting same.

The American Medical Association.

At the annual meeting of the American Medical Association, which commences at Denver, Colo., June 7th, Messrs. McKesson & Robbins will place on exhibition a series of water color drawings illustrating the life history of the various organisms which cause malarial fevers. These plates will represent a magnification of the parasites of 20,000 diameters. A drawing on such a scale has never before been attempted, and the study necessary to perfect these illustrations has resulted in bringing out features in the organisms which have never before been recorded. The series, we venture to say, will represent a new departure in the study of these organisms, and we strongly urge our readers not to fail to visit the attractive visit.

A Sheet Anchor.

On September 10th, 1897, a well-known New York physician, the surgeon of the Third Avenue Cable Railroad Company, returned to the New York office of the Norwich Pharmacal Co., ninety-four one-pound, empty, Unguentine jars. In a letter accompanying the jars the doctor says: "The jars I return to you to-day represent the number of pounds of Unguentine I have used since December 1st last. I have from twelve to fifteen cases a day, motormen, conductors, and stablemen suffering from slight wounds, abrasions, cuts, bruises and burns, and about the only treatment I make is to give them a small box of Unguentine. It is certainly my sheet anchor in practice, as in every instance it heals all the above cases quicker than anything I have ever used."

Old Remedy—New Uses.

There are very many important uses for Antikamnia, of which physicians as a rule may be uninformed. A five-grain Antikamnia Tablet prescribed for patients before starting on an outing, and this includes tourists, picknickers, bicyclers, and in fact, anybody who is out in the sun and air all day, will entirely prevent that demoralizing headache which frequently mars the pleasure of such an occasion. This applies equally to women on shopping tours, and especially to those who invariably come home cross and out of sorts, with a wretched "sightseer's headache." The nervous headache and irritable condition of the busy business man is prevented by the timely use of a ten-grain dose. Every bicycle rider, after a hard run, should be advised a bath and a good rub down, and two five grain Antikamnia Tablets on going to bed. In the morning he will awake minus the unual muscular pains, aches and soreness. As a preventive of the above conditions, Antikamnia is a wonder, a charming wonder, and one trial is enough to convince.

An Interesting Engraving.

There has just been issued a handsome engraving of an old painting of the first meeting of the Medicay Society of London which was held in 1773 and it contains portraits from life of the most prominent of the original members.

Among those represented are: Edward Jenner; William Saunders, whose work on "Diseases of the Liver" was the authority for many years; John Aikin, a noted miscellaneous writer and the publisher of a "General Biography;" William Babington, author of a "New System of Mineralogy" and one of the founders of the "Geological Society;" Thornton, author of a "Philosophy of Medicine;" Edward Bancroft, a naturalist; Robert Hooper, who published a "Medical Dictionary;" and a number of other famous men of their day.

As this was probably the first medical society on record and was the predecessor of the British Medical Society, the engraving represents an event of much interest to every member of the medical profession and should prove an attractive addition to the walls of the office or home.

A copy will be mailed to any physician applying for it, by the proprietors of the Tongaline preparations, the Mellier Drug Company, No. 2112 Locust Street, St. Louis.

Highest Therapeutical Value.

Dioviburnia has stood the critical test of the most exacting physicians for years and has been pronounced of the highest therapeutical value. Can always be relied upon in all functional disorders of the uterus and appendages, whether acute, sub-acute or chronic.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

(Contined from LANCET of June 1.)

The origin of monasteries is lost in the obscurity of ages. The earliest monks were hermits who lived alone in caves or rude huts. As their numbers increased they began, in order to protect themselves from persecution and violence, to build their huts close together, and thus were formed little communities of monks. At a little later period, when some sort of organization had been reached, they built larger houses in which there were separate cells for each monk and which were surrounded by walls of stone. Chapels for common worship were erected, and gradually from this rude beginning was established the system of monasteries which finally became so powerful. For centuries the monks lived apart from the world and took no part in public affairs, but as Christianity spread and became the ruling religion of western Europe, and the monastic spirit began to be felt, and its influence to spread among the rulers and the higher classes of the people, many of the monks became prominent in affairs of state and were at times conspicuous figures in the courts of the emperors. During the darkest periods of intellectual decay in western Rome the monasteries had been the sole protection of literature and learning and they were also made places of refuge for the poor, the sick and the afflicted. One of the most celebrated and powerful monasteries was founded by Benedict at Monte Casino, not far from the school of Salerno. The Benedictine monks were the most powerful and influential order in the whole history of monasticism, and did much to preserve some flickerings of the brilliancy of a former civilization, which without their influence must have utterly perished.

Notwithstanding all the tendencies towards the destruction of knowledge in this once famous western Empire, there still persisted some relics of its former intellectual power in the two famous schools of Salerno and Montpelier, which continued to flourish during most of the middle ages. Salerno was charmingly situated on a hill not far from the modern city of Naples, and had a great reputation as a resort for health and recreation among the Romans as early as the third century before Christ. Just when the medical school of Salerno was founded is not known, but it is certain that it was during the later days of the decline of the Roman Empire and that it continued to flourish and to maintain its independence of religious control for some centuries, although later it fell under the influence of the Benedictine monks.

It seems from various sources of historical evidence that the monks quite early began to realize that medical knowledge was valuable and important to them as a means of curing the sick, although they would not admit this to their patients, lest their spiritual influence should be weakened. Accordingly they endeavored secretly to acquire such knowledge as they could, and many of them resorted, in various disguises to the school of Salerno. However this may be the school of Salerno was famous as a seat of medical learning, and was eminently practical and scientific in its methods, and its graduates were highly esteemed. This school was undoubtedly assisted by Arabian scholars who came from the east and brought with them the educational methods of the then flourishing Mohammedans. The school of Montpelier also acquired great reputation as a school of medicine as well as a seat of general learing, and produced many of the best scholars and most practical physicians of mediæval times in western Europe.

Towards the end of the middle ages, that is at about the beginning of the twelfth century, there began that long series of religious wars, so renowned in romance and poetry, as the crusades, which were really but a new phase of the old wars between Christianity and Mohammedism, between the believers of the gospel and the believers in the koran. It is said that the immediate occasion of the crusades was the cruel treatment and persecution of the Christian pilgrims who went to visit the sepulchre of Christ in Jerusalem, and who were continually harassed, insulted, and many of whom were murdered, by the infidels who held dominion in the Holy Land. The religious enthusiasm combined with the spirit of chivalry which were the two ruling passions of the Christians at that time, was sufficient to awaken a desire among the people of all classes to take active part in this holy war, a war which could hardly be called a war of nations, but was rather a long series of expeditions and battles between individual factions and comparatively small bands of

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

knights and adventurers, who made independent hostile excursions into the country of their religious enemies. The crusades accomplished at least one result which worked for the ultimate advantage of civilization, in that it brought more closely together the long separated nations of eastern and western Europe and marked the beginning of an active revival of literature, science and art in the latter. An increased activity in medicine resulted from the many hospitals which were founded as the result of the military expeditions, and in the treatment of their sick and wounded the crusaders were quick to appreciate and to put into practice the knowledge of medicine and surgery which they learned from the Arabians and the Greeks.

The period of the crusades lasted for about two hunderd years and in the beginning of the fourteenth century was apparent the dawning of a civilization in all parts of Europe which has since then steadily progressed. New universities were founded and old ones were revived, and in the courts of all nations education and general culture became prominent and scientific investigation in all directions was encouraged. Italy was especially conspicuous in this general intellectual awakening, and in this century lived Dante, Petrarch, and Boccacio. The schools of Salerno and Montpelier continued to flourish, the latter having in 1370 become subject to the control of France.

It is related that Robert of Normandy returning from the Holy Land sojourned at Salerno to receive treatment for a poisonous wound of the arm, received at the siege of Jerusalem. When he was about to return home, having been cured of his wound he was presented with a Latin poem, composed for his benefit, which was entitled "Rules of Health of the Salerno School." This poem afterwards became very famous and was translated into many languages. I will read you a few lines of a recent English translation:

"Salerno's school in conclave high unites
To counsel England's king; and thus indites:
If thou to health and vigor would'st attain,
Shun mighty cares, all anger deem profane;
From heavy suppers and much wine abstain;
Nor trivial count it after pompous fare
To rise from table and to take the air.
Shun idle noonday slumbers, nor delay
The urgent calls of nature to obey.
These rules if thou wilt follow to the end.
Thy life to greater length thou may'st extend."

A very famous surgeon of the fourteenth century, who had studied at Paris and at Prague as well as at the school at Montpelier was Guy de Chauliac. He practised at various places both in Italy and France, but lived for the longest periods at Lyons and Avignon where he received high honors from the Popes Clement and Innocent. He was especially skilled in surgery and his knowledge of operative procedures was greater than that of any man who had preceded him, and he was not only familiar with anatomy as it was known to the ancients, but he had had some experience in dissection. He divided hemorrhage into arterial and venous; opened the abdomen for dropsy, described radical operations for hernia, distinguished between hot and cold abscesses and described malignant tumors with operations for their removal. His description of the qualifications necessary for a surgeon has never been surpassed; he says: "A surgeon should be learned, expert, ingenious, bold when he is sure, timid when he is in doubt, avoiding bad cures and practices; being gracious to the sick, generous and compassionate, wise in predictions, chaste, sober, pitiful and merciful, not covetous or extortionate, but receiving moderate fees according to the circumstances of his patient, the character of the case and his own dignity." Surely no surgeon of today would go wrong if he lived up to these precepts.

Before proceeding to the history of medicine in the fifteenth and succeeding centuries, it will be interesting to devote a little time to the study of some of the great pestilences, the so-called plagues, which during antiquity and the middle ages had such a powerful and distinctive influence upon the history of nations. Historians have referred to various extensive epidemics which were very fatal, during the four or five centuries preceding the Christian Era, but our knowledge of their nature is so indefinite and vague that I have been unable to find any accounts which seem at all trustworthy and shall not therefore attempt to describe them. The first century after Christ was remarkable among the Roman people for the occurrance of tremendous catastrophies and national afflictions. Earthquakes, floods, famine, caused by successive seasons of great drought, and the ravages of great swarms of grasshoppers, and locusts produced much poverty and distress. In the year 64 A. D. occurred the great fire in Rome which raged for six days and destroyed a large part of the city. But perhaps the most remarkable and deplorable disaster in all history was the eruption of Vesuvius, which began on the 23d of August, 78, and which overwhelmed and completely buried the two beautiful cities of Herculaneum and Pompeii and destroyed most of their inhabitants. Very shortly after this calamity began a great pestilence, which is usually known as the plague of Crosius, as it was best described by him.

"As immense masses of grasshoppers collected together throughout Africa, and not only withdrew all hope of harvest by devouring all

vegetables and a part of the roots, the leaves of the trees and the tender parts of the branches, they were suddenly swept away by the wind, collected into swarms and finally drowned in the African sea. As the tides threw immense heaps upon the extended shore, the putrefying and corrupt masses exhaled an incredibly pernicious odor from which proceeded so great a pestilence among all living creatures that they without distinction perished from infection of the air; and then the putrifying bodies of the birds and beasts still increased the evils of the pestilence." This pestilence was especially prevalent and destructive in Carthage, Utica, and various parts of Africa and destroyed more than a million people. The plague (so-called of Antoninus) began in Rome in the year 160 and for a period of twenty years it raged throughout the entire Roman Empire. During its progress it depopulated and even extinguished entire cities and communities, so that it is said that forests sprang up where previously had been inhabited districts. During its height more than 2000 died daily in Rome alone, and it is not possible even to roughly estimate the number of people it destroyed. Whether this disease was small pox, typhus fever or the bubo plague, we have no means of knowing. Less than a century later, in the year 251, arose another pestilence which from the description of its symptoms was probably the bubo plague. It is known as the plague of Cyprian, and raged for fifteen years, and as a result a large part of Italy was nearly depopulated. Other plagues are alluded to by historians, most of which were probably fresh outbreaks of these which I have described. It is apparent that the frightful loss of life, with the famine and all the attendant horrors of these pestilences must have had a powerful influence among the many conditions which tended to the destruction of the Roman people. These earlier plagues, however, fearful though they were, can not compare in extent or fatality with that which is known as the plague of Justinian, which prevailed during almost the entire sixth century and which afflicted all parts of the known world. Like the plague of Orosius it was preceded by numerous natural calamities, drought, famine and earthquakes. The plague (probably the bubo plague) apparently originated in Egypt from whence it spread up the Nile and thence into Asia Minor. It soon reached Constantinople, where from 5,000 to 10,000 persons died daily for many months. It spread to Greece and Italy, to Gaul and among the cities of the Rhine.

For the second time, in 558 it appeared in Constantinople and was even more fatal than before, so that it was impossible to bury the dead and it is said they were thrown into the hollow towers of the city walls, where they putrified and added to the general unhealthiness of the air.

Although the prevailing disease was, from quite accurate descriptions still extant, undoubtedly the bubo plague, of which I shall speak more in detail in describing one of the great epidemics of modern times, there existed contemporaneously with it epidemics of small pox, typhus fever and measles. This calamitous period of pestilence endured for more than seventy years, destroying men, women and children in enormous numbers, devastating not only cities but nations, and wiping out many features of civilization which it had taken centuries to produce. It has been estimated that one-half the human race perished by pestilence and famine during this century.

During the latter part of the middle ages there were numerous epidemics in different parts of the world which have been described as the "great death," and the "black death," and which lasted for several years at a time, but none so long or so disastrous as the plague of Justinian. In the thirteenth and fourteenth centuries it was customary for the rich people in times of pestilence, to desert the cities and to shut themselves up, often considerable numbers of congenial people together in castles and great country estates, where they would remain isolated from the world until such time as it was considered safe to return again to their city homes. The famous Decameron of Boccacio is supposed to be a collection of stories which were told for the amusement of a party of Italian ladies and gentlemen who were sojourning together during one of these periods of enforced banishment.

The three great epidemic diseases which from time to time have scourged mankind, are the bubo plague, small pox and cholera. If medicine, particularly the sciences of hygiene and prophylaxis, had done nothing else, she might take a just pride in receiving the eternal gratitude of humanity for having blotted out these from the list of human afflictions; for in modern civilized communities they are no longer feared.

There are two diseases, both of which have undoubtedly existed from the earliest days of mankind, which although frequently alluded to by the writers of antiquity, were first accurately described during the latter part of the middle ages, and which seem to have been very prevalent then. I refer to leprosy and syphilis. It is not at all strange that these two diseases which in many of their symptoms are so similar, should have been very commonly confounded with each other by the writers of antiquity and the middle ages. Leprosy was known as a distinct disease among the very early Egyptians and a papyrus discovered in Memphis and written during the reign of Ramesses II (1350 B. C.) describes the

disease and its treatment, and it was considered during the middle ages so contagious that leper houses existed all over Europe and England and all lepers were compelled to live together. Syphilis, however, although its origin has been traced to prehistoric times was not recognized as a distinct disease until comparatively recently, and all forms of venereal affections together with many non-venereal skin diseases were confused and their nature but little understood.

The general condition of both physical and moral depravity, and the filthy condition of the cities whose cleanliness had been utterly neglected during these long periods of war, pestilence and famine; the absolute sexual license which existed among all classes of people, nations among whom hygiene was unknown, all these circumstances favored the spread of infectious and contagious diseases, and especially of venereal disease. Beside the diseases above mentioned, there is frequent allusion among the medical works of the last two or three centuries of the middle ages to scurvy, the "holy fire" (since identified with ergotism), epidemic influenza, purpura, and the English "sweating sickness," whose exact nature we are ignorant of, but which was very fatal.

We have said a good deal about the medical writings of the ancient physicians, and perhaps it will be interesting to some of you to know what "books" were like in those days. They were of course in manuscript and were written upon the fine bark of Egyptian papyrus, of which the long fibres were first woven together, basket wise, and then spread upon some flat surface and pressed into proper consistency. The sheet thus obtained was dried in the sun, smoothed and cut into strips, which were written upon one side only, then glued together at the ends and tightly rolled over a hollow reed. The width of the strip varied from six to thirteen inches. The text usually appeared in parallel columns divided by a scarlet line. Through the hollow reed on which they were rolled ran a rod which furnished the axis for rolling and unrolling the book. The outer sheet or cover was often highly illuminated and the ends of the central rod were adorned with colored or metallic balls. The ink was quite thick and made of sepia, and the pens were slender reeds cut and pointed like our modern goose quills. At a later date parchment came into use and the sheets were fastened together at the back like a modern book. As early as 650 A. D. at Samarcand and Damascus, paper was made of silk, but in 706 cotton was substituted. Cotton or Damascus paper was early known in Europe; the Greeks imported it into southern Italy and the Norman Kings of Naples used it for their diplomas. By the Arabs it was introduced into Spain, but the Spaniards, having much flax and hemp preferred linen paper, which during the thirteenth century was exclusively employed in Castile and from thence penetrated to France and Europe. Parchment, however, on account of its durability, long kept its preëminence for the more serious scientific writings, and especially for all legal documents, and it was not until the fifteenth century, when printing was invented, that linen paper came into general use.

The Fifteenth Century.

The fifteenth century is a remarkable period of history throughout the entire civilized world and in all departments of culture and learning for the great advances that were made. It marked a period of universal progress which has never taken a step backward. By far the most remarkable intellectual achievment of this century, perhaps of all centuries, was the invention by a German, Johann Gänsfleisch also called Gutenburg, of Mayence, of the art of printing. Among the earliest printed books (if not quite the earliest) was the Bible which was printed in Mayence in 1455. This century is also conspicuous as being the period of the reformation of which Martin Luther was the hero and prime mover.

A great revival in the spirit and appreciation of art took place during this century, which produced Titian, Michæl Angelo and Raphæl, all of whom were students of anatomy and painted anatomical plates, and whose paintings have been the models for all artists of all subsequent ages.

An important political event of the fifteenth century was the fall of Constantinople, which in 1483 finally yielded to the Turks. As a result of the general pillage and destruction by the victorious Turks, many scholars and men of learning fled from the city, taking with them such manuscripts and literary treasurers as they could and sought refuge in various parts of western Europe where they were welcomed and protected, especially in Rome and in Florence where the brilliancy of the famous courts of the Medicis was at its height. This scattering of many of the greatest scholars of the east among the centres of civilization of the west, where learning was already being actively revived, resulted in a fresh intellectual activity and in a general dissemination of the many treasures of Greek and Latin literatures, science and art which the scholars had preserved.

In medicine, Nicholas Leonicenus (1428-1524) was conspicuous in Italy as a physician, a scholar and an author. He devoted much of his life to the translation of the works of Hippocrates and Galen from Greek into Latin, and was the first to completely translate the famous

Hippocratic aphorism. He appreciated and boldly attacked many of the mistaken notions which have become firmly established principles of medicine through the teachings of the Arabian and earlier Romans, and his influence was powerful in effecting a general reformation of the science of our profession. A contemporary of Leonicenus, although born 33 years later, was Thomas Linacre, (1461-1524) an Englishman of Canterbury and a man who has a peculiar interest for us as having been the first great man in medicine among the ancestors of our own race, and it is also interesting to remember that he was in the prime of life when Columbus discovered America in 1492.

Linacre studied first at Oxford but at the age of twenty-three he went to Florence where he studied for some years and became a conspicuous figure among the scholars who adorned the court of Lorenz de Medici. On his return to England, his ability and learning were at once recognized and he became physician to Henry VIII and afterwards to Queen Mary. He translated into Latin, which he spoke purely and fluently, several works of Hippocrates and Galen and was the first to introduce the best principles of Greek medicine into England. It was through his influence, too, that medicine in England was rescued from the hands of the ignorant monks and given a recognition as a learned profession. He founded two important chairs of medicine at Oxford, and he afterwards founded the great College of London where medicine was taught and which still exists as the Royal College of Physicians. Finally as his greatest achievement, he procured the passage of a law which prohibited any one to pratise medicine who had not graduated from one of the recognized universities and been approved by the examiners of the College of Physicians of London. He is still justly reverenced by our British confréres as the reformer of English medicine. In France during this century lived Dubois, better known by his Latin name of Jacobus Sylvius. He was an original student of anatomy and for many years lectured in Paris. He was the teacher of that greatest of anatomists, Vesalius, of whom I shall presently speak in detail. His name is familiar to us in connection with the anatomy of the brain, on account of the fissure of Sylvius, which he first described.

The fifteenth century produced the first of the famous family of lithotomists named Colot, whose descendents for three hundred years continued to make a specialty of this operation; the last one, Francois Colot, died in 1706. From the fifteenth century down to our own time the history of medicine must be viewed as one grand universal march of progress among all the nations of civilization. We find that it has grown too powerful to be moulded by the influence of any special nation, except as it advanced more rapidly among certain people than among others; superstition and mysticism are no longer conspicuous in the etiology and treatment of disease (although such follies were then as they are today apparent among people of a peculiar temperament); medicine has become a truly cosmopolitan science, recognized and encouraged as such by all intelligent and thinking people, and we must now consider it as belonging to no nation, as dominated by no sect or school, but as a distinct and powerful feature of the civilization of the world in modern times.

Hitherto we have found it convenient as well as appropriate to divide the history of medicine, as indeed all history has been divided into certain periods, which have been marked by certain conspicuous influences which then prevailed, and whose effect was sufficient to stamp itself either for good or for bad upon, not only medical progress but upon all culture, and learning in general. These so-called periods have of course been purely arbitrary, and have been selected and defined partly for convenience and partly to emphasize the chief events of general history which have hitherto influenced the history of medicine. From the fifteenth century on we shall pursue a somewhat different course, and although we shall find it interesting and instructive to study as we go along the chief events which characterized the world's progress, and to allude briefly to the great men who have been the makers of history, we shall chiefly follow the independent progress of our profession and consider in detail the advances in all its departments which rapidly followed each other among the different nations. The opening of a new world by the discovery of America, the introduction of the compass which made extensive navigation possible and promoted international commerce, the general appreciation and adoption of the art of printing, the invention of clocks and watches, the general and permanent elevation of humanity which was the early result of the reformation and of the teachings of Martin Luther; these are but a few of the great features which were apparent in the early days of what we call modern times.

Medicine was by no means slow to receive the stimulus of this new and vigorous life. She shook off the bondage of ancient authority, retaining only such doctrines as investigation and research proved to be true, and was influenced solely by men of thoughtful observation and by persistent, intelligent seekers after truth and knowledge.

We begin to find ourselves embarrassed by the great number of names which have come down to us, of men who were known as great

physicians and as great scholars in medicine during the fifteenth and sixteenth centuries, and as we cannot do justice to them all we must content ourselves with a consideration of those whose work was the most conspicuous for its originality and its genius.

The pioneer of modern anatomy was Andreas Vesalius, who was born at Brussels in 1514. He was a man not only of the highest intellectual power, but he was possessed of the most indefatigable zeal, the most undaunted courage and the greatest originality. His early education was received at the university of Louvain, where he learned the first principles of anatomy from Guido Guidi (a friend of the great sculptor Benvenuto Cellini). Afterwards he studied at Montpelier and Paris where the famous Jacobus Sylvius was one of his teachers. Hitherto, however, he had only been able to practise dissections upon animals. After his return to Louvain, near which there was a place where criminals were executed, he managed to secure a human skeleton, from which the soft parts had been devoured by birds, and by stealth and at considerable personal risk he carried it home with him, and it taught him his first correct ideas of the anatomy of the bones. Afterwards he managed to obtain unmutilated bodies and parts of bodies of executed criminals, and when at a little later date he became a military surgeon he had still further opportunities for studying anatomy from the human body. So early did he gain fame that at the age of twenty-three he became professor of anatomy at Padua, and he afterwards taught at Pisa and at Bologna. His great and imperishable book on human anatomy, which for accuracy, completeness and attention to detail was infinitely in advance of anything previously known, was published when he was but twenty-nine years old. The novelty and originality of many of his anatomical descriptions, overthrowing as they did many of the hitherto generally accepted views of Galen, aroused at first a storm of opposition from many of his contemporaries who had learned their anatomy from the books of the ancients and from dissecting animals. The immediate result of the publication of this work was a rapid advancement in the study of practical anatomy, and in the increased facilities for the practice of dissection.

Vesalius was the first anatomist to employ wood cuts drawn from nature to illustrate his dissections, and the beauty of his illustrations is due to the fact that most of the drawings were executed by an excellent artist, Stephen von Calcar, a pupil of Titian, and by these anatomical plates he has immortalized his name. Vesalius, perhaps unfortunately for his posthumous fame, had by this time became so renowned that in the following year he was invited by Charles the Fifth to the court of Madrid and became first physician to the Emperor, whom he afterwards accompanied to Belgium and to Germany. From that time he discontinued his anatomical studies and added little to his fame. He died at the age of fifty leaving as his monument the first really great work on human anatomy in any language. During the latter part of his life he received the enmity of the Church and was the victim of the most bitter religious persecution. His death resulted from exposure and want following a shipwreck on the Island of Zante, on his return voyage from a pilgrimage to Jerusalem.

Another great anatomist, a contemporary and in some respects an opponent of Vesalius, was Eustachius (Bartolomineo Eustæchi) whose name becomes familiar to every first year student in connection with the Eustachian tube which he first described. He was physician to the Duke of Urbino and a professor of anatomy at Rome. Although in many respects an original and correct anatomist, he continued to uphold some of the erroneous views of Galen. He described quite accurately the anatomy of the internal ear, the origin of the optic nerves, the thoracic duct, the muscles of the throat and neck and the suprarenal capsules. He prepared some anatomical plates remarkable both for their artistic excellence and for their accuracy and correctness. Another familiar name is that of Fallopius, of Modena, who discovered and described the Fallopian tubes and their functions. Both he and his pupil Jerome Fabricius, also a distinguished anatomist, studied especially the anatomy of the female generative organs and the latter made extensive investigations in embryology. Fabricius made many investigaitons upon animals concerning the development of the embryo and was the first to describe the uterine decidua. It was largely owing to the labors and influence of these pioneers in practical anatomy that this, the most important branch of medicine, was placed on a new basis in the schools and its proper method of teaching facilitated. Amphitheatres for dissecting and demonstrating were established, new instruments were devised and many of the greatest artists, who were only too glad of the opportunity to improve their own knowledge of the structure of the human body, were employed in painting anatomical plates and charts. The first book on dermatology was published in Venice in 1572 by Hieronymus Mercurialis, and was entitled "De Morbis Cutaneis, et de Omnibus Corporis Excrementis." It contained little original work, however, and is chiefly interesting as being the first book entirely devoted to that subject.

During the sixteenth century we begin to

find the first systematic attempts in the direction of state medicine and public hygiene.. Autopsies were regularly conducted in cases of sudden and suspicious deaths, and the pathological conditions produced by poisoning were studied and understood with some degree of accuracy. There were enacted and enforced laws regarding the adulteration of foods and wines, the inspection of meats and vegetables was strict, and veterinary medicine had already advanced sufficiently to be enabled to understand many of the diseases which rendered animals unfit for food. In the larger cities the importance of keeping the streets clean and of disposing of the garbage and general refuse was recognized, and there were many national regulations concerning contagious diseases.

(To be continued.)

ORIGINAL ARTICLES.

THE THYROID AND THYROID THERAPY.*

By Haldor Snévé, M. D.

St. Paul.

In the midst of the conflict it is not so easy to take stock of the exact situation and to prognosticate the ultimate direction of the currents of opinion. Today we are right in the flood of a lot of new facts and new theories about the "internal secretions," and especially concerning the thyroid gland and its perversion of function, to which last I wish to direct your attention through the medium of a brief resumé of the subject.

HISTORICAL.

For years the frequent occurrence of the goitre in mountainous countries, especially in the valleys of the Alps, was noted, and attention was directed almost exclusively to the drinking water for the noxious element which caused the disease; chemistry was exhausted in the vain effort to explain its origin, and later bacteriology was appealed to, culminating in the apparently important discovery of the over-successful Klebs of flagellates (cercomonas globulus and naviculа), which caused goitre in dogs who were given water containing them. The physiology of the thyroid was a sealed book until the dawn was heralded by Schiff, who described the effects of complete thyroidectomy in dogs in 1859. In 1882 and 1883, after Reverdin's description of operative myxœdema resulting from removal of the thyroid for disease, Schiff again took up his experiments in 1884, and found that the grafting of a thyroid in the peritoneal cavity of a dog allowed him to remove the thyroid without the train of symptoms following, which he had described in his first experiments. Then came the intravenous injections of thyroid extracts by Vassale and Gley and then the subcutaneous use in England in a case of myxœdema with marvellous effect by Geo. R. Murray in 1891.

Howitz, of Copenhagen, first began the use of thyroid per os in 1892, and this is the mode of administration today. The occurrence of tetany was noted by Weiss in Billroth's clinic after total extirpation of the thyroid, and Reverdin described the cachexia following its extirpation giving us the conception "cachexia strumipriva." Kocher also enriched our knowledge along this line, and von Eisselsberg, at Vienna, made a series of studies and presented the whole subject of experimental extirpation of the thyroid in a masterly manner. Brown-Sequard, a few years in advance of the rest of the world, published his ideas on the influence of the secretions of the ductless glands on nutrition and especially on injection of testis and ovary, which bade fair in the mouths of the ignorant to raise a cloud of ridicule which would darken the monument of gratitude the world owes to that most brilliant investigator. Brown-Sequard has given us the name internal secretion as applied to the ductless glands, meaning thereby that in these some sort of secretion was elaborated, absorbed into the blood to exert through this and the nervous system an effect especially on the nutritive functions of the cells. How correct he was is apparent when we view the changes occurring in the organism consecutive to castration (eunuchs, oxen, capons), and when we see the effect produced in so-called "backward children" (sporadic cretins), by thyroid feeding, and the marvellous changes effected in myxœdema by the same treatment. Horsley's experiments on monkeys connected myxœdema with total extirpations of the thyroid. Kocher took the ground in 1892 that cretinism, both sporadic and endemic, is due to loss of function of the thyroid. Osler collected sixty cases of sporadic cretinism in America, in many of which thyroid had been used with marvellous results. Chemistry came to the aid of experimental pathology to explain why thyroid gland could be swallowed, exposed to the digestive juices and still exert the same wonderful effect on nutrition that could be produced by injections into veins and subcutaneously, and to further explain why iodine and its salts frequently exert a curative action on simple goitre. For the first time iodine was found in the tissues as an organically united constituent, united with the colloid substance manufactured by the thyroid.

In 1896 Baumann found in the colloid secretion material containing iodine, which when

*Read before the Ramsey County Medical Society, April 25, 1898.

decomposed yields a non-proteid substance to which he gave the name of iodothyrin, a substance unaffected by digestive juices and exposure to acids. The experiments of Roos on dogs, and Ewald and Bruns on clinical cases have pretty thoroughly demonstrated that this is the active principle, so to speak, of the thyroid secretion.*

ANATOMY.

The thyroid gland has no excretory duct and hence is classed among the ductless glands. It was formerly described as consisting of two lateral lobes about two inches in length and an inch in breadth, joined together at the lower third by the isthmus, half an inch in breadth and the same in length, but a Swedish anatomist, Sandström, described two accessory glands connected with the lateral lobes which he called parathyroids. In 1891, Gley, of Paris, confirmed these researches, and later Kohn demonstrated the existence of four of these glandules, two at each lobe.

I have here a dissection of the sheep's glands in order to show you the thyroid and parathyroids. Sometimes there is a third lobe of conical shape arising from the isthmus or left lobe. The gland is made up of connective tissue septa dividing the organ into lobes and lobules, the last consisting of acini lined with a single layer of cubical epithelium surrounded by a very vascular connective tissue containing large lymphatics and blood vessels. These acini contain a viscid, homogeneous, semi-fluid, slightly yellowish material.

The nerves are probably derived from the sympathetic (cervical ganglia).

PHYSIOLOGY.

It is one of the triumphs of vivisection that practically all we know concerning the function of the thyroid together with all the beneficial results of treatment based on such knowledge is derived from experiments on animals. What a triumph for experimental pathology that myxœdema, a terrible affliction, is now amenable to treatment and that idiotic children can be reclaimed through scientific therapy! The function of the thyroid is now partly revealed by the discovery by Baumann of iodothyrin, and the beautiful studies of Baumann and Roos on its relation to the gland and to the functions of the body. It appears from their experiments that "the thyroid gland gives off something to the blood which in some way affects favorably all or part of the tissues of the body." When this substance is lost through atrophy or by extirpation of the gland we get the picture of cachexia strumipriva; the hair grows thin, coarse and dry, the lymph spaces under the skin fill up with a semigelatinous substance which gives a brawny feel to the touch, there is loss of the teeth and nails, of perspiration, muscular and mental weakness, and disturbances of the organs of special sense. On the other hand when the gland apparently hyperfunctionates we get the picture of exophthalmic goitre so-called; here the vaso-motor system is irritable, there is a subjective feeling of heat, the sweat is increased, the patient is mentally irritable, reacts quickly to external impressions, there is nervous restlessness, the eyes protrude and their normal action is interfered with; there may be tremor of any or all the limbs, the skin may become pigmented, the pulse greatly augmented and the patient grows thin through destructive metabolism and excretion; the administration of iodothyrin produces an increased elimination of carbonic dioxide and nitrogen in the urine, which also is increased in amount. At present we can only speculate on how the secretion of the thyroid acts on the tissues of the body. Two main hypotheses have been advanced: First, that the tissues form toxic substances which are neutralized by the thyroid secretion; this is the antitoxic theory; second, that the thyroid secretion promotes or regulates normal metabolism; this is the trophic hypothesis. All the newer evidence seems to point to the latter as the more probable one.

In 1892, Gley, of Paris, made experiments on rabbits, which showed that the extirpation of the thyroids without removing the parathyroids did not produce the symptoms of complete thyroidectomy ending in death. These results have been confirmed by Vassale and Generali in Italy, who further stated that removal of the four parathyroids in dogs and cats, leaving the thyroids intact, produced the acute symptoms of complete thyroidectomy and finally death. Rouxeau on rabbits partly confirmed Gley's statements. Finally Moussu made fifty-three experiments on dogs and cats and stated that from removal of the parathyroids acute symptoms supervened which rapidly ended in death, while those in whom these were left, and the thyroid body removed, survived with symptoms of cretinism. All this seems to give the thyroid and the parathyroids different functions. There seems to be conclusive evidence that ingestion of thyroid or iodothyrin prevents or averts the effect of removal of the thyroid in human subjects and in animals, but Stabel, in Prof. Munk's laboratory, carried out researches on the iodothyrin in thyroidectomized dogs which contest this view. In three out of twenty-one experiments this preparation exerted a perceptible effect on the survival of the animals, whereas in all the other dogs death occurred in spite of the administrations of large doses of iodothyrin. These results are in direct conflict with clinical experience.

Dr. de Cyon reported to the French Academy of Sciences, June 28 and September 13, 1897,

that researches he had made on the depressor nerve of the heart showed that filaments exist which can influence the thyroid gland directly through the laryngeal nerves, and by reflex action, accelerator nerves and the oculo-motor apparatus, maintaining that disease of the depressor nerve is the fundamental trouble in exophthalmic goitre, explaining the principal manifestations of the disease, viz.: the goitre, the exophthalmos and the cardiac symptoms. He says that the thyroid glands situated at the base of the skull at the entrance of the carotids form an apparatus for the protection of the brain from the dangers resulting from a sudden afflux of blood. By determining extensive dilatation of the thyroid vessels the thyroid intervenes for the protection of the brain in two ways, viz.: (1) by opening the flood gates in cases of sudden danger; (2) by increasing the production of iodothyrin in cases of permanent danger. Dr. de Cyon believes that iodothyrin stimulates the functions of the nerve centers which regulate the beating of the heart and the circulation. "The function of the thyroid gland is to form iodothyrin from the iodine salts in the blood, thus ridding the nerve centers of a dangerous toxic substance." His views are mentioned not for any particular value that I place on them, but to show how tangled are the opinions concerning the physiology of the thyroid.

PATHOLOGY.

The pathology of the thyroid in exophthalmic goitre, myxœdema and cretinism, as Prof. J. G. Adami demonstrated in his paper at the Congress of Physicians and Surgeons of last year, consists principally of certain queries for the future to elucidate.

In simple goitre there is hyperplasia of the glandular follicles with secondary fibroid, colloid or cystic changes. In exophthalmic goitre there are the same conditions without the secondary changes; hypertrophy of the parenchyma of the thyroid and in all probability increased secretion, the latter differing only from the simple in being more mucinoid than colloid. In myxœdema all pathologists are agreed that there is an atrophy of the gland. In cretinism opinions are more mixed. Bircher maintains that there is no etiological relation with the thyroid gland, but nearly all others believe that the disease is due to one of three conditions: absence, atrophy, or goitre. Examinations of the cervical sympathetic have up to this time been negative.

SIMPLE GOITRE.

Many of you are familiar with the results of thyroid feeding in simple goitre. Nearly all observers agree that in simple hypertrophy of the gland, thyroid administration causes a diminution in the size, although cysts, fibrous tissue and large collections of colloid material are apparently unaffected.

Simple goitre is supposed not to cause general symptoms, but the experience of one of my confréres and a number of cases observed by myself would seem to indicate that frequently, if not always, there are present various nervous symptoms in the form of general weakness, irritability, a modified Von Graefe symptom, nervousness, and sometimes irritability of heart.

I would strongly urge every practitioner to observe carefully the condition of the thyroid gland in making physical examinations, as a small goitre is generally not noticed by the patient.

Dr. E. F. Ingalls, of Chicago, reported fifty cases in the New York Medical Journal, September, 1895, treated by various observers, in which the swelling was reduced in thirty-eight cases; swelling unaffected in eleven; no report in one.

In 1894 Bruns reported sixty cases treated by this method, curing fourteen, improving twenty-nine and leaving seventeen unaffected. Phosphate of soda combined with thyroid is extolled by Kocher; Ewald and Bruns, from the use of thyroid in over a hundred cases, found that it produced a very noticeable effect. In the parenchymatous form a few days treatment sufficed to greatly reduce the size of the swelling. Baumann has found, from a series of remarkable investigations, that the iodine content of the thyroid and the occurrence of goitre have a certain definite relationship. In most cases of goitre the amount of iodine present is very small, but he has found in addition that in certain cases the content of iodine is far beyond the normal, thus implying the existence of two conditions, one in which the iodine content is below, and another in which it is far above, the normal. As we all know iodine and its salts has a remarkably curative effect in most cases of goitre, probably those in which the iodine content is small.

Dr. Marie, of Paris, speaks of two kinds of exophthalmic goitre, in one of which the symptoms develop in cases of long standing simple goitre; a so-called Basedowified goitre.

MYXŒDEMA.

There appear to be two great classes of this disease, one congenital and the other acquired (atrophy or operation). The congenital form is probably that which we now call sporadic cretinism. The pathological condition is probably the same in both varieties, and the thyroid treatment is a specific. Since I have had no experience in the treatment of acquired myxœdema I shall not refer to it further. You are all familiar with the classical symptoms of this disease.

SPORADIC CRETINISM.

This is really a retardation of growth affect-

ing the bony tissues as well as the soft parts, and accompanied by varying degrees of idiocy, accompanied or caused by loss or absence of function of the thyroid gland. One of the most common names for this disease occurring in our practice is "backward children." Dr. Hertoghe, of Antwerp, has written a mongraph in 1896, in which he advocates the theory that not only arrest of growth due to myxœdema, but also arrest of growth due to rickets, hyperazoturia, congenital syphilis, etc., can be counteracted by the administration of thyroid, maintaining that all deleterious influences capable of interfering with growth attack in the first place the thyroid gland, and that the latter, being variously affected in its functions, determines, according to the degree of its lesions, obesity, rickets, chondrodystrophy, and ultimately more or less complete myxœdema. The theory of infantilism is thus markedly simplified.

The author also discusses the influence of the thyroid gland on the morphological development of the organs of reproduction. He shows that hypertrophy of the thyroid is the first symptom of puberty, and that this hypertrophy is indispensable for the definitive evolution of the special sexual apparatus. It has hitherto been assumed that the development of the thyroid coincided with puberty. Dr. Hertoghe proves apparently that thyroid hypertrophy is the direct cause of the formation of the sexual organs. From a practical and therapeutical point of view this fact is of considerable importance, the administration of thyroid juice in cases of retarded puberty being clearly indicated.

I have personally under treatment two cases of cretinism in which remarkable results are being attained by the administration of five-grain doses of thyroid gland. I show you herewith photographs of two of these cases.

CASE I.

The first of the two is a little girl, æt. six years, whose family history on the paternal side is good; on the maternal side the grandfather died of paresis, one aunt was insane and one had epilepsy.

The mother suffers from sick headaches and the patient's brother at birth had apparently just escaped having a hairlip, but is otherwise normal. Patient's height in shoes is forty-five inches; there is a thick, bony ridge extending along the coronal suture, the muscular system is fairly well developed and locomotion is good; the child began to walk at the age of three; the subcutaneous fat was thick and the abdomen was protuberant. The lips thick and the mouth, as you see in the picture, is usually open, with the tongue frequently out and saliva flowing out at the angles; the expression resembled somewhat the imbecile, and the child's vocabulary was very limited. The hair was thin and dry for a long time after birth, but is now thicker and more soft; the skin was apparently normal. Palpation of the throat revealed a slight indication of the thyroid gland. This patient has been taking thyroid tablets for six months, beginning with three grain tablets t. i. d. for the first three months, and since then taking five grains t. i. d. There is a gradual growth of the skeleton, the protuberant abdomen is gone, the mentality is markedly improved, and the prognosis appears to be very favorable.

In this case it seems that the patient was a typical cretin, but that some remains of the thyroid existed, which three years after birth began to assume some part of its function.

CASE II.

A. S. F. Female, âct. twenty months, is a typical sporadic cretin. In November, 1897, at fifteen months the child was fat, with protuberant abdomen, red cheeks, no teeth, skin dry, and unable to crawl. The head is square, the anterior fortanelle is open (size of a five-cent piece),

TWO MONTHS AFTER TREATMENT.

scalp rough and dry, hair scanty and coarse, mentality low, mouth open, tongue nearly always protruded, drooling of saliva and unable to speak a word. No thyroid palpable.

Two months treatment with three grains of sheep's thyroid, t. i. d., produced a truly marvel-

lous change. The masses of fat began to disappear rapidly, the skin to become soft, the hair to grow, the expression to change, the tongue to remain within the mouth and the child could say "papa" and "mama." This picture was taken two months after treatment.

The child began with three grains, t. i. d. which was increased to five grains t. i. d., and it is progressively growing in every way, and five teeth have erupted after four months treatment. The dose is a little large because the child is rather restless and always hot and perspiring, but now resembles children of its age. In cretinism as in adult myxœdema, treatment must be continued indefinitely, but large amounts are not require. Just how much thyroid must be administered after the patients have "caught up" is a question for the future to decide.

SIX MONTHS LATER.

In a general way, all cases of retarded growth indicate thyroid therapy. At the present state of our knowledge, it is impossible to differentiate between the cases of so-called endemic and sporadic cretinism with regard to the influence of thyroid treatment. Bircher maintains that thyroid therapy has no influence upon the endemic form. It may be true, but that should not deter us from using thyroid in all cases of retarded growth.

It will be necessary for us to differentiate between cretinism and the various forms of idiocy dependent upon faulty development of the brain hemispheres in fœtal life, the hydrocephalic and the microcephalic idiots, and the forms of imbecility associated with the cerebral palsies of children. In these last it will undoubtedly not avail us to use the thyroid treatment. At the present status of our knowledge of the subject, the conclusion is that we should use thyroid gland in all cases of retarded periods of life.

EXOPHTHALMIC GOITRE.

In 1835, Graves, of Dublin, described a disease which, in English speaking countries, bears his name. In 1840, Basedow, in Germany, gave a more full account of the affection, and on the Continent exophthalmic goitre is usually spoken of as Basedow's disease. There are three cardinal signs of the affection, exophthalmos, tachycardia and goitre. There are many other symptoms. Von Graefe described a symptom which bears his name; in these cases the eyelids do not follow the excursions of the eye properly. Stellwag described a greater divergence than normal between the upper and lower lids and defective winking. Marie called attention to tremor; Charcot-Vigouroux to decreased electrical resistance; other symptoms are diarrhœa, obstinate vomiting, sensations of heat, flushing and irritable mental and vaso-motor system, emaciation, various paralyses, local œdema, fever, pigmentation of the skin, or leucoderma, and urticaria.

Trousseau extended the range of the disease by describing abortive cases, meaning that the disease may be present without all of the cardinal signs. This conception has been of the greatest value to me in my practice, because a great many cases that I have heretofore classed as neurasthenia, are undoubtedly abortive forms of Graves' disease, and the recollection of this fact, inducing me to use the same treatment for them that I have used in exophthalmic goitre, has given me success, and if I do nothing else in this paper but call your attention to this fact, I hope it will aid you in your treatment of a number of anomalous cases which hitherto have been baffling. The signs that have been of the greatest value to me are those connected with the sympathetic system, especially those connected with the vaso-motor apparatus, in cases with flushings, increased perspiration, sensation of heat, and frequently some prominence of the eyes, with a modified Von Graefe symptom. Lastly, the exhibition of thyroid gland increases the symptoms of the disease. Many cases of neurasthenia, traumatic or acquired otherwise, may be complicated with sympathetic disturbance due to an effect upon the thyroid gland, and the ordinary treatment, supplemented by that used in exophthalmic goitre, will give you success in a remarkably short time; in fact, it is

now my practice to try to separate my cases of neurasthenia into those with or without symptoms described as belonging to disturbances of the thyroid gland (Graves' disease).

I will refer to the three theories which have held the boards in the etiology of this disease. Basedow promulgated the hæmatogenic theory, the disease, in his opinion, being due to a chloro-anæmic condition. In 1879, Filehne showed that a lesion of the restiform body caused tachycardia, exophthalmos, sometimes goitre, and believed, therefore, that the disease is a nervous one. Later Jaboulay, of Lyons, and Abadie, of Paris, located the disease in the cervical sympathetic system. Möbius has propounded the thyreogenic theory, maintaining that the products of the thyroid gland either neutralize the tissue poisons or furnish a toxic material which reacts upon the nervous system. In 1897, Dr. Jaboulay, of Lyons, operated upon nine women suffering from exophthalmic goitre by division or resection of the cervical sympathetic. Adding to these nine operations those performed by Reclus, Gerard-Marchant, Quenu and Jonnesco under similar conditions, we arrive at a total of fourteen divisions or resections of the cervical sympathetic for the relief of Graves' disease. In all these fourteen cases the operation was simple and invariably resulted in improvement. The operation has never been followed by ill effects of any kind, there having been no trophic disturbances, no changes in any organ or tissue, and no impairment of the power of visual accommodation. Dr. Jaboulay thinks that the operation is more successful in aged persons than in young people, because the question of age appears to be connected with a physical condition of the moderating and accelerating systems of the heart, which differ according to the age of the subject, in that the accelerating system predominates in youth. He maintains that the imperfect recoveries after division of the cervical sympathetic are due to anatomical abnormalities. Sometimes there are two columns connecting the upper and the middle cervical ganglia. The former may be split in two. In such cases the operation should be repeated. He believes the operation indicated in those cases refractory to medical treatment and hydrotherapy, and especially where there is very marked exophthalmos. He insists that whatever may be the exact nature of Graves' disease, its effects are transmitted through the cervical sympathetic. Abadie explains the goitre through the vaso-dilatation of the arteries from stimulation of the cervical sympathetic, which furnishes too much nourishment to the gland. Exophthalmos is due to vaso-dilatation of the retro-bulbar vessels. We all know that disease of the cervical sympathetic affects the heart through the pneumogastric, and that excessive stimulus produces diarrhœa; also that the vaso-motor system is affected by such derangement. Before this operation of Jaboulay's extirpation of part or all of the thyroid has been used in the treatment of the affection. Dr. Lejars removed the right lobe of the thyroid gland in a girl of eighteen, Oct. 12, 1896, who died in an attack of extreme dyspnœa soon afterwards. At the autopsy nothing abnormal was found. Dr. Quenu removed the entire thyroid gland in a case which recovered, but later developed myxœdema, which was successfully treated by means of thyroid. Dr. Tillaux pointed out that exophthalmic goitres due to the existence of a tumor in the thyroid gland which compressed the cervical bundle of blood vessels and nerves, should be operated upon by excision of the tumor, while exophthalmic goitre without intrathyroid tumors is not amenable to surgical treatment. Dr. Goris removed completely a goitre of the mediastinum without myxœdema and ending in recovery. Dr. Picque operated on a woman in 1894 by removal of the goitre, with recovery, and again in 1897 on another case, with the same result. Dr. Schwartz removed an intrathyroid tumor in the right lobe of the thyroid gland where symptoms of exophthalmic goitre existed, in May, 1896, resulting in a cure. Dr. Tuffier performed partial thyroidectomy in two cases, one on July 31, 1894, the other January 24, 1897. In the first a cure was effected; in the last only improvement. Prof. Poncet has operated on several cases, in some of which there have been severe nervous disturbances, and even death after the operation. Dr. Doyen reports removal of the entire thyroid gland in two cases, with complete and lasting subsidence of all symptoms.

All operators are agreed that removal of the thyroid gland is a very dangerous operation, causing death from hemorrhage or toxæmia. Kocher advises ligation of three of the thyroid arteries in preference to thyroidectomy. He has treated thirty-one cases surgically and has seen varying degrees of improvement, sometimes even complete recovery. Of 187 cases surgically treated collected by Kinnicutt, thirteen died as a result of the operation, sixty recovered, forty-seven improved, eleven unimproved and in twenty-five the result is unknown.

I will not burden you with theories favoring the thyreogenic or the nervous origin of this affection more than to point out that the pathological condition in simple goitre and exophthalmic goitre are apparently identical as far as the gland is concerned; that nervous shock is a frequent exciting cause of exophthalmic goitre; that Graves' disease occurs most frequently in women (4.6 to 1.7), the sex that suffers most from neuropathic conditions; that the symptoms of the disease can well be explained by an affection of

the sympathetic system (cervical sympathetic), and finally, that operations on the cervical sympathetic and those on the gland producing the same effect on the sympathetic fibres distributed to it, seem to cure the disease. The fact that exophthalmic goitre is the antithesis of myxœdema does not prove anything more than that in the last there is loss of function and in the first apparent hyperfunction; but why not the same symptoms from simple goitre? And how about Basedowified simple goitre?

But how shall we explain the non-occurrence of cachexia strumipriva in cases where apparently complete removal of the thyroid has been practised? The simplest explanation is, probably, that the parathyroids have not been completely removed, and it would seem that the operations upon the thyroid gland for the relief of exophthalmic goitre should be limited to cases of neoplasm occurring in the same. The remarkable results following resection of the cervical sympathetic bid fair to throw new light upon the causation of the disease, and give us a successful mode of treatment. I append a table of eleven cases of exophthalmic goitre treated by me during the last three years.

From this table it will be seen that this disease predominates in the female—nine out of eleven cases.

From the ages it will be seen that the disease is one of middle life, and strangely enough, one case which developed in a woman of seventy-one years.

Among the causes it will be noted that heredity in these cases has played no rôle. In five out of the eleven there have been mental causes. In the form of worry (three cases); fright (two cases); la grippe (two cases); chronic diarrhœa, general nervousness, each one case; no causes (two cases).

In the eleven cases both lobes were pretty symmetrically enlarged in seven cases, the right usually a little larger than the left; in one case no enlargement; in two cases the left lobes were enlarged; in one case, slight enlargement both lobes.

In two of these cases the pulse was practically normal as regards rate, but the rhythm was disturbed in all by the least excitement.

In nine out of the eleven cases Graefe's symptom was present; in two it was absent.

In one case the remarkable difficulty existed that the patient could hardly turn the eyes downward from the horizontal plane. In six out of the eleven cases exophthalmos was present.

In five of these cases (numbers one, two, four, five and seven), the administration of thyroid produced a marked exaggeration of all the symptoms on the part of the nervous system. In other cases it was not tried. In cases four and seven, which were the worst and most marked, galvanization of the neck with administration of thymus resulted in remarkable improvement, seemingly coincident with the use of the thymus, but since I have used with it galvanism (a treatment of great value), my cases are of little value in the elucidation of the question as to whether the thymus gland is of value in the treatment of exophthalmic goitre. In case ten, great improvement has occurred after four months thymus treatment alone.

I think that we can safely say that the administration of the thyroid gland produces a reaction in cases of exophthalmic goitre in cases where the gland is apparently hyperfunctionating. The symptoms are those of a sensation of heat (rarely cold), headache, tremor, irritability of the nervous and circulatory systems, and nausea, sometimes vomiting.

The mode of administration that I have adopted consists in giving the capsules of pulverized thyroid or compressed tablets just before meals upon an empty stomach, followed by a half-glass of hot water, hoping thus to secure a more complete and speedy absorption of the remedy. The tabloids I have used are those of Parke, Davis & Co.

OBESITY.

The elimination of nitrogen and carbonic acid in large quantities of urine and its effect on the pathological fat deposits in cretins led to a trial of thyroid extract in cases of this kind, and many cases have been reported in literature where great diminution of weight has occurred from its use.

My own experience is limited, owing to failure of my cases to report results. In one case I administered five grain tablets four times a day for two weeks without appreciable result, then the dose was increased to eight tablets a day with a loss of two pounds in a week. The next week twelve tablets daily caused a further loss of one pound, and the next week sixteen tablets a day produced irritability of mind, sense of heat, nervousness, asthenia and tremor; and the tablets were reduced to three daily for two more weeks with subsidence of the nervous symptoms and also a loss of weight down to fourteen pounds less than it was at the beginning of the treatment. The urine was greatly increased all the time. My data are incomplete in other cases that I have treated, and I shall not weary you with a recital of them. I think that the future will discover that obesity is of various kinds on the basis of its eiology, and that certain cases will be adapted to thyroid therapy, as an adjuvant to removal of the cause. Under thyroid therapy after a discontinuance of the treatment relapse follows if the cause of the obesity be not

Sex	Age	Causes.	Enlargement of Gland.	Pulse.	Eyes.	Vaso-Motor and Other Symptoms.	Treatment.	Result.
Female	18	Nervous heredity. No exciting.	Both lobes moderately large.	Normal.	Stellwag. Prominent. V. Graefe.	Feels cold. Insomnia. Shortness of breath.	Galvanism. Thymus, 5 gr. t. i. d.	Great improvement in three months. One and one-half years later good health.
Female	19	Accident two years before onset. Hurt head some.	No enlargement.	96-104.	Normal except pain in eyeballs.	Flushes easily. Tachycardia. Muscular weakness.	Massage of eyes. Sponge baths. Thymus 5 gr. t. i. d.	One year later is quite well.
Female	25	La grippe four years ago. Has been feeling badly since.	Great enlargement of both lobes.	140	Prominent. Stellwag and V. Graefe.	Sense of heat. Flushings of skin. Tachycardia. Muscular atrophy of arms. Asthenia. Melancholia. Reflexes exaggerated. Electrical resistance lowered. Diarrhœa. Temperature 100° to 101°.	Fowler's sol. Galvanism.	Continued treatment but one week.
Female	26	Worry about slander concerning her character.	Enlargement of both lobes and isthmus, especially of right.	110-149	Exophthalmos. V. Graefe. Stellwag,	Asthenia. Flushings. Heat. Perspiration. Tremor of hands. Tachycardia. Dyspnœa. Temperature usually 100°.	Galvanism every other day for six months. Thymus 5 gr. t. i. d.	Disappearance of exophthalmos. Pulse down to 90.
Female	33	Proof reading. Worry.	Moderate enlargement.	89	Exophthalmos. V. Graefe. Stellwag.	Tachycardia. Flashes of heat. Slight tremor of hands. Diarrhœa. Temp. 100 1-5°.	Thymus, 5 gr. t. i. d. Galvanism.	Recovery.
Female	36	Badly frightened in runaway two years ago.	Left lobe somewhat enlarged.	134	Graefe sign only. Very difficult to look down.	Tachycardia. Dyspnœa. Heat sensation. Nervousness. Tremor of hands.	Thymus, 5 gr. t. i. d. Galvanism.	
Male	41	Chronic diarrhœa (?).	Enlargement of both lobes; right larger.	90	Exophthalmos. V. Graefe. Stellwag. Mobius well marked.	Tachycardia. Flashes of heat. Excessive perspiration. Dyspœna. Attacks of diarrhœa.	Thymus t. i. d. Sponge baths. Galvanism.	Pulse 82. Exophthalmos practically gone one year later.
Female	48½	None.	Slight enlargement.	82	Eyes normal.	Nervousness. Flashes of heat. Tachycardia.	Bromide of arsenic. Galvanism.	
Female	48	None.	Right lobe somewhat enlarged.	160-170	Exophthalmos. Graefe. Stellwag. Conjunctivitis.	Tachycardia. Tremor of hands. Nervousness. Insomnia. Heat sensation. Temp. 101½°.	Thymus, 5 gr. t. i. d. Sponge baths. Galvanism.	Slight improvement.
Male	54	La grippe five years ago.	Left lobe size of a large apple.	88	Marked V. Graefe.	Irritability. Nervousness. Poor sleep. Tachycardia.	Thymus, 5 gr. t. i. d. Sponge baths.	Marked improvement four months after beginning treatment, and subsidence of nervous symptoms.

Sex	Age	Causes.	Enlargement of Gland.	Pulse.	Eyes.	Vaso-motor and Other Symptoms.	Treatment.	Results.
Female	71	Great worry over a daughter five years before onset.	Great enlargement of both lobes and isthmus.	120	Graefe's sign only.	Tachycardia, Dyspnœa. Nervousness, Emaciation. Tremor. Heat. Excessive perspiration.	Rest in bed. Tonics. Strophanthus and arsenic.	Treatment just begun.

removed, and small doses must be continued indefinitely. The heart should always be watched.

The study of the subject of the internal secretions has forced upon me the view that the physiological function of the ductless glands of the body is one of intimate connection with the sympathetic system which presides over vegetative life; over nutrition, broadly speaking. We have seen what an important part the thyroid bodies play in the economy; the adrenals either directly (?), or more probably indirectly through the abdominal sympathetic have also an important place (in nutrition be it remarked), as evidenced by the disturbances following pathological conditions (Addison's disease, etc.); the testicles and ovaries must exert a profound influence on the nutrition of the body, as their period of activity corresponds to nutritional changes of profound nature: growth of the hair, change in the voice, etc.; and their ablation produces a retrograde change in the individual: a return to a lower type corresponding to that existing before puberty, and not, as generally stated, to the opposite sex, i. e., masculine to feminine, etc.

The hypophysis of the brain, like the thyroid, is a compound tubular gland with excretory ducts in fœtal life, which later, also like the thyroid, becomes ductless. Disease of the hypophysis is associated with, if not the cause of the nutritional diseases we call acromegaly and giantism, where a peculiar overgrowth of bone exists. The thymus gland has its mysterious function to perform in fœtal life, the period of most active morphological change, and later it disappears.

All these glands are richly supplied with nerves from the sympathetic system. Recent histological research indicates that the secreting cells of organs have nerves ending directly in them. Nearly all we know of the animal organism indicates that its activities, including also the vegetative, are liberated by and performed through the nervous system, and any view which does not take cognizance of this fact, like the one now so glibly popular, that because feeding the body gland substance which is absent from the organism restores function, therefore, these glands are to be looked upon as small chemical laboratories, where substances are produced which sail around in the blood stream to find places that need repairing, or to antagonize toxines.

How much more in accord with what we know of the human economy to assume that these glands provide substances which act upon the body through the sympathetic, just as the carbonic dioxide of the blood acts upon the respiratory centre, stimulating it to increased activity. How radical a change to suppose that the cells of the body increase or decrease their activity because of a humor carried about in the blood stream.

The conclusions that I should like to draw after this fragmentary consideration of the thyroid are as follows:

First. The thyroid gland produces a secretion of the greatest importance to the metabolism of the body. Absence of function produces cretinism if congenital, myxœdema if acquired.

Second. Simple hyperplasia (simple goitre) does not produce marked pathological disturbances, but I believe it to be a larvated form of exophthalmic goitre, and I think that so-called "nervousness" can be found in the vast majority of cases.

Third. Hyperplasia associated with disturbance of the cervical sympathetic is the disease known as exophthalmic goitre.

Fourth. Surgical interference in diseases of the thyroid gland should be limited to the removal of neoplasms; thyroidectomy in exophthalmic goitre is unphysiological, irritational and dangerous.

Fifth. In the majority of cases of exophthalmic goitre, medicinal and hygienic treatment, rest, galvanism through the neck (two to five M. A.), tonics, sodium phosphate and thymus gland will effect amelioration. In cases refractory to medical treatment where life is threatened, section of the cervical sympathetic should be practised.

Sixth. Many cases of neurasthenia are cases of masked exophthalmic goitre and should be treated accordingly.

Seventh. Thyroid therapy is specific in sporadic cretinism, myxœdema and simple goitre, and removes obesity.

Eighth. Thyroid extract increases the unpleasant symptoms in exophthalmic goitre, and is a reliable test also in the masked form of this disease.

Note. In the NORTHWESTERN LANCET of November 15, 1885, is a report by Dr. D. W. Hand, of St. Paul, of an epidemic of goitre occurring at the State Reform School, at that time situated in the outskirts of St. Paul. Dr. Hand visited the school on July 3, 1885, and found that during the past two weeks a considerable number of the boys had become afflicted with a swelling of the neck, which upon examination proved to be enlargement of the thyroid gland, both lobes and the isthmus being involved in most cases. The enlargement in different cases varied from a slight tumor to a protuberant deformity. There was no prominence of the eyes and in but few cases any acceleration of the pulse. The Superintendent stated that he had a few boys with swelled necks every year, but that the number at this time was extraordinary. The boys all claimed to be in good health. Of the 140 boys in the institution 44 had the goitre. There were 19 girls in a separate building a quarter of a mile away, and of these but one had goitre, and she gave a history of the disease on entrance. Both boys and girls used the same water supply, from a bored well, 156 feet deep. The only change made recently in the food was in the brand of flour. No local cause for the epidemic could be discovered.

The treatment adopted was the administration of Lugol's solution of iodine. The cases improved rapidly and were nearly all well by the end of August. An examination on the first day of October showed but five boys with any traces of the old enlargement.

HOW TO SUBSCRIBE FOR THE NEW BONDS—The war loan which is now being offered will be sold to subscribers at par during the period of subscription, which ends July 14, 1898. The method of subscription has been made as simple as possible. Blank forms may be obtained at every money-order post-office, and at most of the banks and express offices, and on these forms is clearly indicated all that it is necessary for the subscriber to fill out. The subscriber may himself mail to the Treasury Department at Washington the blank form filled out, together with his remittance covering the par value of the amount of bonds for which he wishes to subscribe. That remittance may be in whatever form best suits the subscriber's convenience—in currency, bank draft, check, post-office money order. The day the currency is received, or the day the proceeds are received from the checks, drafts, or money orders, the subscription will be entered and will immediately begin drawing interest. When the bonds are delivered, a check will accompany each delivery covering the interest at 3 per cent. from the day the subscription is entered to the 1st of August, the date of the bonds, and from which date the bonds will carry their own interest.

SHAMPOOING—The word "shampoo" is of East-Indian origin, and signified originally "to press." In Hindoostan it was applied to the practice of rubbing, pressing, and kneading the limbs of one taking a hot bath. A similar custom prevailed among the Greeks and Romans. At the present day the word is generally restricted to manipulations of the scalp as performed by the barber. The shampoo of this functionary is of two varieties, the dry and the wet.

The wet shampoo consists in rubbing the scalp while it is covered with a soap lather. The operator goes thoroughly over every portion of the scalp with his finger-tips and finishes by washing away the lather with an abundance of warm water poured over the head while the subject of the operation bends over a basin. A hot towel is used to dry the hair, dandruff or other accumulation is bursed away, and finally an oil is rubbed into the scalp.

It will be seen that the shampoo is, in effect, a species of massage, and that, therefore, properly performed, it must have a beneficial influence upon the nutrition of the scalp and promote healthy growth of the hair. Its action, as far as it goes, has a tendency to prevent the development of premature baldness. Considered in this relation, it is a procedure of much importance.

Northwestern Lancet.

A SEMI-MONTHLY MEDICAL JOURNAL

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WM. DAVIS, M. D., } *Editors.*

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A SHORT CUT TO A DEGREE.

It is somewhat surprising to find that although the state of Illinois has an excellent medical practice act and is now admitting to practise only well equipped physicians, it is nevertheless possible for alleged medical colleges within her borders to offer to confer degrees upon compliance with requirements that are farcical. An institution calling itself "Independent Medical College," located at the People's Institute, corner of Van Buren and Leavitt Sts., Chicago, offers diplomas to those wishing to practise medicine, dentistry or pharmacy, under conditions that are likely to induce many to seek to obtain a diploma without first obtaining an education.

The scheme pursued by the "College" is as follows: To those seeking information a circular letter is sent which states that there are many persons of limited means who desire to fit themselves as pharmacists, dentists or doctors and who have done more or less studying on their own hook or under an instructor; that there are many more who are already following these pursuits successfully but who have never secured a degree. The expensive three or four years' course of regular medical schools being out of the reach of these people, the Independent Medical School comes to the rescue, and offers to give full credit for the work that each one has done, and to point out a course of home study by which, as supplementary to his already acquired knowledge, he can obtain from the college a lawfully conferred degree of the kind desired.

For the purpose of testing the candidate's knowledge of and fitness for the practice of medicine he is asked to answer the following questions:

Define:—Anatomy, Physiology, Hygiene, Materia Medica, Therapeutics, Obstetrics and Surgery.

A student might be able to name every bone and muscle in the body and make a complete failure in treating simple cases, while one who did not possess one tenth of said knowledge might succeed. What we want you to do is to possess the knowledge "that will enable you to cure your patients."

Carefully dissect every fact given in your answers and ask yourself the question, "will this knowledge actually enable me to cure my patients, if not, what knowledge can I acquire that will, and what is the quickest way to acquire it?"

Outline your treatment for the following forms of disease, and state what medicines, "if any," you would give in such cases, or on what you would chiefly rely to effect a cure. Asthma, Bronchitis, Cancer in the first stages, Croup, Diarrhea, Diphtheria, Dropsy, Dysentery, Dyspepsia, Epilepsy, Erysipelas, Inflamed Eyes, Fits in Children, Gravel, Headache, Hip Joint Disease, Hydrocele, Hysteria, Insanity in the first stages, Typhoid Fever Jaundice, Malaria, Neuralgia, Paralysis, Piles, Pleurisy, Polypus, Nervous Prostration, Rheumatism, Rheumatic Fever, Sciatica, Scrofula, Sleeplessness, St. Vitus Dance, Ovarian Tumors, Fibrous Tumors, or any other forms of disease you have treated or think you can treat successfully.

Name ten remedies that you consider good medicines to give to the sick and describe their medical properties.

On what do do you chiefly rely to effect cures?

What do you understand by the Allopathic system of medicine and do you approve of it? If not, why? What system do you approve of? Answer same questions in regard to the Homeopathic, Eclectic, Physio-Medical and Hydropathic systems.

Do you consider it in accordance with science, reason or common sense, to give to the sick such agents as arsenic, strychnine, morphine, calomel, aconite, digitalis, and the numerous poisons so extensively used in medical practice?

State what medical books you now own and have studied, length of time you have spent in the study of medicine at home, under a preceptor, or in a medical college. Name college or colleges attended, if any, and state any other facts going to show what opportunities you have had to become a competent practioner.

If you have practiced, state number of years, and send, if you can, sworn statements from patients to the effect that you have treated them successfully; especially send affidavits of cures effected by you after "so-called" highly educated medical monopoly college graduates failed.

State name of notary public before whom you are willing to go and answer another list of questions on the treatment of different forms of disease without having access to said questions.

State if you consider yourself qualified to conduct a safe practice.

If you will carefully, of your own knowledge, "alone," answer these questions to the best of your ability, and we should consider you deficient in some respects, we will carefully point out said deficiency and how to acquire the knowledge you lack in the shortest time.

Send letters of recommendation from three or more prominent and responsible citizens as to your moral standing, and if you have practiced, as to your professional ability. Have answers type-writter, if convenient, if not write plainly on legal or foolscap and make affidavit as follows:

I, (name in full), do solemnly swear that the foregoing are my answers to the questions asked me by the Faculty of the Independent Medical College, and are given of my own knowledge without copying from books or without any assistance but my own mental facultics, and that said knowledge has been acquired by a careful study of medical works and by my own experience, and that the other statements therein contained are true to the best of my knowledge and belief.

Have statements and answers sworn to before a notary public and mailed to us.

The animus of the instution is well shown by the question that asks for a recital of "cures" effected after graduates of regular medical colleges have failed. No doubt a high mark is allowed for proficiency in this branch of medical science, that is, if the scheme of the proprietors of the college makes it necessary at all to go through the form of marking answers to the inconsequential questions here propounded. Probably the only examination of answers received would be such as to enable the "faculty" to give advice as to the course of study to be pursued at home in order to fit the applicant for his degree.

The existence of such establishments as this emphasises the need and value of a protective law like that of Minnesota, a law which in its essential features has been copied in many states and will soon be so widely adopted that such institutions as the Independent Medical College must be starved out of existence.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated meeting, Wednesday evening, May 4, 1898, at the Hotel Ryan, St. Paul; the president, Dr. J. W. Chamberlin, in the chair.

Dr. Talbot Jones, of St. Paul, presented a specimen and report of case as follows:

A patient, 25 years of age, was brought to the hospital from a boarding house in the city in a patrol wagon; he was wildly delirious; muscles of the neck rigid; pupils contracted and slightly unequal. Pulse 140, temperature 105°; purpuric eruption present; an attempt to examine the eyes was unsuccessful. Pneumonia and typhoid fever were excluded. The differentiation lay between typhus fever—the patient having recently come from Texas—and meningitis. The condition of the pupils indicated meningitis. The patient died within a short time, and the post mortem showed septic meningitis, septic pericarditis, and pyelitis of one kidney. Dr. Jones questioned the sequence of the conditions. No tubercular or syphilitic focus was found and no evidence of middle-ear disease. Urinary analysi had been made, but had failed to discover renal disease. The brain specimen was presented.

Dr. F. A. Dunsmoor, of Minneapolis, presented a specimen of uterine fibroid peculiar in its representation of the four types of fibroid tumor. He exhibited, also, a thyroid gland, removed on account of supposed tubercular degeneration with accompanying pain. In this case careful avoidance of the recurrent laryngeal nerve was attempted, but, nevertheless, some loss of voice had been observed and threatened to be progressive. He reported a case, occurring in the practice of Dr. F. P. Wright, of Minenapolis, in which the initial symptoms of brain disease, which were rapidly progressive, were deafness and blindness, with subsequent facial paralysis. An operation was advised, and upon the counsel of Dr. W. A. Jones, an opening was made with the trephine to the right of the median line and back toward the occipital ridge. The membranes bulged, an incision was made, the brain substance divided to the depth of three-fourths of an inch and a probe passed into a cavity from which spurted some two ounces of serous fluid. A drain was inserted. The symptoms were slightly relieved after the operation, but had since deepened again and a secondary operation was projected for more complete evacuation and draining.

Dr. C. E. Riggs presented a patient showing symptoms of supposed Raynaud's disease. The

day previous, local syncope in the hands had been well marked. Hot water relieved the condition; cold water caused a marked cyanosis. The feet exhibited the same tendencies. The skin was glossy, the fingers, toes and wrists were rigid; the finger nails distorted, the ends of the fingers conical and the seats of recurrent sores. The first symptoms had appeared eight years ago in the way of local asphyxia and syncope. Two years since she had developed the dystrophies of the fingers and nails. The case he regarded as obscure, but thought it a form of Raynaud's disease, which was well defined as a vaso-neurosis, with vaso-motor spasm and without degeneration of the vessels or local thromboses. He said that he was inclined to regard Raynaud's disease as a symptomatic condition and not of serious termination, excepting as associated with organic disease. The condition in the fingers was suggestive of syringo-myelia, but the absence of any disturbance of the temperature sense was an argument against this diagnosis. The treatment had been constitutional, with spinal galvanism, the positive pole being applied to the parts affected in accordance with Grasset's suggestion.

Dr. A. J. Gillette testified to the great improvement in the patient's condition since he had first seen her some time ago.

Dr. Haldor Snévé, of St. Paul, thought the case presented the best illustration of glossy skin and dystrophic conditions to be seen outside of anæsthetic leprosy. The latter disease could almost be excluded by the absence of any thickening of the ulnar nerve. Failing to observe this, he regarded it as undoubtedly a case of syringo-myelia notwithstanding the integrity of the temperature sense.

Dr. J. E. Moore, of Minneapolis, presented a specimen of a tuberculous testicle, epididymis and vas deferens; in the course of the operation for their removal the vas was found diseased and was followed up some six or eight inches; at this point was found a small tubercular abscess, above which the duct was healthy. At this point the vas was removed.

Dr. Haldor Snévé, of St. Paul, read a paper entitled,

DELAYED UNION AND NON-UNION OF FRACTURES.

See page 210.

Dr. A. J. Gillette, of St. Paul, opened the discussion. In looking up the question, he had noticed that the causes given by Dr. Snévé tallied with those recited by most authors. Some of them were altogether unexplained and unexplainable; as, for instance, pregnancy. He took exception to the statement that tight bandaging was not a cause of some cases of non-union. Scurvy, he thought, could be a cause, along the line of the inflammatory conditions of the bones it induced. Nothing had been said of dissolved union, and he had never seen this phenomenon explained. He referred to the so-called fibrous union. It had been said that union is effected by restored relation of vessels, of periosteum and of soft parts. He had been looking up cases of un-united intra-capsular fracture of the femur with a view to a publication and had been surprised to find how many of these united, even in old persons and after long delay, when the bones were put into perfect apposition, and when interference with the circulation had not occurred. He had experienced many such cases of restored bone after long un-united fracture. He referred to a case operated upon by Dr. Dunn without touching the ends of the bones, but with correct adjustment of the parts, and subsequent healing. He related, also, a case of wired bone failing to heal, in which union was secured by simple re-adjustment. He believed that Dr. Snévé had given us the best explanation ever offered for non-union and delayed union.

Dr. J. E. Moore, of Minneapolis, said that he was greatly interested in this subject. Aside from the failure of proper adjustment and the interference of the soft tissues, he had often been unable to account for the non-union of bones. He could not consider it altogether a matter of failure of nerve function, since in cases of severe neuroses, union often occurs. He questioned the significance of the time limit.

Dr. J. H. Dunn, of Minneapolis, said that while incapable of a full discussion of the subject, he thought it undertaking too much to say that nerve failure was the only cause of non-union. He did not doubt that it was one very important influence. He recited a railroad case of oblique fracture of both bones of the foreleg, involving little injury and slight swelling of soft parts. The case had been carefully examined and set. The patient remained in the hospital an unusually long time and a very redundant callus appeared. The officials were notified to remove the patient after seven weeks time. A week later the patient returned with a large swollen leg, an extremely tender and softened callus and a possible extreme displacement. He was again placed in the hospital, cold was applied for a few days, followed by three of four weeks of rest, when he was dismissed, apparently well. Cases were recorded of second and third recurrences of this sort of thing.

Dr. F. A. Dunsmoor, of Minneapolis, had forgotten the experience of the failure to find the musculo-cutaneous nerve related by Dr. Snévé, but now recalled it. He did not doubt that cases of pseudo-arthrosis were traceable to neurotic change, but this was probably only one of the causes of non-union and of long-delayed union, although he considered it by far the most important. He remembered seeing a case of this

kind in which he predicted that unless a restoration of the nerve supply was effected no good result would be attained. Another surgeon had attempted a reunion by sawing off the ends of the bone, and, failing, had afterwards amputated the limb. He thought the question of nutrition to the bone was of importance, as well as the nerve supply.

Dr. J. Clark Stewart, of Minneapolis, referred to a case of a car injury to a woman of fifty, causing a fracture of the shaft of the femur. The case was well treated, but after three months no union whatever had been attained. Rest was continued for four months; later, moderate exercise, with retention, was permitted. After seven months, union was established. The bone, it seemed, had split beyond the nutrient foramen, which probably accounted for the failure to unite on acount of the involvement of the nerve-supply.

Dr. Haldor Snévé concluded the discussion. He said that any new theory of this kind was difficult to accept at once. It was well known that in certain diseases of the nerve centres—a condition known as acromegaly—overgrowth of the bones was involved. Other similar dystrophies were well understood. He considered that tight bandaging, excepting in the matter of interference with the circulation was of small influence in the failure of bone union. He dismissed, as of small consequence, the causation by toxines. In some cases of nerve disease, the trophic portions of the nervous mechanism may not be affected and so bone growth or mending may not be interfered with. Cases of very late improvement are usually of actual pseudo-arthrosis and are rarely successfully united.

He regretted that his experiments on this subject had not been carried to a more fruitful conclusion. The morbid irritation of the nerve, as well as the suspension of its functions, he thought should be considered.

NOTES.

Sanmetto in Genito-Urinary Diseases.

I have used Sanmetto in my practice for the last five years, and find it has no equal in diseases of the prostatic portion of the urethra, in presenility, in that peculiar condition existing in anæmic and chlorotic girls just entering womanhood, and all abnormal conditions of the reproductive organs, in either sex, depending on a debilitated condition of the general system. Sanmetto has never failed me in senile prostatitis, or enlargement of the prostate gland in aged men.—J. L. Smith, M. D., Durand, Mich.

Prevention of Uterine Disease.

Gonorrhœal infection is now generally considered as one of the most important causes in the development of diseases of the female genital organs. The starting point is usually a gonorrhœal process in the vagina, which extending upward into the uterus and tubes give rise to endometritis, salpingitis, ovarian disease and peritonitis, and other serious lesions of the generative organs. For this reason the treatment of the primary vaginitis in as thorough manner as possible becomes of paramount importance. According to many practitioners, copious irrigation of the vagina with hot water and the use of Micajah's Medicated Uterine Wafers is the most efficient, agreeable and convenient method of accomplishing this. These wafers are not only strongly antiseptic, destroying the gonococcus, but astringent and alterative, subduing inflammation and promoting a rapid return to a healthy state. Write Micajah & Co., Warren, Pa., for samples.—Editor.

Senna Combined with Figs.

The action of senna combined with figs is to slowly but effectively evacuate the lower bowels and rectum. This it does without undue liquefaction of the stools, leaving them in a formed condition; thus daily exercising the muscular activity of the lower intestinal tract, ultimately enabling it to do its own work. California Fig Syrup is preeminently a laxative and not a cathartic. Abundant clinical experience has shown that it does not become progressively inefficient and will not enslave the condition of the bowels so that chronic constipation supervenes. This is an objectionable feature to many other laxatives and cathartics. The purpose of California Fig Syrup is to coax and not to coerce nature and it is the opinion of practitioners generally that it admirably fulfills this function.

Practice in Minneapolis For Sale.

A Minneapolis physician who is about to retire from general practice to take up a specialty, offers for sale his household and office furniture and his horse and carriages. All articles in good condition and are of good quality.

To the purchaser he will turn over his practice without charge, giving him a proper introduction, and doing whatever he can to install such successor in his practice, which has been established eleven years.

The publisher of the Lancet believes this to be an excellent and an unusual opportunity for any one wishing to begin practice in Minneapolis.

For full particulars address "Doctor," care of N. W. Lancet, 734 and 735 Lumber Exchange, Minneapolis.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

(Contined from LANCET of June 15.)

In spite of the great advance in medical science during the fifteenth and sixteenth centuries and the many learned and able men who were engaged in its study and practice, the condition of the medical profession as a whole was by no means as honorable or as elevated as it is today. To be sure, the physicians whose works and achievements had proven their eminence were recognized and appreciated and occupied high and honorable positions in the communities in which they lived; but the great majority of so-called physicians were still ignorant and slightly or entirely uneducated, and their illiteracy and general incapacity was such as to greatly detract from the esteem in which the general profession was held. Many practitioners of medicine, and some even of the most eminent, were itinerant and travelled about from one city to another practising but a short time in each place, and this was also a common custom among the students who would migrate from one university to another. The salaries of teachers and professors were very small as compared to the present time, although we must remember that the purchasing power of money was much greater. The salaries of the two professorships in Oxford and Cambridge founded by Linacre in 1524 was twelve pounds each. In the German universities the salaries were from sixty to two hundred dollars in our money, although Vesalius is said to have received one thousand dollars, an enormous sum in those days.

The fees and salaries of physicians were very small and many of them must have had a bitter struggle for existence. The city physicians in various German cities were paid from twenty to fifty dollars a year for their services. A single consultation cost about forty cents, and the fee for an examination of the urine (uroscopy) was about three cents. As a rule the fees of physicians were fixed by law and varied according to the pecuniary condition of the patient.

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

The practice of medicine was by no means a lucrative occupation for those practising among the middle and common classes, although very large fees and salaries were often paid to the greater physicians who practised among the rich people and among royalty. That physicians as a class were poorly paid and as little appreciated then as they often are today, may be gathered from the following translation of an epigram written by Euricius Cordus who was a professor of medicine at Marburg during the early part of the sixteenth century:

"Three faces wears the doctor; when first sought
An angel's—and a God's the cure half wrought—
But when that cure complete he seeks his fee
The devil looks then less terrible than he."

A more familiar and perhaps a more elegant rendering of the same epigram is as follows:

"God and the doctor we alike adore
When on the brink of danger—not before.
The danger past, both are alike requited,
God is forgotten and the doctor slighted."

An amusing story illustrative of the sentiment expressed in this epigram, in more recent times, is related by Pettigrew: M. Bovart had been attending during a long and severe illness a certain French Marquis; one morning when his patient was convalescing the following conversation took place: "Good day, Monsieur Bovart," said the Marquis, "I feel quite in spirits today, I think my fever has left me." "I am sure of it," replied the doctor, "Your first remark has quite convinced me of it." "Explain yourself," said the Marquis. "Nothing more easy," said the Doctor. In the first days of your illness when your life was in danger, I was your dearest Bovart; as you began to get better I was your good Bovart; this morning I am plain Monsieur Bovart; depend upon it you are quite recovered!"

It is curious that surgery, although it was studied extensively by the anatomists and many important operations were well known and successfully performed, still remained for the most part in the hands of the lowest grades of practitioners and was on a much lower footing than internal medicine. Certain individuals practised and had special skill in certain special operations but attempted nothing else, and had merely a mechanical knowledge of cutting certain parts of the body, as butchers had, and indeed the butchers not infrequently attempted surgery. Most of the minor surgical procedures were performed by barbers and bath attendants, many of whom, although without education, possessed considerable dexterity and skill. Then there were bone setters, reducers of dislocations, cataract couchers, operators for stone, herniotomists, etc., all of whom were considered disreputable, in spite of the fact that their services were in frequent demand, and that they received much better fees than did the regular physicians.

To understand the reasons for this deplorable condition in which the general practice of medicine continued, and which indeed persisted for another century, while medicine itself as a science was steadily and rapidly advancing, it must be remembered that the great mass of humanity was still poor, ignorant and uneducated, and that the culture and refinement and general intellectual progress of the world was confined to a comparatively small portion of all the people. The inhabitants of small communities and of rural districts had little or no education, knew nothing of science or medical progress, and naturally trusted their ailments and physical disabilities to any one who pretended or claimed to have knowledge of them, so that the actual benefits of the rapidly accumulating medical knowledge were only appreciated and received by the higher classes who lived in the great cities and at or near the great centres of learning. The uneducated people, even when they had the opportunities of benefiting from scientific medicine had no capacity for appreciating its benefits, and as is so commonly the case today, preferred to trust their afflictions to the boastful pretensions of the lower classes of itinerant practitioners.

But let us return to those who were engaged in the actual advancement of scientific medicine. Pathology, as a definite branch, made its first appearance in the latter part of the fifteenth century, and its pioneer was Antonio Benivieni, who lived in Florence. He was apparently the first to recognize the importance of opening the body post mortem to ascertain and locate the cause of death, and to study the condition of the diseased organs. He published a work, the first treatise on pathology, entitled "Concerning Some of the Secret and Strange Causes of Disease."

Another earnest worker in pathology, and a distinguished physician of about the same time was Jean Fernal, of Clermont, who afterwards became physician to Henry II of France. He studied extensively physiology, anatomy and pathology, and his writings, which were numerous, show him to have been a profound scholar, especially of ancient medical literature, and a shrewd and accurate observer.

Although, as I have told you, surgery was at a low ebb during the sixteenth century and its practice among the great masses of the people was in the hands of a disreputable and ignorant set of men, there were enthusiastic and scientific workers striving to elevate this most important branch of medicine, and among them were some of the greatest names in our history. The first of these and the greatest was Ambroise Paré, whose name will always shine among the most brilliant lights in the history or surgery and who is rightly named the father of modern surgery. Paré was the son of a barber surgeon and was born at Laval, in 1510. His early education was meagre, but it was in the direction of medicine and he was possessed of natural ambition and energy, which led him to go to Paris where he studied for three years at the Hotel Dieu. At the age of nineteen he enlisted as what was known as a barber-surgeon in the French army, and for more than thirty years he followed the wars under four kings of France, Henry II, Francis II, Charles IX, and Henry III. He was present at the battles of Perpignan, Metz, Verdun, Rheims, Herdin, St. Quintin, La Fère, Amiens, Rouen, Dreux and Moncontour. War, which is really the school of surgery, gave him his opportunities, and his experience was gained and his lessons were learned upon the field of battle. Before and during his time it was the custom in amputations and bleeding wounds in general, to pour boiling oil into the wound to check the hemorrhage and to prevent blood poisoning. On one occasion after a battle where many had been wounded, the supply of oil gave out, and Parè has recorded how he passed a sleepless night of anxiety on account of his solicitude for those whose wounds could not be, as he supposed, properly treated. To his surprise the next day it was found that those whose wounds had not received the boiling oil were in better condition and had suffered less than the others. The chief service which Parè rendered to surgery was the reintroduction of the ligature of vessels in amputations to replace the red hot iron which had been in previous use. His first ligation was made in an amputation of the leg during the siege of Damvilliers, in 1552. This, if nothing else, is sufficient to render his name immortal. Parè made many reforms in surgical practice aside from those in regard to the treatment of gun shot and sword wounds and in the control of hemorrhage.

It is commonly believed that Parè invented the ligature of vessels. This is erroneus. Hippocrates, Galen and Paul of Ægina have all spoken of the ligature in their writings. Archigenes, of Apamea? (A. D. 98-119) even described amputation by preliminary ligature of the main vessel and cauterization of the smaller ones. Albucasis and Avenzoar were also familiar with the ligature, and many of the surgeons of antiquity treated aneurism by ligating the vessel, as described by Antyllus. In Parè's time, however, the ligature was not used in amputations and his introduction of it was an entirely original conception, and he was the first to appreciate its vast importance.

He employed trusses in the treatment of hernia, and improved the operations of herniotomy. He elaborated the operation for hare lip and cleft palate and was probably the first to remove loose cartilages form the joints by incision. He was a man remarkable for his jovial, cheerful

disposition, of great independence of character and originality of speech, generous, warm hearted and kind, and gained the love and admiration of all with whom he came into contact. It is related of him that at the time of the siege of Metz, which was being defended by the Duke of Guise, there was great distress on account of illness and the incompetency of the surgeons and physicians of the city. The Duke of Guise managed to send a message to the king asking for medicine and stating the general suffering among the soldiers. The king sent for Paré and instructed him to proceed to Metz with as much medical and surgical supplies as he thought necessary. By means of bribery he was smuggled through the Italian lines and reached the beseiged city in safety. Having been for years a military surgeon he was well known to the officers and soldiers and was received with universal enthusiasm and joy. The soldiers took fresh hope and believed that with Parè among them they could not die. It is recorded that on the day of his arrival he began the treatment of one of the prominent officers, whose wounded leg had been causing him horrible tortures for months, under unskillful treatment; and that he decided in another case to trephine for an injury to the head which had rendered another officer unconscious for many days, with the result that both patients were cured. It was universally agreed that the salvation of the city was due to the renewed hope and vigor which followed Parè's arrival. Parè was possessed of an extraordinary ability of commanding the confidence of his patients and of inspiring them with the hope of recovery, which contributed, undoubtedly, much to his success. Although not a scholar, (he knew no Latin or Greek), Parè wrote a book on the treatment of gun shot wounds and powder burns, the doctrines of which were rapidly disseminated and accepted. Parè although chiefly a surgeon, paid considerable attention also to obstetrics, and added not a little to the knowledge of this science. In 1554 Parè was given an honorary degree and admitted to fellowship by the College of St. Cóme, in spite of the fact that he possessed no knowledge of Latin which was by statute required of all candidates. This was probably a unique honor and shows the esteem in which he was held. He died in 1590, in the fullness of years and was sincerely mourned by the greatest men in France as well as by thousands of the humblest. He had risen by his own genius and energy from the insignificant position of an unknown barber-surgeon, to be a chancellor of state and surgeon in chief to the king of France. The motto of Paré reveals the wise and lofty sentiment by which his life and labors were guided. After the recovery under his care of a wounded officer whose life had been despaired of, he replied to those who congratulated him upon his skill: "Je le pansay, Dieu le guerit!" "I treated him, God cured him." Two other maxims of his bear witness to his scientific spirit and noble character and are worth remembering: "An approved remedy is much more valuable than one newly discovered." The other is: "He who becomes a surgeon for the sake of money and not for the sake of knowledge, will accomplish nothing."

Such was Ambroise Paré, a man honored and beloved in his own time and justly revered by posterity. Partly to Paré and partly to his pupil and son-in-law, Jacob Guillemeau, we are indebted for the first attempts at scientific operative obstertrics, especially the rapid termination of pregnancy in cases of hemorrhage (placenta prævia) and convulsions. The operation of Cæsarian section, although known to the ancients, had been abandoned and was revived by Guillemeau and Rousset, physicians to the Duke of Savoy, both of whom were successful in saving both mother and child in several cases. The first authentic Cæsarean section on the living woman definitely described was performed by a sow-gelder, Jacob Nufer, of Siegershauser, upon his wife in about 1500. The account of it is curious, and as it is well substantiated, it is worth repeating. The woman had been long in labor, and after thirteen midwives and a number of lithotomists had tried in vain to deliver her, the husband, having invoked the assistance of God and having obtained the special permission of the governor of Franenfeld, operated "just as he would have on a sow," and with such success that the mother survived for many years, and subsequently bore several children, including twins, in the usual way. The operation was for a time quite frequently performed, although, of course, with a high mortality. It is quite probable, however (a fact recognized by Paré), that most of the operations were unnecessary and that the obstruction to delivery was simply due to mal-position of the child, because many of those operated upon, like the sow gelder's wife, afterwards bore children in the natural way and without difficulty. The invention of obstetric forceps, during this same century, and a better knowledge of the means of correcting faulty positions, made the operation much less frequent.

The development of accurate observation, during the time we are speaking of, and the more careful study of diseases and their symptoms, is shown by the fact that many diseases, especially infectious and contagious diseases, which had hitherto not been clearly separated and defined, were recognized and classified for the first time during the fifteenth and sixteenth centuries. The liberation of medicine

from its bondage to ancient authority, which had so long existed, resulted in much original thought and expression, and in various parts of Europe there appeared many books on medical subjects which displayed the vigorous and independent thought so characteristic of the times. In ophthalmology, George Bartisch, of Königsbruck, was conspicuous, and made many remarkable improvements in the methods of operating on the eyes. Bartisch was an expert cataract operator. He devised operations for pannas, trichiasis, ectropion, lachrymal fistula, symblepharon, and tumors of the lids. He laid down minute directions for the preparation of the patient before the operation, and furthermore insisted that the surgeon should drink nothing for several days before operating, should not sit up long by candle light, should live chastely, soberly and virtuously, and on the day of the operation should be thoroughly washed and purged! In Italy, Nicolo Marsa was a prominent practitioner and wrote extensively on contagious diseases, the plague, measles, small pox and syphillis; the cerebral symptoms of the latter he was among the first to describe. In England there were many physicians of considerable education, but their knowledge for the most part had been gained in foreign universities, and England contributed little original thought to medicine until the latter part of the sixtenth century.

(To be continued.)

AN ADDRESS.

Delivered Before the Graduating Class of the Medical Department of the University of Minnesota.

By J. B. McGaughey, M. D.

Winona, Minn.

Ladies and Gentlemen of the Graduating Class of the Medical Department of the University of Minnesota:

It affords me great pleasure to be permitted to congratulate you upon the completion of your work in the University, and to bid you welcome to the ranks of the medical profession. This department of the University, though young in years, has secured a reputation and gained a position in the list of medical schools of this country, which bears ample testimony to the thoroughness and efficiency of the work performed by its professors and its students. This statement is no mere expression of opinion, but a fact well established by the positive evidence which the graduates have furnished with unfailing regularity to the State Board of Medical Examiners of Minnesota. My personal observation, during a long term of service on said Board convinced me that those graduating from this department entered upon the practice of their profession equipped in a manner which is equalled by few and excelled by none.

You have pursued your studies here and completed your course to the satisfaction of your teachers, who have recommended that the degree of doctor of medicine be conferred upon you. You could not have attained this result without earnest, persistent, intelligent labor, extending over months and years. Anatomy, physiology, pathology, histology and many other branches in your course demanded your most serious and undivided attention. Your appearance here in your appropriate place in your class on this day shows that you properly recognized such demands.

Your work henceforward will differ materially from that which you have done within these walls. You, of course, will not cease to be students, but your studies will be more varied and frequently will be forced upon you. Heretofore you could arrange your hours and select your subject. When you engage in practice oftentimes you can do neither. Here you have been frequently annoyed if not discouraged by the multiplication and confusion of processes, vessels, nerves and tissues. In practice your discouragements will arise from causes which too frequently follow no prescribed rules, and from results which you are unable to prevent. It is well to appreciate early the fact that when you pass to the field of practice you will occasionally, notwithstanding your best directed efforts intelligently applied, be met with failure more or less disastrous.

Disappointments of this character are encountered in every field of labor. Their comparatively frequent occurrence in the practice of medicine and surgery is readily accounted for by the variety of conditions, the exposure to casualties and the feeble power of resistance inherent to the human race. When the time comes, as come it will, that you are forced to admit that all your efforts have been in vain, your only true consolation will arise from the consciousness that after having thoroughly prepared yourself for your work, nothing was left undone which in your best judgment would have contributed to the recovery of the patient in your charge. Be it understood that you cannot in all instances be positive that there has been no error in the course pursued, but you can be positive that such error only arose in spite of the most serious attention and exhaustive investigation, supplemented by your best judgment bestowed upon the case. A mistake under such circumstances should not be followed by too profound a sense of humiliation even should its existence and its unfavorable influence become apparent. Infallibility in all matters of this kind is not even the exception to the rule. A mistake recognized should always afford protection against a repetition of the same, and should, if possible, always be discovered by the indi-

vidual practitioner who makes it. In many instances the knowledge of its existence may, with benefit to all, be limited to him.

When you are called upon to render service to those suffering from disease or injury it will be your duty to neglect nothing calculated to throw light upon the nature of the affection. The first examination should be critical and exhaustive. Such a course, though it may involve a considerable expenditure of time, is indicated in every case. This loss, however, is more apparent than real, especially if subsequent attention is required, as the visits and consultations in the future, in a case the details of which are familiar to you, will as a rule require but a fraction of the time which must be allotted to those involved in obscurity and doubt. The thorough primary examination thus not only affords the surest protection against errors in diagnosis and treatment, but frequently reduces, in the aggregate, the number of hours required for the proper care of a given case.

You will not infrequently meet with cases in which you cannot feel justified in making a diagnosis at the first consultation. The difficulties in reaching a conclusion and the causes for delay should be clearly stated. Intelligent, reasonable persons can be made to understand the conditions, and will grant the request for further time and opportunity for investigation. If the disease is sufficiently obscure to justify such a request, and the same be denied by the patient or his friends, the physician can with credit retire from the case. Such a course is always followed by increased mental equanimity and, not infrequently, by positive pecuniary profit.

The young practitioner, especially, should always be fairly positive in dealing with his patients, but everything having the appearance of obstinacy must be avoided. No rule should be laid down which is not supported by reason, but after such rule has been given, its observance should be insisted upon with that calm determination which usually ensures obedience. Directions in regard to treatment should be plain and explicit and free from unnecessary prolixity.

The importance of an exhaustive study of the history and nature of the disease, including its origin, stage, symptoms and probable result, cannot well be overestimated; but, however thoroughly this work may have been performed, there still remains much that demands serious, careful investigation. The physician must, in addition to familiarizing himself with the disease, become thoroughly acquainted with the habits and physical and mental constitution of the individual he is called upon to treat. Much of this knowledge can only be gained from verbal evidence furnished by the patient or his friends, the value of which ofttimes it is difficult to estimate. Proper caution, aided by a judicious system of cross examination, usually can be relied upon to elicit information upon which approximately accurate conclusions can be based.

Much has been written concerning the manner of the physician and the influence of the same upon his success in practice. Some of the directions given by the teachers of the preceding generation appear ludicrous at present. People have existed and continue to do so, who seem to require a medical attendant possessing all the daintiness in person and dress that are required to constitute the ideal French dancing master. Others again demand one presenting the features and to some extent exhibiting the actions of the bully of the prize ring. Neither class, however, is sufficiently numerous or influential in any community to command much of the service of any practitioner or to yield any considerable revenue to the profession.

Occasionally a bluff answer has the effect of subduing an unreasonable patient and with suitable precautions may be permissible. A striking example of the value of this course is said to have taken place when Prince Bismark first called the practitioner who has been his attendant for many years. The doctor asked his distinguished patient, in effect, what was the matter with him, and upon receiving the reply that he sent for him to find out what was wrong and that he should do so without asking questions, Dr. Schweninger quietly said: "You have made a mistake Count. You should send for a veterinary surgeon. They treat all their patients in that way." This prompt, sensible reply is said to have contributed much to the Prince's well known estimation of his medical advisor.

No special rules in regard to the manner of the physician are required. All are or should be ladies or gentlemen and should conduct themselves accordingly. Self possession should be ever present during the visit in the sickroom, but no assumption of knowledge which does not exist should be exhibited. Here too, as in every walk in life, perfect honesty, not because it is the best policy, but because it is right, should govern every action.

In your selection of a profession you have chosen one which yields little promise of leading you to wealth or to commanding station in life.

If you succeed in securing respectable support in your active years, and in providing a moderate competence for old age, your efforts in behalf of your persons and families may be regarded as eminently successful. This can only be accomplished, in the majority of instances, by assiduous devotion to your practice aided by the exercise of a rigid economy.

Let me warn you against assuming any unnecessary burden of debt. The physician who carries such a load pursues one of two courses, either of which seriously impairs his usefulness

and, not infrequently, his standing in his community. If the practitioner is of a sensitive nature, pecuniary difficulties which cannot be overcome act as irritants and depressants and render him incapable of that devotion to his profession which alone can yield the best results. On the other hand if he apparently or actually ignores his obligations, bestowing all his efforts upon his work, however well this may be performed, a reputation is established for unreliability which, thought at first it may only affect unfavorably his standing as a citizen, will eventually produce results equally undesirable upon the physician and his practice.

Any attempt to reduce the calling and work of the physician to a strict commercial basis should be vigorously opposed by the members of the profession. The tendency, however, in this direction is probably greater now than in any other period of our history. All communities have their unfortunates and worthy poor who should receive medical service without being called upon to render pecuniary reward; and no practitioner should refuse to perform his share of such work when called upon to do so. On the other hand, we meet with a not inconsiderable number of persons who deliberately neglect or decline to contribute anything towards the support of their medical attendants, notwithstanding the fact that they could do so without being deprived of any of the comforts or even any of the luxuries of life. This class grows with little encouragement and is peculiarly and offensively exacting in its demands and utterly refuses to be suppressed. The fact that the profession, or some of its individual members, is responsible for this evil affords no relief.

The remedy can only be applied by united and persistent effort of the practitioners, who by their neglect not only sustain considerable pecuniary loss, but much worse aid in maintaining a system which materially lowers the estimate which the general public places upon their labors. Give your services cheerfully and kindly to the unfortunates who are unable to recompense you, but always place a proper value upon the same and exact remuneration when the recipient's circumstances warrant it. Justice to yourselves and to your fellow practitioners demands the adoption of this course.

In this connection let me suggest that excessively high or inordinately low fees should be avoided. The effects of either are productive of injury.

In this age the code of ethics adopted by the American Medical Association many years since seems to fail to command the respect of the profession to the extent it did twenty-five years ago. The terms of this code should be familiar to every one engaged in active practice. This system of ethics, when properly studied and interpreted, needs no defense. Without fear of successful contradiction, it may be asserted that no important provision of this code, which applies to the duties and conduct of physicians towards each other, can be violated without setting at naught that code emanating from a much higher source, which commands "Do unto others as you would have others do unto you."

There seems to be a growing disposition in this country to divorce the work of the surgeon and the physician. There are advantages arising from this course which cannot be ignored, but the fact remains, that in most localities the general practitioner must perform much of the work of both branches. The tendency to exalt the labors and results of those engaged in one branch over that of the other is unreasonable and should not be countenanced. The family physician has always performed a vast majority of the work in all departments of practice and there is no reason to believe that he will not continue to do so. There is no disposition to underrate the importance of the service of the specialist. It is even admitted that ofttimes his results in given cases would be superior to those obtained by physicians in general practice if his attendance could have been secured. Often, however, he is not within reach and the usual attendant, though not especially skilled in this line, will be compelled to perform an operation promptly. You must be prepared to act, at least in the earlier years of your professional life in this class of cases. For this reason there is no study in your whole course more important than that of anatomy. This study, too, must be reviewed frequently and should, if possible, be supplemented from time to time by a practical course. Many cases are encountered in which the dangers arising from the delay incidental to securing the attendance of a specialist far exceed those of an operation performed by a comparatively inexperienced or even unskillful operator, provided such operator has not forgotten his anatomy. Meeting emergencies of this kind and successfully caring for the same affords the best possible training for the young practitioner, increasing his experience and materially augmenting his stock of that variety of confidence which is required for the performance of good work.

No one should be discouraged from entering upon a specialty in the practice, but specialists should, without exception, have at least some experience in the practice of general medicine and a good knowledge of its subjects. Those who do not possess such requisites may succeed to a certain extent by the aid of a natural adaption to the work in their particular line, but the degree of success attained would be increased if they had early laid a broader foundation by familiarizing themselves with all departments of practice.

In your future labors the formation of a correct diagnosis will demand much of your earnest thought, and the exercise of your sense of discrimination, in placing a proper estimate upon symptoms and physical signs of disease and upon the value of the subjective symptoms. Here undue haste or carelessness must not be tolerated. Patience and untiring perseverance must be constantly exercised. In your clinics you have, as a rule, observed only cases in which a diagnosis, more or less positive, has been made by your teachers. You may, or may not, have been informed of the difficulties often encountered by these practitioners of vast experience, in reaching conclusions, which owing to their descriptions appear quite plain to you. Occasionally you may have beheld a suffering mortal, the nature of whose malady has never been accurately determined by any one, though he has submitted the problem to many. Instances of this kind will continue to be observed until our state of knowledge approaches much more nearly perfection than it does at present. Should you meet what may prove to be a case of this kind, study it well, elicit all the information you can in regard to the origin, symptoms, signs and effects of the disease. Weigh carefully the statements of the sufferer and his friends. Much of this testimony, however, will possess little value, even if you have taken the wise precaution to limit the same to matters apparently relevant, and if you cannot reach any decision providing there are no especially urgent symptoms present, reflect upon the evidence in your possession and institute a detailed reinvestigation at an early subsequent date. Should this still leave you with a patient and an undetermined diagnosis do not conclude that as a diagnostician you are a failure. The indefiniteness of the signs, and the conflicting objective and subjective symptoms, may involve the case in so dense obscurity that even your experienced teachers might be unable to fathom it, or should you succeed you will be comforted by the fact that it was only after many difficulties had been met and overcome. In any event your position in every respect, and probably the condition of the patient as well, will be much better than it would be had you on insufficient evidence made a wrong diagnosis and instituted an energetic course of treatment on that line. It is not assumed that the attendant must remain inactive in all conditions in which the nature of the affection is unknown. Occasionally delay cannot be allowed and an effort must be made to relieve pain or overcome collapse the cause of which is not apparent. In other words you may be compelled to institute a treatment for the time being, based entirely upon the symptoms presented, however unsatisfactory such a course may be, and occasionally in such cases the affection will only be revealed by post mortem examination.

The matter of diagnosis has been dealt upon thus at length for the reason that observation has forced the conviction that the difficulties and uncertainties pertaining to it are the source of a large part of the discouragements the young physician undergoes and that, not infrequently the self-condemnation imposed for failures or errors in this direction is harsher than is justified by the circumstances.

Your duties will be but imperfectly performed if your efforts in behalf of humanity are limited to caring for those suffering from injury or disease. Hygiene must and will have your attention and support and your judgment and services will be required in various sanitary measures. In addition to work of this character it will be your province and it should be your duty to render efficient aid in overcoming the error, much of which borders on superstition, concerning medical and surgical matters, which still prevails to a remarkable degree. Error of this kind is possessed of wonderful vitality, and, like many diseases, is confined to no rank in society. It flourishes alike in the palace and in the hovel and it is often as readily entertained and as firmly held by the educated and refined as it is by the unlettered and the uncultured. Effective work in this field can only be accomplished by the aid of skill, tact and patience. Many beliefs which are in conflict with positive knowledge and which are refuted by facts of daily observation persist in spite of all efforts to dislodge them. Such efforts, too often, have been made with little tact and less judgment. These errors frequently have existed for generations. Some even have the sanction of the medical profession of but a generation or two past. Many of them are held as matters of faith and all are honestly entertained. Notwithstanding all this, the effects of the practices resulting from the perpetuation of these errors produce vast suffering, disabilites and too frequently even death itself. These facts should stimulate you to well directed efforts toward making apparent the falsity of such beliefs and practices, which can best be done by imparting clear information bearing upon the same. Well defined reasons for the opposition must be afforded at all times. Mere objection without this too often has the effect of strengthening erroneous convictions. The results of work of this character are frequently discouraging, but, on the whole, much that is satisfactory has been accomplished in recent years. There is reason to believe that persistent effort in the future will yield better returns.

The obligations of the practitioner to his profession are scarcely less important than those due to his patrons, to his community and to himself and his family. With rare exceptions that which injures one member affects unfavorably the whole medical body. Reasonable, honest competition

is a spur to increased activity and intelligent effort and is beneficial and healthful, but that form which prevails in commercial circles in this age of dollar chasing, has no right to existence in a medical profession which claims to be liberal and scientific. Scalping and scooping, most excellent, if not elegant, descriptive terms, may and will be sustained in various avocations, but those who devote their lives to the healing art cannot afford to adopt these measures, which originate in selfishness and are nourished by greed and dishonesty.

Cultivate the acquaintance of the physicians in your immediate neighborhood. If a local medical society exists gain admission to it, and I urge you to become an active, not a silent member. Should there be no organization of this kind, be instrumental in creating one. Supposed or real differences among practitioners will often disappear and be utterly forgotten, by the aid of the good influences of the stated meetings of a local society. There is no field occupied by several physicians which is destitute of an association of this kind, in which the profession will be found united and progressive to a degree that reasonably inspires the confidence and commands the respect of the laity in that vicinity. These associations are worthy of all the support and encouragement you can give them. A large number of the members of our profession rarely, if ever, attend any other medical meetings.

In order to keep well abreast of the times it is important that you select and read one or more journals devoted to medicine and surgery. The list of publications of this character is now so large that it is more difficult to limit the number than it is to select, if not the best, at least those that are satisfactory. For some years past many of these periodicals have published reports of discussions in different societies upon papers and reports of cases presented, which are of vast practical interest, adding materially to the value of the original paper or report. A well conducted medical journal, though never a substitute for, is an admirable supplement to the text-book.

In a desultory manner an attempt has been made to direct your attention to some of the duties you will be called upon to perform in the practice of your profession, to warn you concerning the disappointments you will at times be forced to meet, and to encourage you to bear the same with fortitude, compelling them, as far as possible, to add strength and greater accuracy to your future work.

Let me again welcome you upon your admission to the ranks of a profession in which laggards have no place, whose members bestow their services alike upon the suffering, rich or poor, just or unjust, white or black, friends or enemies, receiving and preserving inviolate the confidence of all. A profession in which you will be unlikely to secure great wealth or to attain eminence in society, but one in which you will be able to perform work and confer benefits upon your race of a character that will entitle you to a position attended with more true honor than can be gained by any accumulation of wealth or acquisition of power.

THE CLINICAL VALUE OF A LEUCOCYTE COUNT IN THE DIAGNOSIS OF ABDOMINAL DISEASES.

An Address Delivered before the Minneapolis Club, May 19, 1898.

By Geo. Douglas Head, B. S., M. D.

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Leucocytes are present in the circulating blood of the normal adult in the number of 7,000 to 8,000 to the C. M. M. In children the number is somewhat higher. Infants of one year or less average about 12,000 white cells to the C. M. M., while in older children the count is 8,000 to 9,000 corpuscles to the C. M. M.

Under certain conditions the number of white cells in the blood may be increased beyond the normal limits. Such an increase may be very great, reaching 30,000 to 50,000 to the C. M. M., or it may be only slight, 10,000 to 15,000, to the C. M. M.

Any increase in the number of leucocytes of the circulating blood is called leucocytosis, or, as some authors prefer, hyperleucocytosis. On the other hand, under certain conditions the leucocytes in the circulating blood may be decreased below the normal count. Such a decrease is spoken of as leucopenia, and may descend as low as 2,000 white corpuscles to the C. M. M.

What forces act to occasion this rise or fall in the number of white cells in the blood has not been definitely determined. Leucocytosis, the more common of the two processes, has been theoretically explained by Virchow and Ehrlich as due to a stimulation of the blood-making organs and a consequent over-production of white cells. Löwit, finding that leucocytosis was always preceded by leucopenia, maintains that the increase is due to a regeneration of new white cells from the older forms.

Buchner and Römer hold that bacterial proteins circulating in the blood act to increase the number of white cells, first, by stimulating the blood-making organs to the production of new cells, and, second, by calling into the circulating blood other leucocytes from their resting places in the spleen and lymph nodes.

The theory which, however, best explains leucocytosis is that advocated by Von Limbeck,

Goldschneider and Jakob. These observers take the stand that there is no actual manufacture of new white cells in the production of leucocytosis, but that the bacterial toxines circulating in the blood act in a chemistactic way to attract into the blood stream leucocytes which were before stationed in the lymph spaces, spleen and lymph nodes, and that these leucocytes added to those already in the blood cause the higher white blood count and the phenomenon known as leucocytosis.

To explain the diminution in the number of leucocytes in the circulating blood, two theories have recognition.

Löwit conceived the process to be one of cell destruction occasioned by some toxic product circulating in the blood.

Schultz, Goldschneider and Jakob take the ground that there is no actual destruction of white cells in leucopenia, but that the decrease is caused by an exodus of leucocytes from the circulation into some of the organs and tissues of the body.

It does not matter in the consideration of this subject how we theoretically explain these phenomena. We know that they exist and that under certain conditions the leucocytes of the circulating blood may be increased or decreased beyond the normal limits.

Some of these conditions are physiological, such as the leucocytoses of pregnancy, of exercise, of digestion, and the like.

Such an increase of white cells is of importance from a pathological point of view only that the clinician making white counts with the patient in such physiological states must bear in mind the leucocytoses thus produced.

Other conditions causing an increase of white cells are pathological. Such are the leucocytoses of pneumonia, rheumatism, erysipelas, diphtheria, scarlet fever, secondary anæmia, and nearly all forms of septic infection.

There are no well marked examples of a diminution of white cells due to physiological causes, but the diseases tuberculosis, typhoid fever, malaria, la grippe and measles furnish pathological examples of leucopenia. These variations in the number of white cells in the blood occasioned by pathological processes have been found to be fairly constant, and are now taken advantage of as an aid in the diagnosis of certain diseases.

It is as if the counting of the white blood corpuscles had added an additional objective symptom to the category of manifestations considered as characteristic of certain pathological states which materially assists in their recognition.

It is for the purpose of demonstrating the value of this procedure in clinical diagnosis that the writer has selected for your consideration diseases of the abdomen.

The reasons why this class of pathological conditions has been chosen are, first, because the difficulties encountered in diagnosing abdominal diseases are so great that abundant opportunity exists for the use of additional aids, and, second, because many pathological conditions of the abdomen sooner or later come to operation when the diagnosis made prior thereto can be verified or denied.

Before proceeding to detail cases illustrative of the value of this procedure, let us review the facts known concerning white blood counts in abdominal diseases.

The presence of pus in the abdomen is usually attended by a well marked leucocytosis. This fact holds true, whether the infected point be localized about a diseased appendix or in a Fallopian tube, or whether the general peritoneum is involved. The height to which such a count may rise varies under different conditions. Sometimes the number of white cells counted may not exceed 15,000 leucocytes to the C. M. M., while in other cases the leucocytosis may reach 40,000 to 50,000 to the C. M. M. In general, the milder the infection the lower the leucocyte count, while the more severe the infection the more white cells will be counted in the circulating blood.

The leucocytosis produced by the presence of pus in the abdomen, even though so variable, is usually high enough to be of great clinical value in establishing the presence of a pyæmic infection.

When, however, a white count is made in a large series of cases, some exceptions to the general rule are met with which ought always to be borne in mind. For example, in some long standing cases of suppuration where the pus is well walled off from the surrounding tissues, the white count may be normal or only slightly increased. An illustration of such a condition is well exemplified in case X. of my series.

Here the abscess was of twelve years standing and the leucocyte count was only 11,000 to the C. M. M., a number too low to establish the presence of pus. As the diagnosis in these long-standing cases is usually easy by other means, the failure of the white count to disclose the presence of pus is not a matter of grave importance.

Likewise in very severe, usually fatal septic infections of the abdomen, such for example as a general suppurative peritonitis, the leucocyte count may be normal or only slightly increased. Cabot gives five such cases in his table of leucocyte counts in septic infections.

This is the most important exception to the rule of leucocytosis in pyæmic infections of the abdomen, and should always be borne in mind in grave cases of abdominal disease where pus is suspected.

A count of leucocytes in pathological condi-

tions of the abdomen, where pus is likely to occur, is of great practical value in the diagnosis and differential diagnosis of such lesions. With a rigid abdominal wall, the seat of the disease deeply located and the so-called classical symptoms of pyæmic infection uncertain, the diagnostician is many times in grave doubt as to the nature of the pathological process with which he is dealing.

In a large majority of such cases a leucocyte count will assist in the solution of the difficulty.

Many times the question arises: Does or does not this swelling contain pus? Here again a white blood count is often of assistance in differentiating between accumulations of pus and those of a serous or hemorrhagic character.

Again, repeated white counts of cases of suspected septic infection will give evidence as to whether the process is extending and involving new areas of tissue or whether it is well localized and walled off from the surrounding structures. As examples of the value of knowledge thus secured see cases XIII., XIV., and XI.

Turning to the abdominal disease appendicitis, we find that a white blood count is of great clinical value, not only in the diagnosis of the condition, but also in the knowledge that it furnishes concerning the stage and character of the pathological process. A catharrhal appendicitis in a great majority of cases produces slight increase in the leucocytes of the blood. See cases V., II., IX., X., XII., XV.

If, on the other hand, the inflammation in the appendix has gone on to necrosis and suppuration, a pronounced leucocytosis usually appears.

Whether or not a gangrenous appendix without suppuration will cause a well marked leucocytosis has not been definitely ascertained. Cabot gives one such case in which the white count was 12,000 corpuscles to the C. M. M., a count not sufficiently high to be of much diagnostic value. In the great majority of cases, however, the clinician is able, by estimating the number of leucocytes in the blood, to determine whether the appendicitis is catarrhal or suppurative. y making repeated counts from day to day he can likewise gain some idea as to the course of the inflammation, a gradually increasing leucocytosis meaning an extending process, a gradually diminishing count meaning that the natural cell forces had gained the mastery, and that the infective process was at a standstill or receding.

As an example of the reliability of the knowledge so furnished, see cases XIII. and XIV.

A disease with which the appendicitis is often confounded is acute obstruction of the bowel. The most careful diagnostician is often unable to determine before operation with which pathological condition he is dealing. In such a dilemma the white blood count is of great value, since in most forms of intestinal obstruction there is no leucocytosis, while in appendicitis with obstipation the leucocyte count is usually increased. See case I. as an illustration of the value of knowledge gained by the white blood count in these two conditions.

In acute attacks of abdominal pain due to the passage of a gallstone or a stone in the ureter, or in the colic of acute nephritis, or in the gastric crises of locomotor ataxia, or in gastralgia, there is no leucocytosis unless the condition is complicated by septic infection.

To distinguish these from acute abdominal pain due to perforative or suppurative appendicitis the white blood count is of value.

In the disease typhoid fever the leucocyte count is normal in the first week, while in the second and third and fourth weeks the count is usually decreased and there is an actual leucopenia. This knowledge furnishes a means of differential diagnosis of the greatest value, particularly in diseases of children. Cabot says: "I have seen good clinicians puzzle for twenty-four hours over a diagnosis between appendicitis and typhoid fever, but the indications of the blood count were always fulfilled."

Case V., in my series, illustrates in a most forcible way the values of the white blood count in the differential diagnosis between appendicitis and typhoid fever. Between typhoid fever and abscess of the liver, pyæmia and septicæmia the blood count is, with few exceptions, diagnostic, since in the latter diseases there is almost always leucocytosis.

In a case in which the Widal reaction pointed toward typhoid fever, while the clinical symptoms were those of rabies, the white blood count was 22,000 corpuscles to the C. M. M. The autopsy revealed no typhoid lesions and confirmed the conclusion of the white count.

In pelvic diseases of women a leucocytosis exists in all acute suppurative conditions, whether it be of the ovaries, the tubes or the other pelvic tissues.

The gynæcological diagnostician is often confronted with the question: Is this pelvic swelling cystic, hemorrhagic or pyæmic? A white blood count will in most cases answer the question. If pus existed there would be a well marked leucocytosis; if blood or serum were present usually no leucocytosis would be manifested. When called upon to determine whether pelvic pain is neuralgic or dependent upon septic infection, a white count will determine it, there being no leucocytosis in pelvic neuralgias.

See cases III., IV., VII., VIII. and XVI., as examples of the value of white blood in the diagnosis of pelvic disease of women.

In tubercular peritonitis there is no increase in the number of white cells in the blood. Since both tubercular peritonitis and typhoid fever

cause no leucocytosis, the white count is of no value in differentiating between these two diseases, but between acute tubercular and acute septic peritonitis it would many times assist in the diagnosis.

In sarcoma and carcinoma of the abdominal viscera, the white blood count is of no diagnostic value, since in some cases the leucocytosis is high, while in others little or no leucocytosis exists.

This completes the list of abdominal diseases which are commonly met with, and which have been investigated from the standpoint of the leucocyte count. As the value of any procedure in diagnosis depends upon its power of interpreting aright existing conditions, let us turn to the list of cases appended which are presented to prove the value of the method. But first as to the method pursued.

The red blood mixer of a Thoma Zeiss hæmocytometer and a bottle of one-third per cent glacial acetic acid solution in water are constantly carried in the medical hand satchel. When a patient is seen in whom a white blood count is desired to be made the ear is punctured, the mixer is filled with the proper amount of blood and acetic acid solution. The apparatus is then well shaken, placed in the case and taken to the office where the count is properly made with the microscope.

This method does away with the necessity of carrying a microscope to the place where the patient lives, and is accurate, provided the mixer is well shaken previous to making the count. The writer has found no loss of cells as a result of one or two hours delay before the count is made, and believes that no error arises even though the estimation is not made immediately. On the other hand, this method does not require the carrying about of a microscope, and, therefore, makes the procedure eminently practical.

CASES.

Case I. Mr. R. Young man, 22 years. Seized with pain in abdomen while doing gymnastic exercises. Persistent vomiting. Tympanites and obstipation with mild fever.

Clinical diagnosis. Intestinal obstruction or appendicitis.

White blood count 20,000 to the c. m. m.

Diagnosis with aid of white count: Appendicitis with pus in the abdomen.

Operation: Gangrenous appendix; general suppurative peritonitis.

Case II. Mr. C. Young man, 25 years.

Ill defined attacks of abdominal pain, with fever and diarrhœa lasting over two weeks.

Clinical diagnosis: Appendicitis or typhoid fever or tubercular peritonitis.

White blood count 11,500 to the c. m. m.

Diagnosis with aid of white count excludes typhoid fever and tubercular peritonitis.

Surgeon operates: No pus. Adherent appendix, omentum rolled into a mass around appendix.

Case III. Miss McD. Fever and pain in left ovarian region.

Physical examination: A resistance behind the uterus in Douglas' cul de sac; tenderness in left ovarian region. No tumor. No fluctuation.

Clinical diagnosis: Acute inflammation of left ovary, with an involvement of structures behind the uterus. Pus may or may not be present.

White blood count 31,000 to the c. m. m.

Diagnosis with the aid of white count indicates pus in the infected region.

Operation: 25 C. C. of pus evacuated.

Case IV. Mrs. B. Fever and pain in the pelvic region.

Physical examination: A hard mass well circumscribed behind the uterus in Douglas' cul de sac. Tender on palpation. Mass probably contains pus, though examiner can get no clear sense of fluctuation.

Will operate.

White blood count 7,300 to the C. M. M.

Diagnosis with the aid of white count indicates no pus in affected region.

Operation: No pus found.

Case V. Miss F. 15 years. History of five days pain in right inguinal region, vomiting, constipation. Temperature 103 degrees.

Physical examination: Abdomen somewhat tympanitic, marked resistance in right lower abdomen.

Clinical diagnosis: Appendicitis with forming abscess or gangrene.

White blood count, 3,300.

Diagnosis with the aid of white count: A non-suppurative lesion of the abdomen, probably typhoid fever.

Surgeons operate: No pus. A very slightly inflamed appendix which was removed. Patient continued in a course of fever with rose spots and Widal reaction, which terminated in three weeks and was probably typhoid fever.

Case VI. Mr. D. 16 years. History of abdominal pain and fever.

Physical examination: A large, fluctuating tumor in right abdomen.

Clinical diagnosis: Appendicitis with abscess.

White blood count, 16,000 to the C. M. M.

Diagnosis with the aid of white count confirms clinical diagnosis.

Operation: Large amount of pus evacuated.

Case VII. Mrs. S. Pelvic pain and fever.

Physical examination: Indurated swelling

back of uterus extending out toward region of left ovary.

Clinical diagnosis: Pelvic abscess.

White blood count, 14,000 to the C. M. M.

Diagnosis with the aid of white count confirms clinical diagnosis.

Operation: Pus evacuated.

Case VIII. Mrs. P. History of pelvic pain and fever, lasting some months.

Physical examination: A palpable, tender swelling in region of right Fallopian tube.

Clinical Diagnosis: Pyosalpinx (?).

White blood count, 13,000 to the C. M. M.

The leucocytosis is not sufficient to make the presence of pus certain, but it points toward a septic infection.

Operation: Teaspoonful of pus evacuated.

Case IX. Mr. S. 25 years. History of three attacks of pain in the right lower abdomen with constipation and fever. Tenderness on palpation in right lower abdomen.

Clinical diagnosis: Catarrhal appendicitis.

White blood count, 7,000 to the C. M. M.

Diagnosis with the aid of white count, Catarrhal appendicitis. No pus.

Patient recovered in four days.

No operation.

Case X. Lon B. Boy, 12 years. Seized with acute pain in right lower abdomen; vomiting, fever (103°), constipation and marked tenderness on pressure over McB.'s point.

Clinical diagnosis: Appendicitis.

White blood count, 7,000 to the C. M. M.

Diagnosis with the aid of white count: Catarrhal appendicitis. No pus.

Recovery in four days. No operation.

Case XI. Mrs. D. 35 years. History of pain and tenderness in right lower abdomen, followed by a swelling the size of an orange. Swelling appeared some years ago.

Clinical diagnosis: Appendicitis, with a well localized abscess.

White blood count, 11,000 to the C. M. M.

The leucocytosis is not sufficient to diagnose the presence of pus.

Operation: Pus evacuated.

The low leucocyte count in this case was undoubtedly due to the fact that the abscess was of long standing and had been well walled off from the general peritoneum.

Case XII. Mrs. K. 35 years. History of repeated attacks of pain in right lower abdomen. Some tenderness on pressure.

Clinical diagnosis: Chronic catarrhal appendicitis.

White blood count, 7,800 to the C. M. M.

Diagnosis with the aid of white count: Chronic catarrhal appendicitis. No pus.

Surgeon operates. No pus. Thickened, indurated appendix.

Case XIII. Mrs. S. 60 years. History of two attacks of pain in right lower abdomen with vomiting and fever.

On examination a swelling the size of a lemon is felt below and inside of McB.'s point.

Clinical diagnosis: Appendicitis with abscess formation.

White blood count, 17,000 to the C. M. M.

Diagnosis with aid of white count: Appendicitis with pus formation.

Operation advised. Patient declines. Three days later second count, 14,000. Process is not spreading. Three days later swelling disappears. Pus discharged from bowel. Patient recovers.

Case XIV. Boy C. 11 years. Seized with pain in lower abdomen; persistent constipation, vomiting, tympanites and some fever (99.6°). Tenderness over lower abdomen more marked on left side. No palpable tumor.

Clinical diagnosis: Appendicitis, typhoid fever or (?).

White blood count, 19,000 to the C. M. M.

Diagnosis with aid of white count excludes typhoid fever, and points toward a suppurative lesion in the abdomen.

Operation advised. Parents refuse.

Next day white blood count, 22,000.

No change in symptoms. Process is extending. Next day white count, 19,000. Process is not extending; no change in symptoms.

Next day white count 14,000. Patient is better. Inflammation is receding. Will not operate. Child recovers.

Here undoubtedly the white blood count gave us a means of following the course of the inflammation in the appendix which the clinical symptoms failed to reveal.

Case XV. Mr. F. Student, 26 years. Called for an attack of severe pain in right abdomen over McB.'s point. Temperature 102°. Constipation. Tenderness on pressure in the affected region.

Clinical diagnosis: Appendicitis.

White blood count, 9,200 to the C. M. M.

Diagnosis with the aid of white count: Catarrhal appendicitis. No pus.

Patient recovered in six days. No operation.

Case XVI. Mrs. S. History of pelvic pain and fever.

On examination a tender resistant mass in Douglas' cul de sac.

Clinical diagnosis: Pelvic abscess.

White blood count, 20,600 to the C. M. M.

Diagnosis with the aid of white count confirms clinical diagnosis.

Operation: 20 C. C. of pus evacuated.

The writer is much indebted to Dr. C. H. Hunter for the clinical histories of many of the cases reported.

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THE MEETING OF THE STATE MEDICAL SOCIETY.

The thirtieth annual meeting of the Minnesota State Medical Society, which took place at St. Paul, on June 15, 1898, will mark an epoch in the growth of the Society, which has never turned out in such large numbers nor presented as extensive and excellent a program nor added so greatly to its membership as on the present occasion. Probably there is no better index of the welfare of the state than is shown by the condition of the medical profession, and the growth and vigor of the Medical Society is a subject for general congratulation, because it is a warrant of the general prosperity of the community.

The program of the sections is a remarkable one. It contains more than twice as many titles as there are papers in last year's proceedings, and while the quantity of this year's work will show an enormous increase, there is no falling off in quality whatever, the papers of this year being fully up to any that have been published in the past. The section of surgery, always the most popular, was this year made particularly attractive by the announcement that Dr. J. B. Murphy, of Chicago, would read a paper upon "Surgery of the Lung," and explain his theory of the treatment of tuberculosis of the lungs, the topic upon which he spoke at the recent meeting of the American Medical Association, electrifying not only the medical profession but the general public as well, by the announcement of a new method of treating consumption, that greatest of foes of civilized nations. The interest in and attendance upon the proceedings therefore culminated on the afternoon of the second day, when an audience of more than two hundred gathered to hear Dr. Murphy.

Fifty-five new names were added to the list of active members of the Society this year, an increase of fifty per cent. over the number elected last year. This makes the total active membership almost exactly four hundred and seventy-five, and another year will, undoubtedly, carry it beyond the half a thousand mark. Most of the new comers are recent graduates, but every year there are physicians added to the membership who have practised in the state for many years, but for some reason have never joined the Society.

A body of five hundred men, representing the highest intelligence and activity of the community, if thoroughly united and acting together could wield great influence and accomplish much for the common good. It is to be regretted that the doctor does not make himself more felt in the management of affairs, but as a matter of fact, politics is, with rare exceptions, wholly neglected by the medical man, while his brother of the law, not a whit better equipped mentally for the work, gets the cream of the benefits arising from the direction of affairs. It is not so in England. The British Medical Association exercises great influence upon legislation there, and whenever any sanitary or hygienic measure, or any law affecting the medical profession is proposed, a committee of the Association is consulted as to the framing of the bill. The Association is recognized not only because its advice is valued in the preparation of the statute, but because it is acknowledged to have no mean influence politically. The latter consideration is one that often appeals more forcibly to the party in power than does the indisputable fact that medical men are the best and should be the only judges of the medical needs of the community.

If the State Medical Society could once be aroused to make itself a political unit where medical legislation is concerned, it might accomplish much for the good of the community, but until it does so unite itself that the politician will fear it and seek to cultivate its friendship, it will do nothing, and the legislative committees which it appoints year after year will find themselves without influence in the state house. The matter comes home this year particularly, because serious defects have just been pointed out in the Medical Practice Act, and it will be necessary to secure action to remedy these defects during the coming session of the legislature, or to leave the doors of the state half open to the inroads of quacks.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

Haldor Snévé, M. D., Secretary.

Regular meeting, April 25, 1898, at the Society's rooms. The President, Dr. Quinn, in the chair and thirty members present.

Dr. Haldor Snévé read a paper, illustrated by dissections, drawings and sections, on

THYROID AND THYROID THERAPY.

Dr. Schwyzer: Dr. Snévé has developed before us a very neat picture of the different questions and discoveries which interest the medical world today as concerns the thyroid gland. The subject is a very large one and would take us a very long time to discuss in any complete way. I can, therefore, only pick out a very few things in the doctor's paper.

As concerns the etiology of goitre, the doctor does not say much about it, and leaves this question completely open. It seems that the infectious character or at least the transmission through water has most believers. Kocher found certain springs in certain regions that showed an unfavorable influence in this direction. The well established fact in Switzerland, that healthy families moving into goitre regions becomes affected after staying there for a while, is not to be forgotten.

The parathyroids, that the doctor mentions, have importance only in certain animals, like dogs and cats, upon which Vassale and Generali operated. Blumenreich and Jakoby publish experiments that show the parathyroids to be of no benefit after removal of the principal gland in rabbits. The parathyroids did not show any vicarious qualities, and the pictures, after operations, were not changed, whether the parathyroids were left behind or removed with the thyroid. They claim that the parathyroids are not related historically to the thyroids.

In human beings parathyroids do not come into consideration. We have the thyroid with its double embryological origin, the median part originating from an epithelial tube at the base of the tongue and this thyroglossal tube sometimes persists. The two lateral parts, which form after this the principal part of the lateral lobes of the human thyroid, originate from the lower border of the sixth bronchial cleft on each side. There are now a number of aberrant thyroids found in the region of the hyoid bone, the larynx, pharynx, even in the supraclavicular fossæ, or near the aorta. The upper horns of the lateral lobes run sometimes very high up on the sides and are troublesome in goitre operations. Such aberrant parts of the thyroids as I have mentioned are not constant and have to be considered as seclusions. Of the parathyroids, in the sense of Vassale and Generali, in men, we do not know anything so far.

It might be of interest to add to the anatomical and physiological remarks that E. Brian (Paris, Bailliere and Fils, 1898), has studied the nerve supply of the thyroid recently in a minute manner. He always found the sympathetic sending branches from the region of the middle cervical ganglion. There were also constantly filaments from the superior laryngeal, and the recurrens to be found. On section through the sympathetic above the inferior cervical ganglion he noticed the blood vessels of the thyroid to be contracted, while section below it made hyperæmia. If the cervical sympathetic was divided on one side he found this side of the thyroid much larger and darker than the opposite side. This shows an importance influence of the sympathetic nerve on the thyroid and helps to strengthen the neurogenic theory of exophthalmic goitre, and to justify the division of the cervical sympathetic in exophthalmic goitre.

Speaking of this latter disease Dr. Snévé mentions only a hyperactivity of the thyroid. This is most probably for the majority of cases, but in other cases we probably have not simply a too abundant but a wrong (pathological) secretion. Instead of a hyperthyreosis we would have to speak of a dysthyreosis. This alone could explain some cases of exophthalmic goitre which were reported as cured or benefited by thyroid tablets. Hyperthyreosis seems, however, to be the most frequent, and it is interesting to compare the different symptoms individually between exophthalmic goitre and cachexia strumipriva, or as we should better say, cachexia thyreopriva.

In the one there is protrusion of the eyes, that are widely open; in the other they are deep and less open than normally. In the one you see the circulatory system wildly active, the skin flushed; in the other the circulation is lacking, the skin is pale and the extremities are somewhat cyanotic. In the first the skin is moist, in the other dry. In the one there is sensation of heat; in the cachexia thyreopriva the patient always feels cold, where normal people are very comfortable. In pronounced exophthalmic goitre you notice emaciation, in the other case you find the myxœdematous thickening. The one patient is irritable, hasty; the other phlegmatic and slow, and so forth. There is direct opposition in the two clinical pictures.

As concerns thyroid feeding in common goitres, I would like to mention one point. As the nodules with larger colloid masses are less influenced, the goitre becomes smaller, but in the meantime the nodules are more distinct and easier to be felt. They appear more isolated from each other, as the more normal, diffusely hyperplastic tissue between them becomes very much reduced in size. This palpatory sign is more important than the diminution in the circumference of the neck, which we are very apt to measure wrongly, and where other causes may change the width of the neck.

Dr. Snévé has shown us that he had quite a few cases of exophthalmic goitre where not all the cardinal symptoms were present. Those cases are very valuable and interesting. They lead us from the picture of typical Graves' disease over a number of stepping stones to the picture of neurasthenia and hysteria. There is a strange combination of nervous and metabolic disturbances, and as the cases vary in form, the therapeutic measures have to be changed. I do not dare to agree with the doctor when he says that the only justified surgical interference is division of the cervical sympathetic and that operations on the thyroid are irrational in exophthalmic goitre. The results of the division of the cervical sympathetic are striking, I will admit; but as we stand today we have good reports from both sides. Riedel, that careful observer, reported last year his cases (eleven with four cured and two almost cured) of partial thyroidectomy in Graves' disease, and declares all the misresults caused by recurrence of the goitre. Schulz, of Hamburg, reported last year fourteen cases with twelve cures and two improvements after operating upon the thyroid exophthalmic goitre. On the other hand we find a case of resection of the cervical sympathetic nerves, including the upper ganglion, where the protrusion of the eyes disappeared very rapidly but reappeared later on (Gérald-Marchant et Abadie, reported in the Centralblatt fuer innere Medicin, Dec., 1897). I think, therefore, that we have to let larger practical experience say the last word on this question.

I agree, however, with Dr. Snévé's thesis denouncing operations upon the thyroid in exophthalmic goitre as dangerous. They may indeed be very dangerous for two reasons: First, we do not have an ordinary goitre but a vascular goitre, the blood vessels buzzing frequently on all the sides and the hemorrhage may be frightful. Second, and this is very important to remember, we may have a very bad general effect following immediately the operation and showing itself principally by further rise of the pulse. It is the consequence of handling, pulling and squeezing the thyroid, as we have to do it in resections. The cases of death after this operation, without further causes found at the autopsy, are explained by the pressing of the gland out, forcing the secretion of the gland into the general circulation and therefore poisoning the body by accumulation of the toxic substances which had caused the disease, i. e., exophthalmic goitre.

The ligation of three thyroid arteries after Kocher avoids these dangers to a considerable degree, and for this reason I used it in a very severe case of exophthalmic goitre. Cases of this degree are not common, and I will therefore relate it in short.

A lady of twenty-three years consulted me in June, 1896, for headache, nervousness, restlessness and weakness; protrusion of the eyes had existed for about six years and a thickened neck for about a year. Pulse 100. Palpitations. Tremor of fingers. After trying different measures the patient began to be gradually worse throughout the fall, and finally she had to remain in bed towards the middle of October, 1896. She was then moaning almost constantly from headache, ate almost nothing for several days, vomited sometimes, and had diarrhœa. The hair fell out. There were neuralgic pains in the lumbar and occipital regions, and combined with the great emaciation and an extreme exophthalmos she offered a frightful picture. The exophthalmos had reached such a degree that one of the rectus muscles could not give way as much as his antagonist and marked strabismus was the consequence. [I will add right here that the strabismus disappeared when the exophthalmos went down later on.] The pulse ranged from 124 to 132, sometimes going down to 114 in the evening.

On October 21, 1896, I ligated without narcosis, the right lower thyroid artery, after injection of one per cent. cocaine into the skin. The right lobe of the thyroid was the largest. Even the next day after the operation you could notice a decrease in the pulse rate. On the fourth

day after the operation the pulse went down to 92 and did not go beyond 100 until I ligated one week after the first operation the right, upper thyroid artery, which was hard to find and rather small. For about two weeks the pulse remained at 100 or a little above. But then things grew worse again.

In the middle of December, 1896, the pulse ranged between 140 and 150 with no interruption. The headache, which had been unreasonably severe at the time of the first operations, existed yet, though not quite to such a degree. Temperature 100.2 degrees; pulse 152 in the morning of December 18, 1896, when I operated for a third time. Ligation of a strong branch coming from the right hyoid artery downwards and ligation of the left inferior thyroid artery, so that only the left superior thyroid remained united. Again I did not use any general anæsthetic, but locally cocaine in a very small does. In the afternoon of the following day the pulse dropped to 120 and the following days it ranged from 100-110-120. While the rest of the symptoms gradually improved, the pulse remained the same (110-132) for several months, and only towards the latter part of 1897 became normal (70 to 80). Long before this the formerly emaciated lady had gained from about 100 pounds to 151 pounds. The goitre became very slowly smaller and the exophthalmos has gone down considerably; it still exists, however, to a marked degree.

In a medical way I had tried about all I knew of. Galvanization of the cervical sympathetic, though not long enough, as the patient grew worse under its use; calomel and intestinal antiseptics as praised for exophthalmic goitre in the New York Medical Journal, 1896; then bromides, quinine; Overbach's migranine, fresh thymus gland, one-half ounce daily. Then tablets of ovarian substance and even iodides (!) for a while. After all I tried there seemed to be only one remedy that had any favorable effect, and that was phosphate of soda, two to six grammes daily, as advised by Traczewsky, of Bern.

I will not take up your time any longer, but let me mention that I had not better but much worse results than Dr. Snévé with cases of thyroid feeding for obesity. I got very serious toxic effects on the heart in the three cases I treated in this way. One tablet of sheep's gland (5 grains, Burroughs, Welcome & Co.) daily produced trouble. The thyroids of hogs are much more harmless, and I have not seen any ill effects where I used these.

Dr. Burnside Foster: I have listened with much pleasure to this paper and to Dr. Schwyzer's remarks, and I have learned much that was new to me. I have always been and still am very skeptical concerning the value of treatment by the animal extracts, especially when administered by the stomach. I admit, of course, the reasonableness of the iodothyrin theory, and the accumulated experience of many eminent investigators leaves no room to doubt that on certain diseases where the thyroid gland has undergone pathological change a very remarkable effect is produced by administering thyroid extract.

Some two years ago when the animal extract boom was very active, several European dermatologists reported remarkable results in certain chronic affections of the skin by thyroid feeding. At that time, stimulated by these reports, I gave the treatment what seemed to me a fair trial. During a period of about four months I treated twenty-two cases of psoriasis, suspending local treatment entirely, by the internal use of thyroid extract. I used both the raw gland and the powdered extract. I watched the cases carefully, and I was unable in a single instance to note any effect upon the disease from my treatment. In one case, where the eruption was very abundant, I selected a few patches for local treatment, leaving the rest of the body untreated. In this case the patches treated locally speedily improved, but the other patches were unchanged. In a number of these cases where I could see the patient frequently, I watched the pulse and the temperature and the general condition carefully, but could see no effect of any kind.

I also tried the treatment on four or five cases of late syphilis which had obstinate skin lesions, but I could not see that any effect was produced.

This is the extent of my experience with thyroid treatment, and while it proves nothing, I desire to record it because it is absolutely different from the recorded experiences of certain observers who have so enthusiastically recommended thyroid feeding in many chronic affections of the skin. I cannot believe that these men have deliberately misrepresented facts, but rather that they allowed themselves to be carried away by their enthusiasm for a novel method of treatment and came too hastily to an unwarranted conclusion.

Dr. Courtney, of Brainerd, wished to say a word about the heredity of simple goitre. He knew of a family where a mother and four children suffered from goitre, and where the iodine treatment produced complete recoveries in all but one. As far as the surgical part of it was concerned, he had operated on a little girl who was very anæmic, after having first placed her upon an iron tonic. Ether was the anæsthetic used, and the patient developed pneumonia a short time after the operation, and the query arose, did not this patient become infected with the pneumococus from the saliva, a little of which accidentally got into the wound, because

the patient acted badly under the anæsthetic, and the contamination occurred during the efforts at resuscitation.

Doctor C. Williams spoke of an epidemic of enlargement of the thyroid which occurred a number of years ago in the Reform School, affecting the majority of the inmates and lasting a number of weeks. He was called by the late Dr. Hand to see if there were symptoms on the part of the eyes, but none were found.

Dr. Dunning referred to a case of sporadic cretinism in a girl sixteen years old who weighed sixty pounds, in whom he had used the thyroid treatment with undoubted improvement and an increase in weight. He concurred in the main with Dr. Snévé's ideas on neurasthenia. Dr. Dunning also said the manner in which he administered iodine was to expose a few grains in an open jar in the patient's sleeping room at night, and he thought this was the best mode of treatment for simple goitre.

Dr. Boeckmann presented some specimens of eye tumors removed by him during the last month. Sections made by Dr. Renz from the various specimens exhibited were shown under the microscope.

The first was a tumor of the lachrymal gland of the right eye, exposed by slitting up the external canthus and dividing the conjunctiva; section showed this to be a sarcoma. The eye was saved. The next specimen was a squamous carcinoma of the limbus; under the microscope it looked very much like a glandular carcinoma, but as no glands are found in this location, it could not be that variety of growth. The third specimen was a diffuse leuco-sarcoma of the choroid from a very blonde patient.

The fourth was a specimen of a non-pigmented, circumscribed sarcoma of the choroid. Both were middle-aged people in the glaucomatous state. The fifth was a glioma retinæ from a child six months old. It filled the whole vitreous and was easily diagnosticated by inspection, the pupil being dilated from glaucomatous pressure, admitting the observation of numerous large vessels on the surface of the yellowish-white tumor.

Dr. Boeckmann then reviewed briefly the subject of tumors occurring in the eye and its appendages.

HENNEPIN COUNTY MEDICAL SOCIETY.

W. B. Pineo, M. D., Secretary.

Stated meeting at the rooms in the Public Library Building, May 21, 1898, Dr. J. C. Cockburn, the president, in the chair.

The names of Drs. E. O. Cosman and C. H. Bradley were proposed for membership.

Dr. Nippert reported a case of adenitis on both sides, followed by membranous croup and retro-pharangeal abscess. Recovery.

Dr. Dunsmoor presented a specimen of fibroid tumor of the uterus, and another of goitre, and reported a case of cyst of the brain.

Dr. Hoegh presented a case of varicose veins, which made a very interesting clinic. He also reported a case of gunshot wound that penetrated the abdomen.

Dr. Hall reported a case of stabbing which did not penetrate the abdominal cavity but from which death ensued shortly.

Dr. Dunsmoor then read a paper on

RETROUTERINE DISPLACEMENTS

See page 206.

BOOK NOTICES.

A Manual of Instruction in the Principles of Prompt Aid to the Injured. By Alvah H. Doty, M. D., Health Officer of the Port of New York, etc. Illustrated. Second edition, revised and enlarged. New York: D. Appleton & Co., 1898. (Price, $1.50.)

In calling the attention of the medical profession to this book the publishers have selected a time when there is the liveliest interest in the topics of which it treats, and a probability of extensive opportunities for rendering prompt aid to the injured.

Beginning with a concise survey of the anatomy and physiology of the body, the work goes on to deal with the various emergencies that may confront the surgeon and describes the treatment of fractures, of wounds, of hemorrhage, of poisoning, gives a chapter upon antisepsis, its principles and practice, upon bandaging, both formal and extemporaneous, concluding with an illustrated description of the drill of an ambulance corps. For the army surgeon it is invaluable, containing in small compass all the information he needs about his work except so far as concerns purely medical matters, and even those most experienced in field work will get many useful hints from its pages. The civil practitioner, too, will do well to make himself familiar with its thoroughly practical teachings, from which he may obtain lessons that will be of inestimable service to him in emergencies.

A Clinical Text-Book of Surgical Diagnosis and Treatment for Practitioners and Students of Medicine. By J. W. Macdonald, M. D., Graduate in Medicine of the University of Edinburgh; Professor of the Practice of Surgery and of Clinical Surgery in Hamline University; etc. Illustrated. Philadelphia: W. B. Saunders, 1898. (Price, $5.00.)

Recognizing the fact that works on surgical diagnosis are few, especially among recent publications, Dr. McDonald has written a book that he believes fills a gap in medical literature, teeming as that literature may be in most departments. It was undoubtedly from his experience as a teacher that Dr. McDonald became aware of this want, and for filling it he will receive the thanks of medical teachers and students in particular, but of the profession as a whole, as well.

One of the first things that strikes the reader is the simplicity of the style and the business-like way in which the writer gets at the subject. Only those who have written much can appreciate the difficulty of getting started upon a topic; once under way it is much easier sailing, but many a writer comes to grief before his sails are filled. Dr. McDonald has the gift of being able to impart his ideas in their logical sequence, and this is a great art, indispensable for a work on diagnosis, where to get the consequent before the antecedent would be fatal.

Medical men in the Northwest will be pleased to notice the extent to which this part of the country has furnished illustrative cases for the work. It is something of a surprise to find how many of the cuts have been furnished by surgeons in Minnesota and the adjoining states, and it is refreshing to be rid in part at least of the illustrations that have been copied from one surgical work to another almost from time immemorial and have become as familiar to the reader as are the plates in Gray's anatomy.

Dr. Macdonald is a conservative surgeon, and his advice upon the important matter of operation in mild cases of appendicitis is as good as can be given. If on the third day the symptoms are abating he advises against operating, if they are increasing or not abating he says operate. He indorses Helfrich's aphorism: "It is better always to say 'the patient might have rerecovered without operation,' than to say 'the patient might have been saved by operation.' He is too thorough a surgeon to mention the injection treatment of internal hemorrhoids or to advise the use of caustics in epithelioma, heresies from which some recent surgical works have not been free.

Orthopædic Surgery. By James E. Moore, M. D., Professor of Orthopædia and of Clinical Surgery in the College of Medicine of the University of Minnesota; etc. Illustrated; Phila: W. B. Saunders. 1898. (Price, $2.50).

The comparitive new specialty of orthopædics has developed a very considerable literature and one or two treatises of such ponderous size as to be rather discouraging to the reader. There is nothing of this kind about Dr. Moore's book. It is a moderate sized volume, kept within reasonable bounds because it confines itself to the limits of the subject of which it treats, and avoids discussions upon history, pathological theories and other topics with which but too many medical works are padded.

Dr. Moore is a practical surgeon and deals with his subject in a thoroughly practical way. It is particularly refreshing to find that he does not think it necessary to describe all the different kinds of apparatus that have been invented for each disease. Among many possible plans of treatment the reader is likely to become bewildered and find it as difficult to make a choice as did the traditional donkey that starved to death between the two bundles of hay. Dr. Moore goes straight to the point and advises a particular and definite method of treatment for the average case and then goes on to tell how the exceptional case is to be managed where any treatment will not answer.

It is to be noted that many of the cuts with which the book is embellished are from cases occurring in the practice of physicians in the Northwest.

Illustrated Skin Diseases. An Atlas and Textbook, with Special Reference to Modern Diagnosis and the Most Approved Methods of Treatment. By William S. Gottheil, M. D. E. B. Treat & Co., New York, Publishers.

The first three portfolios of this elaborate work are before us. Professor Gottheil has furnished the profession with a practical and valuable treatise on dermatology, the illustrations of which are certainly unique, accurate and valuable. For the first time the art of color-photography has been called to the aid of medicine, and instead of the hideously painted and exaggerated pictures usually seen in works of this kind we are presented with a series of really life like representations of the various diseases of the skin. This work will be of universal value to the general practitioner as an aid to diagnosis, and to the teacher of dermatology, the illustrations will fill many a gap in his clinical material.

The publishers have spared no expense in their work and have produced an elegant and artistic book at a very moderate price. We shall welcome the succeeding portfolios, which when completed will make a most acceptable addition to our library of cutaneous medicine.

B. F.

Annual and Analytical Encyclopædia of Practical Medicine. By Charles E. Sajous, M. D., and One Hundred Associate Editors. Illustrated. Volume I. Phila. The F. A. Davis Company. 1898.

The successor to the "Annual of the Universal Medical Sciences," will be at once recognized as a great improvement. It is a medical encyclopædia with the special addition of a summary of the latest literature upon each topic. The

present volume goes from "Injuries of the Abdomen" to "Bright's Disease." Each article consits of a short sketch including definition, symptoms, etiology, pathology, diagnosis, prognosis and treatment. To each of these subheads is appended a summary in fine print of the recent literature. The various sections have been prepared by men of ability under the supervision of the editor in chief, with whose work in this line the profession is thoroughly familiar. It is expected that the other volumes of the work will follow shortly.

MISCELLANY.

THE JULY MAGAZINES.

The Atlantic Monthly is preëminently a literary magazine, and we have no doubt its circulation has suffered by its reputation for being such, because many people think literature means simply fine writing, and they cannot conceive that a literary man would select for his topic such a theme as the war between the United States and Spain, or any other matter of general interest.

The July Atlantic contains as much pure literature as did the January issue, but the former number is one made up almost wholly of timely topics, the war with Spain suggesting at least three of its principal contributions. The Hon. James Bryce, M. P., the foremost foreign observer and critic of American affairs and the most appreciative of foreign writers on American civil life, deals with our relations to England, showing how intimate they are, and pleading for that international friendship which is so essential to the successful working-out of the great problems the Anglo-Saxon race must solve entirely unaided by other peoples, if indeed it shall not be opposed by them. Dr. James K. Hosmer, librarian of the Minneapolis Public Library, analyzes the elements involved in our national history, our past dependence upon England, our present independence of her, and recognizes a state of interdependence as now existing which should reunite the two peoples as one in effect and sympathy, even if not in formal official alliance.

Henry C. Lea, the well-known historian of the Inquisition, contributes The Decadence of Spain, a forcible and convincing showing of the causes which have made the rule of Spain bring desolation to all her colonies, and at last war and ruin to herself.

But these are only part of an exceedingly attractive number of this scholarly magazine.

Harper's Monthly, has not yet touched upon the war, but the Weekly, in its editorials, correspondence and illustrations, is a perfect goldmine for one who wants the best to be had in this line. The Monthly for July is none the less attractive because of an absence of war articles. Its special features are "The People and Their Government;" "Tone in Journalism," by George W. Smalley; "Eastern Siberia," a profusely illustrated article by Stephen Bonsal; "New Era in the Middle West;" "New Words and Old," by Brandner Matthews. Beside these the continued and short stories and the departments make an admirable number.

Lippincott has for its complete novel an entertaining story by Edward S. Van Zile; and it has, in addition, a table of contents that commends the magazine to the most cultured reader. In the table are such articles as the following, and all by the best writers: "John C. Calhoun, from a Southern Standpoint;" "Feathered Friends;" "Zola as an Apostle of Temperance;" "The Unlettered Learned;" "Literary Men as Diplomatists;" "A National Derelict."

AMYLOLYTIC FERMENTS.

In an article on this subject in the London Lancet, Wyatt Wingrave, M. R. C. S., Eng., Assistant Surgeon to the Central London Throat and Ear Hospital, describes a comparative examination of many malt extracts and of Taka-Diastase, the tests being conducted both chemically and clinically.

He summarizes briefly: 1. That Taka-Diastase is the most powerful of the starch or diastatic ferments and the most reliable since it is more rapid in its action, i e., "it will convert a larger amount (of starch) in a given time than will any other amylolytic ferment." 2 That Taka-Diastase seems to be less retarded in its digestive action by the presence of the organic acids (butyric, lactic, acetic), and also by tea, coffee and alcohol, than are saliva and the malt extracts. This is an important point in pyrosis. 3. That all mineral acids, hydrochloric, etc., quickly stop and permanently destroy all diastatic action if allowed sufficient time and if present in sufficient quantities. 4. That Taka-Diastase and malt diastase have, like ptyalin, no action upon cellulose (uncooked starch). All starch food should therefore be cooked to permit of the starch ferment assisting nature in this function.

NOTES.

Imperial Granum

Is a prepared food that makes friends wherever its merits become known. The writer has

been familiar with it for years, and takes pleasure in relating the following clinical test of its merits:—"The patient, reduced by disease and from the effect of the anodynes necessarily given to alleviate her sufferings, developed malignant cholera-morbus, and for days lay in an almost unconscious condition. As a last rsort she was taken to a Boston hospital where the physicians began administering Imperial Granum, prepared as directed for acute cases, in very small quantities. After several trials it was retained, and the strength and quantity was slowly increased. After four weeks' treatment taking Imperial Granum only for nourishment, she was discharged from the hospital, and a few weeks later endured a severe surgical operation from which she completely recovered, and today seems in perfect health.

Of Interest to Military and Naval Surgeons.

Delightful Trip to New York by Water and Rail, via the "Soo Line."

The "Soo Line" is now offering the traveler going East the most enjoyable trip one can take for so small an amount. For $59.00 one may now make the round trip between St. Paul and Minneapolis and New York, over the following varied and delightful route: By rail to Sault Ste. Marie, thence by steamer to Owen Sound, thence by rail to Toronto, thence by steamer to Montreal and Fort Ticonderoga, by rail to Albany, and thence by the magnificent Hudson river steamers to New York, returning by the sound steamers to Fall River, and by rail to Boston and Newport, and thence home by rail. This route cannot be surpassed in its cost, in its variety of manner of travel, nor in the attractions offered by the cities and places of interest passed.

Full information may be obtained at the Soo Line ticket office in St. Paul and Minneapolis.

Reliable Goods.

In prescribing the products of manufacturing pharmacists, we should be guided to a great extent by the business standing of the manufacturers. No other house in the South or West has a better reputation for strict integrity than the Robinson-Pettet Company, Louisville, Ky. We do not hesitate to recommend the preparations advertised by them on another page of this issue.

Epilepsy.

Clinical experience of hundreds of physicians has proven that "Neurosine" (Dios) is almost a specific in Epilepsy. Dose, two teaspoonfuls three times a day, modified as the case warrants. Reliable results cannot be expected if substitution is allowed.

Syphilis.

When a patient presents himself for treatment, he should be placed upon the following recipe (which fuly meets all indications) until the symptoms disappear, his appetite is improved, and a general feeling of vigor and activity exists:

R. Hydrarg. Bi-chlor., 2 grains; Iodia, 6 ounces. M. Sig., one teaspoonful after each meal.

Iodia is prepared by Battle & Co., St. Louis, and contains extracts from the green roots of stillingia, helonia, saxifraga and menispermum. Each fluid drachm also contains five grains iod. potass. and three grains phosphate of iron. The tendency of the profession is too much towards discarding everything but mercury. I have often seen mercury alone, or combined with iod. potass. fail to heal secondary ulcerations, which speedily disappear when combined with vegetable alteratives. It is therefore, best to have the good effects of the only three reliable remedies at once, viz., mercury, iodine and vegetable alteratives (which is obtained in the above prescription). Lectures on Veneral Diseases, by W. F. Glenn, M. D., Clinical Professor of Genito-Urinary and Venereal Diseases, Medical Department Vanderbilt University.—Southern Practitioner, May, 1898.

The unique value of Gray's Glycerine Tonic Compound is become widely appreciated, especially for use during the summer months. It corrects the prevailing stomachic derangements, controls fermentation and acidity, aids digestion and stimulates hepatic and intestinal functions. In respiratory disorders, nerve exhaustion, anæmia, chronic ailments and debilitated conditions it can be relied upon, and no overstimulation or depressing reaction follows its use. Try it and be convinced. It is manufactured by the Purdue Frederick Co., sole proprietors, No. 15 Murray street, New York.

Practice in Minneapolis For Sale.

A Minneapolis physician who is about to retire from general practice to take up a specialty, offers for sale his household and office furniture and his horse and carriages. All articles in good condition and are of good quality.

To the purchaser he will turn over his practice without charge, giving him a proper introduction, and doing whatever he can to install such successor in his practice, which has been established eleven years.

The publisher of the L a n c e t believes this to be an excellent and an unusual opportunity for any one wishing to begin practice in Minneapolis.

For full particulars address "Doctor," care of N. W. L a n c e t, 734 and 735 Lumber Exchange, Minneapolis.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

(Continued from LANCET of July 1.)

A most remarkable character in the medicine of the sixteenth century was Theophrastus Bombast von Hohenheim, more commonly known as Paracelsus. He was the son of a physician and was born in Switzerland in 1493. His eccentric genius had too little virtue to be admired and too much talent to be despised. He received a good early education and afterwards visited a number of the Swiss and German universities, where, however, he did not devote himself much to books, but associated rather with pleasure loving and amusing people and fell into habits of debauchery and dissipation. He was a man of remarkably keen and brilliant mind and possessed of great imagination, and was devoted to speculative and mystic ideas. He must have had a very magnetic personality, for his following was enormous, and when he began to lecture, which he did at Basle, he attracted crowds of listeners. He repudiated in a dramatic manner the learning of the ancients by burning in public the works of Galen and Avicenna, and by the most boastful audacity he claimed for himself a knowledge of medicine and science greater than that of any living man, and he seemed to carry the majority of his hearers with him. He assumed an obscure and unintelligible manner of speech which impressed the people with a belief in his erudition and learning, because they could not understand it. In short he was a professional charlatan, although possessed of very considerable knowledge and of no little skill in medicine and surgery. By his assurance and self-confidence and boastful assumption of superior knowledge he gained a tremendous reputation, and his absurd and fantastic theories and doctrines were enthusiastically received and followed, but when we come to examine them we find nothing but absurd fallacies and empty and meaningless speculations. He professed to have wonderful and hitherto unknown cures for many diseases and claimed that each disease had its own specific. Here and there through his writings there is evidence of a most remarkable keenness of perception, and of a most shrewd knowledge of human nature, and there is no doubt that Paracelsus possessed a brilliant mind which, if directed towards the pursuit of scientific knowledge, instead of towards the acquisition of reputation and personal gain might have accomplished much of real value. He contributed nothing to knowledge, although his name remains conspicuous in the medical history of his age as one of those remarkable instances of a man who influenced the minds of thousands through pure audacity and boastful self-assurance.

An Italian surgeon of real merit and of a very extensive reputation was Gaspar Tagliocozzi, 1546-1599, who was professor of anatomy and surgery at the university or Bologna. He wrote the first special treatise on plastic surgery, describing especially the operation of rhinoplasty, which was published in Venice in 1597, and is remarkable for its beautifully executed plates and its general typographical excellence.

A distinguished scholar, in both medicine and law, and who accomplished much for both of the professions lived in Rome at this time and deserves a place among the makers of our history. Paul Zacchias was born in Rome in 1584, and died there in 1659, in the fullness of his mental vigor at the age of 75. He was the father of medico-legal science. To him is due the systematizing of that peculiar combination which compels the jurist to examine into the physico-mental condition of the man who stands charged with violating the law, and forces the physicist to inquire into the working of the physiological machine, in order to trace a disorder, if any there be, and to bring to the light of day the mysterious cause that destroyed the harmony between mind and body, thus determining the responsibility of the will power and the irresponsibility of fatality.

Paolo Zacchias wrote independent works which were famous for their medical information and legal knowledge, though, of course, more or less tainted with the superstitious views regarding magic, demons and witches which were so widely diffused at that time. He was the administration dictator over all matters pertaining to public hygiene, and was made expert to the Rota Romana, the highest Court of Appeals, composed of twelve princes of the church, elevated and inducted into these high offices by Pope Innocentius X., to whom he was body physician. The instigation of the practice of legal medicine was introduced into the courts by the penal code of Emperor Charles V. in 1532, but not until the remarkable production of Paolo Zacchias did medical jurisprudence be-

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

come a science. He wrote the "Questiones Medico-Legalis," which embraced three large volumes. The first contains the decisions of the "Rota," or Court of Appeals, and the other the questions propounded to him and his opinions. It is very remarkable, indeed, that there is hardly a question known to medico-legal science today which is not treated in that remarkable book, while problems are taken into consideration which our advanced position of physiology is not yet prepared to solve satisfactorily—such, for instance, as the questions of the formation of hermaphrodites, the animation of the fœtus, superfœtation, etc.

Another treatise published by him discusses one of the most vital questions of medico-legal science. It is entitled "De Dementia et Rationis Læsione et Morbis Omnibus Qui Rationum Lædunt Questiones," which furnishes hundreds of observations regarding mental disease that may be studied with interest and profit to this day. He wrote learnedly on medicine, and his talent was appreciated for poetry, music, painting and theology. He was one of the foremost scholars of his time, a philosopher, an intellectual genius, and the peer of all his contemporaries.

It will perhaps be interesting to pause at this time and take a brief survey of the intellectual state of Europe during the fifteenth and the first half of the sixteenth centuries. It may be said that during this period but three countries thought and created knowledge: Italy, France and Germany. England, during the early part of the fifteenth century, under that miserable and imbecile monarch, Henry VI., and his foreign queen, Margaret of Anjou, was in that calamitous period which preceded the War of the Roses, the wounds of which it took a century to heal, and the period of her intellectual glory did not begin until Elizabeth's reign. Spain, still divided into the various kingdoms of Castile, Navarre, Murcia and Aragon, was devoted chiefly to war and pillage and to conquests and discoveries abroad. Francis I., of France, has been called the "father of letters." He founded the college of France (known as the college of three languages, Hebrew, Greek and Latin), where all the sciences were taught, and he purchased many manuscripts to enrich the royal library. Among the French men of letters of imperishable fame, may be mentioned the elegant Marot, the witty and audacious Rabelais, Regnier the satirist, Amyot, Roussard, Montaigne, Malherbe, the poet of Henry IV., D'Aubigne and Calvin. In Germany, where Latin was still the language of learning, there lived Erasmus, of Rotterdam (1467-1536), whose intellect and wit have given him the name of the "Voltaire of his time." He is best known for his satirical dialogues, written in the style of Lucian and directed against the ignorance of the monks and clergy. The most famous of these are "The Praise of Folly," "The Adages" and the "Colloquies." Among the so-called German Ciceronians of the time were Reuchlin, who introduced the study of Hebrew, and who was the teacher of Philip Melancthon; Dalberg, who founded the first German academy at Heidelberg and also the finest library in Europe; and Hutten, the poet laureate of the Emperor Maximillian. There were two German painters whose works have lived and will live: Albrecht Dürer and Holbein.

Italy had by this time freed herself from German rule, but had not yet constituted her national unity, and was divided into many small states. Although during the renaissance she was inferior in learning, she far surpassed all other countries in the development of fine arts. The style of painting introduced by the famous Giotto of the fourteenth century was superseded by the noble works of Leonardo da Vinci, Michæl Angelo, Corrizzio, Giorgione, Titian, and the divine Raphael, painters whose creativeness and genius have never been surpassed. These men were also architects and sculptors and Michæl Angelo was a poet of no mean ability. Surely it was glory enough for one country to have produced these marvellous geniuses in a single century. Engraving, the sister art to painting, was invented by Finiguerra, a Florentine inlayer of enamel work, in the middle of the fifteenth century. We must not neglect to mention also the world famous sculptor, designer and worker in metals, Benvenuto Cellini, also a Florentine.

This period of the dawn of modern times has been aptly called the Renaissance, and was marked (as we have seen) by a sudden outburst of intellectual activity, by a passion for new knowledge, by a new spirit of scientific observation, and above all by a freedom of thought and conscience which had not been possible before, and which allowed a free scope to the human mind. It was an age not only of revival but still more of creation, and its influence was felt in every department of intellectual development, medicine, as we have seen, receiving an ample share of the vigor of the new life.

The first really brilliant period of intellectual greatness in England dates from the reign of Queen Elizabeth, which began in 1558 and lasted forty-five years. This age produced Shakespeare, Bacon, Spenser, Phillip Sidney and Ben Jonson, and during this time all industries, arts and sciences flourished to a degree hitherto unknown, medicine became generally recognized as a serious and learned profession, and many ardent men gave their lives to its

study. The first medical works in English were naturally translations. We have already mentioned Thomas Linacre, who was really a century ahead of his time.

The anatomical work of Vesalius was translated and its plates engraved by Thomas Geminі in 1545; it became rapidly popular and went through several editions.

Among other interesting and important medical books published at this time in England may be mentioned: "A Short and Profitable Treatise Touching the Cure of the Disease Called 'Morbus Gallicus,' with an Account of the Nature of the Quicksilver," by G. Baker, master of surgery (printed in 1579), and "A Profitable Treatise of the Anatomie of Man's Body, Compiled by That Excellent Chirurgeon, Thomas Vicary, Esq., Sarjent Chirurgeon to Edward VI., Queen Mary and Queen Elizabeth; also chief surgeon to St. Bartholomew's Hospital." Vicary was also the first writer to mention the use of lemon juice in the treatment of sea scurvy.

A treatise on gun shot wounds was written and published by Thomas Gale in 1563 (preceding by several years that of Parè). The first English book on midwifery was written by Thomas Raynold in 1545, and quaintly named "The Byrthe of Mankynd," or "The Woman's Book." It contained a number of well executed plates, and was at once received as an authority on the subject. At least two eminent surgeons lived during Elizabeth's reign, and are worthy of more than a passing notice. William Clowes was born in 1540 and died in 1604, surviving only by a year the queen whose surgeon he became. He served in France under the Earl of Surrey, and there, as well as in the navy later, he saw much fighting. He was at Zutphen, where Sir Phillip Sidney was killed, and was with the English fleet that defeated the Spanish Armada. He finally settled down to an extensive and lucrative practice in London. He wrote an interesting and valuable book on the treatment of powder burns and gunshot wounds.

A good half of this treatise is occupied with a record of surgical cases of note which he had treated, and this renders the work very entertaining, inasmuch as we get a very accurate and positive knowledge of everything that was done for a wounded man in those days, while there are numerous little side touches very characteristic of life at the time it was written. He tells us, for instance, of "The cure of one Master Andrew Fones, a merchant of London, which, being in a ship at the sea was set upon by the Flushingers, in which fight he was very dangerously wounded with gunshot." There is "The Cure of one Henry Rhodes, one of the waiters at the Custom House, he being upon the river of Thames a skirmishing with his peece, and by reason the peece had certain flaws in it, did breake into many peeces, and made a great wound upon his chin, and carried away a good part of the manduble and the teeth withall; moreover, it did rend his hand greatly; all which I cured without maime or deformitie." There is "An observation for the cure of the master of a Hoy that had both his legs fractured and broken in many peeces with an iron bullet, shot out of a great basse or harquebusse of crock at the sea by a Pyrat or sea rover." These few titles will give you an idea of Clowes's clinical cases. The importance which attaches to them and the reason why they constitute a distinct advance in the science of surgery is that the author gives his actual experiences and tells us what he did to his patients, whereas at that period the tendency was to write endless commentaries on ancient writers, to whose every dictum the blindest and most unreasoning respect was paid.

Contemporary with Clowes was a most interesting character—Maister Peter Lowe—who was born in Scotland about 1550, and lived some sixty or sixty-five years, reaching well into the seventeenth century. Like many of his countrymen, he went to France when very young, where he lived for, some say ten, some twenty years. Then he returned to Glasgow, where he lived and died a citizen of much renown, having obtained in 1599 from King James the Sixth a charter for the Faculty of Physicians and Surgeons of Glasgow, which he thus founded.

His most important work is termed "A Discourse of the Whole Art of Chirurgery, compiled by Peter Lowe, Scottishman, Doctor in the Faculty of Chirurgerie at Paris, and ordinary Chyrurgion to the French King and Navarre." The first edition dated from 1597, and is one of the earliest, if not the very earliest work embracing the whole art of surgery published in English. It is clear that Lowe must have seen a good deal of military service abroad, being "Chirurgion Major to the Spanish regiments two years at Paris, and since that time following the King of France, my maister in the warrs." In his day, as we have seen, the surgical world was still greatly exercised about gunshot wounds and burning by gunpower, as it was believed that they were injuries of quite a peculiar and very poisonous character. Lowe, however, treats of them with great good sense. Thus: "Of Wounds done by Gun-shot.—These wounds come indifferently to all parts of our body whereof there are divers opinions; some think that there is a venenosity in the powder, and burning in the bullet, which is false, for the things whereof the powder is ordinarily made, as Brimston, Saltpeter, coales of divers sorts of trees, Water, Wine and Aquavitæ, have no venenosity in them; likewise there is no burning in the bul-

let, for if the bullet of lead being shot a great way, should burne, through heat would be melted itself. I have cured divers within these thirty yeares of divers nations which have followed the warres in Fraunce and other cuntries, in the which I have found no more difficulty than in any other contused wounds." Here, again, we have a most important advance made by a military surgeon, for only those who are acquainted with the medical literature of Lowe's time can understand the ridiculous views held about gunshot wounds, and the dreadful consequences to the patients which followed from them.

We have seen that Paré lived between 1517 and 1590, and that Peter Lowe was in France between 1570 and 1580; consequently he probably learnt all about the ligature for the arrest of hemorrhage. When treating of amputations he describes the whole process of the operation up to the removal of the limb. Then he says: "One of the Assisters shall put the extremities of his fingers on the great vains and arteries to stay them from bleeding till the Chyrurgion either knit or cauterise them one after another. Where there is putrefaction we stay the flux of blood by Cauters actuals, and where there is no putrefaction, malignitie nor humour venomous we use the legator." He narrates the case of a certain valiant Captain Boyle, of the Spanish troops, whom he, in the capacity of Chyrurgion-Major of the regiment, was summoned to treat for an "aneurisme on the right side of his cragge." Lowe ordered it to be let alone, "but the captain sent for an ignorant Barbor who did open the swelling with a launcet, which being done, the spirit and blood came forth with such violence that the Captain died in fewe howers after." Lowe was for many years the chief surgeon of Scotland. He died in 1612.

The scientific spirit of medicine, having once taken root in England, had come to stay and to flourish, and from the beginning of the seventeenth century down to the present time, many of the greatest men of our profession were Englishmen, and the most notable advances in all departments were made by them. From this time on we shall have much to say of the history of medicine in England.

The general intellectual tendency of the sixteenth century was toward idealism, and the seventeenth century by contrast has been said to mark the birth of modern realism, and the expert scientific methods which began to be apparent in medicine were materially aided by the development of those accessory natural sciences of chemistry, botany, physics, optics and biology. During this century Germany receded into an intellectual obscurity, and Italy made little progress, while the chief center of learning and science was England.

"The principal tendency of the time was toward skepticism, which had begun in the preceding century with Montaigne, and was continued by Charron under the patronage of Queen Marguerite of Navarre; it was the fundamental idea of Pierre Bayle, the author of the great dictionary. Opposed thereto was the supernatural philosophy, or the theosophic, cabalistic or mystic. The leading exponent of the latter was Boehme, who was a business colleague of the celebrated "Meistersinger" Hans Sachs in Germany, and of Blaise Pascal and his contemporary Malebranche in France. The doctrine of Lord Bacon (1561-1626), Baron Verulam, a man who showed himself as exalted in mind as he was mean in personal traits, was of great importance. Bacon is a landmark in history as the defender and eulogist of modern realism, i. e., of inductive philosophy. While personally contributing but little to the advance of science, he taught a great method; as Gruen says, he was the philosopher of patents and profit; he recognized the compass, the art of printing, and gunpowder, as great inventions, but placed little value in the discovery of Copernicus, having little comprehension of mathematics." (Parke.)

In this century Römer calculated the velocity of light; Huyghens discovered the polarization of light; James Gregory made the first reflecting telescope with a metallic concave mirror. Torricelli measured the weight of air, and the Scotchman, Napier, invented logarithms. Kepler, Galileo and Sir Isaac Newton are names familiar to every schoolboy, and all these men directly or indirectly influenced the progress of medicine. In this century, too, we find the first systematic association of men into scientific societies, and also the first appearance of scientific journals, two of the most important factors in the propagation and dissemination of knowledge. The "Philosophical Transactions of the British Royal Society" have been published since 1665, and those of the French Academie since 1699. Newspapers, those inseparable features of all progressive civilization then appeared. The first newspaper was printed in Antwerp, in 1605. "The London Weekly News," made its first appearance May 23, 1622, edited by Nathaniel Butler, Nicholas Bourne and others. Newspapers were also published in Germany and France.

A curious phase of the medical tendency of this century, not unlike a similar tendency which we found in the medicine of the ancients, was the attempt to explain everything by systems. The human mind had not developed sufficiently to enable it to grasp the idea of the unity of science, to understand that the physical conditions brought about by disease are but a part of

the general workings of natural forces, but they sought (and naturally sought in vain) to find some one principle which was supposed to control the vital processes, and which would explain the phenomena of physiology and of pathology. As the study of the natural sciences, such as chemstry and physics progressed, the knowledge thus gained was eagerly seized upon and applied in various ways to the study of the functions and diseases of the body. Thus we may read of the"iatro-chemical", the "iatrophysical", "the iatro-mechanical", "the iatromathematical", and the dynamic systems of medcine; each containing its germ of truth and each numbering among its disciples a goodly number of enthusiastic, sincere and scholarly men, all seeking for the truth, and although often misguided in their methods of reasoning, by no means always seeking in vain. It would be tedious, as well as profitless, to attempt to study the various systems and the principles and classifications of the many schools of medicine, which arose from them; it will be more interesting, and will serve our present purpose better, to consider separately the individuals, or at least the most conspicuous individuals, who have made real contributions to the extraordinary advancement of medicine which this century witnessed.

Anatomy, as we have seen, had by this time made tremendous strides and its knowledge was extensive and accurate, and surgery had many skillful and successful practitioners. Pathology was explaining the morbid changes produced by disease, and therapeutics was becoming rational and scientific. Physiology, however, still consisted of a great mass of observations and speculations concerning the functions of the various organs, many of them to be sure, correct, but lacking coherence and utterly failing to explain what seems to us the simplest of the vital phenomena. It seems to us incomprehensible that the discovery and demonstration of the circulation of the blood, which has immortalized the name of William Harvey, should have escaped the observation of the students and investigators of all the preceding ages. The history of medicine records no greater revolution than was wrought by this discovery, and as Harvey was in many respects a remarkable character, we will study his life and work in some detail.

William Harvey was born at Folkestone, April 1, 1578. His father was a most respectable and substantial yeoman, and William was one of a large family. Five of his brothers became successful and prosperous merchants in London.

At ten years of age he went to the grammar school at Canterbury, and at fifteen he was entered as a pensioner at Caius College, in the University of Cambridge, where he studied especially logic and natural philosophy. After spending four years at the University he traveled through France and Germany, to the University of Padua, then the most famous medical school of the world, where he remained for five years studying under Fabricius de Aquapedente and Casserius, both celebrated anatomists. The anatomical theater at Padua, built by Fabricius, still remains. It is remarkable in its construction, in that it almost totally excludes all daylight, its circular seats rising almost perpendicularly above each other. It is wainscotted in curiously carved oak, which is now blackened by the hand of time. It was here that Harvey learned anatomy and physiology, and his perseverance and enthusiasm and evident genius gained him the esteem and admiration of his teachers. In 1602 he received the degree of doctor of medicine from Padua, and having returned to England, he received from Cambridge the same degree and then began the practice of medicine in London. His ability was at once recognized, and it was not long before he began to enjoy a lucrative practice. In 1609 he was appointed physician to St. Bartholemew's Hospital, and in 1613 he was elected the Lumleian lecturer on anatomy and surgery at the College of Physicians, a high honor for a young man. Just when he became convinced of the truth concerning the circulation of the blood is not known, but it is probable that he was led to it gradually, through reasoning, study and investigation of living animals. It is certain that through the early years of his lectures he made known his theories, but they were not favorably received, and it was not until 1628 that his first publication "Concerning the Motions of the Heart and Blood" appeared, and curiously enough it was published in Frankfort, owing to the unpopularity of his doctrines in England. The novelty of this new theory, upsetting, as it did, all earlier ideas and teachings, at once aroused a host of opposition and denial, and for a time Harvey was considered to be crazy, and was the butt of the scientific world; so much so that he lost, for a time, much of his practice and was generally regarded with suspicion by his colleagues. For years the fiercest controversy raged among not only medical men, but naturalists and philosophers as well; many eminent men accepting the truth and others bitterly opposing it. Harvey lived, however, to see the truth prevail, and during his lifetime the true explanation of the action of the heart and the general circulation of the blood became an established scientific fact. He was appointed physician extraordinary to King James I, and afterwards to his son, Charles I. With the latter monarch, who was beheaded in 1649, and to whom he was much at-

tached, he followed the fortunes of war, and was present with him at the battle of Edge Hill, where he took personal charge of the Prince of Wales and the Duke of York. During the general commotions of the English Revolution and Civil War, Harvey was for some years a wanderer, and during this time his house in London was pillaged, and many of his valuable books and manuscripts destroyed. During the latter part of his life he practised but little, and resided with his brothers in London, devoting himself to study and investigation. That he was highly esteemed is very evident from the fact that he was offered the presidency of the College of Physicians in 1654, three years before his death. The honor, however, was declined. Harvey also devoted much thought and study to the phenomena of generation and development, and was the first to establish the truth of the development of the higher animals and of human beings from the ovum, a doctrine concisely stated in his own words which have become classic, "ovum esse primordium commune omnibus animalibus" (sometimes although incorrectly abbreviated "omne vivum ex ovo").

His writings on this subject, although they had occupied many years of his life, he had not expected to publish, perhaps deterred by the bitter experiences of his first publication on the circulation, but on the earnest solicitation of a friend, George Ent, he allowed them to be published a few years before his death. The "Exercitatio de Generatione Animalium" is in some respects his most profound and most important work, and his views became the basis for all subsequent investigations in embryology. William Harvey may truly be considered a great man, and although he was admired and highly esteemed by his own generation, his real greatness was not appreciated for a century or more after his death. It was not until sixteen years ago (1881) that a monument to his memory was erected at Folkestone, where he was born, and four years later his remains were placed in a new marble coffin, and with appropriate ceremonies, deposited in Hempstead Church. That the vast importance of the discovery of the circulation of the blood was appreciated during his own century by others than medical men, is shown by these lines from a poem, written by John Dryden, shortly after Harvey's death:

"The circling streams once thought but pools of blood,
(Whether life's fuel, or the body's food)
From dark oblivion Harvey's name shall save."

(To be continued.)

Camp Thomas at Chickamauga has had an epidemic of diarrhœa with temperatures of 104° to 105°.

THE TREATMENT OF TYPHOID FEVER.

An Address Delivered Before the Hennepin County Medical Society, June 6, 1898.

By J. C. Cockburn, M. D.,

President of the Society.

Members of Hennepin County Medical Society:

Another year has been added to the history of this Society, and we meet for the last time for the year 1897-8. The constitution and by-laws of the Society require that we elect our officers for the ensuing year at this time and make ready for work again next September, and the rules for our government provide that the President at this meeting deliver an address. Respect for our Society's constitution is my only reason for attempting such a thing.

The year just closing has been one which I shall ever remember as one of very pleasant, profitable and friendly association with the members of the Hennepin County Medical Society, and I wish to thank you all for your support of the Society during the year by regular attendance at the meetings and the interest shown. Particularly do I wish to thank our Executive Committee for their excellent work. The papers which they have succeeded in having presented at the different meetings have been of a high order, and the discussions have been intelligent and instructive, and of a character that would do credit to any medical or surgical society in the land.

Those of you who were present at every meeting know this, and those of you who were sometimes absent, know not what you might have gained by being present. The trend of the work during the year, or of the papers read and discussed has been in accord with the modern tendency in medicine; etiology, pathology, bacteriology, diagnosis and surgery have received greater attention to the almost entire exclusion of treatment. Treatment has been touched on only in the papers on cancer, appendicitis, retrouterine displacement and in the first paper of the year on the stomach. A young man recently from the schools of the old country was asked by a doctor of this city if he could look over his notes on treatment, replied that he had heard nothing on treatment to make a note of; all was pathology and bacteriology. Unless the pendulum of tendency soon reverses we will not longer be entitled to the honorable cognomen of healers of the sick, but will have to be content with the more fitting appelation of investigators of disease; and while we are working in the laboratory at histological, physiological, pathological

and bacteriological investigation, and neglecting observation, experimentation and investigation in the treatment of disease, the quack, the osteopath and other charlatans are reaping their harvest from their methods of treatment or non-treatment and promised cures.

I trust I shall not for a moment by any one be misunderstood, or be considered as undervaluing the strides before referred to and their very important bearing on the diagnosis and treatment of disease, whether medical or surgical. The practitioner of today who does not avail himself as far as he can of the revelations made by our patient, faithful and learned laborers in laboratory and clinic does not deserve to have practice. But the great majority of medical practitioners cannot be investigators in laboratory work, nor can all be on hospital staffs to witness the application and results in all new departures, yet most of us can at this day, if we have the time to read and the way to get hold of books and periodicals, keep apace, to a certain degree at least, with the progress of the time. Then, if we have any patients to practice on, we can apply the principles and theories advanced and, perhaps, from these enlarge on the means of preventing or carrying to a successful termination or cure such disease as we come in contact with in practice. I regret that more of recorded observation or of advance in treatment has not been presented to us at our meetings during the past year, and hope that next year we will have evidence of practical application of the advanced knowledge of the cause of disease in reports of better results from treatment. If the object of research in the cause and progress of disease is to be better able to control, curtail or cure it, let some of us be up and at it and report results.

The foregoing is my reason for presenting to you tonight some observation of results in treating typhoid fever, which results are so much more favorable than I used to obtain five or six years ago, under different treatment, that I am constrained to give to the plan of treatment the credit of the happier results. It may not be out of place, while it may not interest you all, to review, very briefly, the different treatment typhoid fever patients have had to undergo in the last thirty years.

No need to dwell on the bleeding and purging for all fevers, as this measure has not left a record of benefit. The first treatment I find that has lived throughout the varied changes in treatment of typhoid fever, and is by every author to this day mentioned with respectful consideration, is that first mentioned by the late Prof. George B. Wood. And, right here, I wish to say that no description of the symptoms and course of the disease can be found in any work more clear than in the work on Practice of Prof. Wood, and the lectures of Watson, a few years later. The Widal and diazo-reaction tests were then unknown. Bacteriology was not thought of, yet these men, by close observation and recording the same, have presented a clinical history of typhoid so clear that no author to the present day has surpassed it. The treatment of this time was mostly expectant, but Prof. Wood had used turpentine and observed that doses of ten to twenty drops of the spirits of turpentine, given every four or six hours, had the particular merit of relieving the symptom of dry, brown, coated tongue. His theory was that this condition of tongue indicated a severe or exaggerated condition of the ulcers of Peyer's patches, and that the effect of turpentine was healing to these ulcers, and Tyson, in his recent work, refers to the benefits of turpentine in nearly the same language. Today bacteriologist and surgeon regard turpentine as germicidal and antiseptic. We also regard the dry, brown coated, cracked tongue as evidence of the degree of ptomaine poisoning, or amount in the system of toxine from the bacilli of Eberth, and not an index of the existence or extent of local ulceration, and we recognize the benefit of turpentine given at such time to be its destruction of the typhoid bacilli and cutting off of the toxine and giving the system a chance to relieve itself of ptomaines. As before stated, this remedy is still mentioned by every one who has ever written or edited a treatise on Practice that I have ever seen from the days of Prof. Wood to the present time.

Later we had the quinine treatment of Liebermeister, which had good results and had some ardent followers. The theory of this treatment was that by heroic doses of quinine a remission of the fever was produced, and as remittent fever tended to recovery, if a remission in typhoid could be produced the chances for recovery were thereby increased. But as this plan of treatment antedated the discovery of the typhoid bacilli no blame should attach to Liebermeister for not knowing that the germ should be attacked. He also referred to the good effect of Wood's turpentine treatment.

Nitrate of silver at one time had a reputation as a remedy for typhoid. It was first brought to notice by a Glasgow physician, but soon was forgotten until revived by Dr. Pepper, of Philadelphia, who reported one hundred cases treated by himself with this remedy without a death, and yet it never was generally adopted.

Thymol had a little boom and so good an authority as DaCosta has indorsed it. Naphthol, beta naphthol, naphthaline, menthol, salol and the mineral acids have each been credited with good effects.

No innovation in treatment had any great retinue of followers till Brand's cold water bath treatment was promulgated. The benefits from

this plan of treatment have certainly been more encouraging than those from any previous to it, and prior to the discovery of Eberth's bacillus, and the recognition of a germ as the cause of typhoid it should have been heralded as the greatest boon to medical practitioners of its time. The decrease in the death rate where the Brand treatment has been faithfully carried out must convince the most skeptical that the plan has merit. The cold bath reduces the temperature and stimulates the circulation and thereby increases vital resistance to the toxæmia. Hare, in Vol. IV of his "Theraputics," well explains the benefits of cold baths and their therapeutic effect. Anders, in his excellent work on Practice, also tells us what cold baths do to benefit a typhoid fever case.

A paper, which I have recently seen, written by a Dr. Hutchinson, of Buffalo, explains in a way I have not before seen, the operation of cold baths in aiding resistance to the fever toxin. He refers to the "skin heart," and describes the ganglionic centres of this "skin heart," and showing the power to dilate and contract in the peripheral blood vessels governed by these ganglionic centers. And in infectious diseases, where toxines destroy life, he claims it is not from failure of the heart alone, but from failure of the cutaneous vessels or "skin heart" to aid the circulation and resistance. The cold both stimulates the skin to thus aid.

Dr. Simon Barnch, who is an ardent advocate of hydro-therapeutics, describes the workings of cold baths in a nearly similar manner. He says the arterial tension is interfered with by the spastic contraction of the cutaneous vessels in the toxæmia of typhoid and other infectious and septic diseases. To overcome this failure of the peripheral vessels is the principal object, and it is effected by the cold bath, cold compress or cold pack.

With all these physiological and theraputical benefits of the cold bath in typhoid there are in my mind objections to the Brand method of treatment. A few years ago, after the discovery of Eberth of the typhoid bacillus, and the recognition of typhoid as a germ disease, though no treatment was directed to destroy the germ in the system of the victim, yet it was deemed expedient to use every precaution to prevent the development and propagation of the germ outside the body of the patient; stools and other excreta were disinfected, clothing on the patient and bed were changed and disinfected to destroy any excretion through the skin or otherwise. Carbolized or sublimate water was used for bathing the hands and face of the patient, or the body, if one dared to recommend so rash an act, and later sterilized water for drinking or bath. The Brand method ignores the probability of germ infection as regards water, and we have here, in this city, used Mississippi river water, supposed to be full of typhoid fever germs, to immerse our typhoid fever cases in and the next moment instructed our students that a germ is the cause of typhoid fever. In Tyson's recent work on Practice, he gets still worse. He says: "If the ordinary tub is used, and in hospital service this is usually more convenient, the same water, if it remains unsoiled by discharges, as it should, may serve for a dozen baths." There is certainly a recklessness in trifling with typhoid germs in water in such baths. I do not think any one present would care about being Tyson's twelfth patient to bathe in water already used by eleven others.

A serious objection to the cold tub bath is the disturbance to the rest and quiet so generally recommended and so essential to success in treatment. Tyson says: "The primary condition for success in the threatment of typhoid is rest in bed and liquid diet," yet in almost the next sentence he advises that the patient go from bed to bath tub, "to be vigorously rubbed and encouraged to rub himself," which is not much rest when repeated every two or three hours. None of the warmest advocates of the Brand method claim any shortening of the course of the disease by the treatment, neither is it claimed to prevent that serious complication, intestinal hemorrhage, and in case of such hemorrhage the tub bathing must be discontinued, unless the patient or physician is provided with a portable folding tub. Only a few are able to provide this when needed. Some other treatment must be used for the hemorrhage. And yet, this Brand treatment is the only treatment endorsed by any text-book of the present day. Other treatment is mentioned, not recommended; most other treatments are derided.

The Woodbridge treatment, so-called, is the latest out, but text-book makers and professors give it a cold reception; still it has stirred them to a red heat and caused some of them to boil or slop over. We find that several writers for the journals are advocating it and reporting good results. I have never tried the Woodbridge treatment in a single case. I believe it has merit, and is more in keeping with the present knowledge of the cause of typhoid fever, as rational treatment than any other published since Prof. Wood recommended turpentine, because its aim is at the cause of the disease; it may err in detail, but the object is, I think, correct. I do not use it for the reason that it is a formula remedy for all cases, and I prefer to make my own formula to suit myself and my individual cases. I think Dr. Woodbridge erred when he put his formula in the hands of a manufacturing chemist to place on the market to be

sold to any one as a typhoid fever cure. But other men have done so, and the profession have accepted the formula and lionized the formulator. The censure and strictures made on the antiseptic treatment of typhoid, or other than Brand's, by Osler and some others, are anything but courteous, and I will here express my opinion that if Dr. Woodbridge had been connected with Johns Hopkins or other university or hospital and could add after his name Prof. of so and so in such and such university or visiting physician on such an hospital staff or consulting physician to such an hospital, that his plan of treatment would have been received very differently, at least with the courtesy one gentleman is entitled to receive from another. As an instance of derisive and disrespectful mention of the gentlemen who have reported favorable results from the antiseptic treatment of typhoid, see the Year Book of Medicine and Surgery of 1897, page 29. Referring to reports of favorable results from antiseptic treatment it says: "None of these cases seem to have been studied in hospital practice." Again, in the Year Book of 1898, page 16, we read this: "It is hoped that the serum test will prove a reliable indication, if for no other reason than to serve as a check to reckless laudation of methods of treatment based upon speedy cure of doubtful cases."

See Tyson, page 46: "The antiseptic treatment has not a truly rational basis, while the extravagant claim of its advocates discredits their results."

For amusing reading, and evidence of the prejudice of professors and text-book makers against any new plan or departure in the treatment of typhoid from that laid down in the leading books of the day, I would refer you to the discussion on typhoid fever by members of the American Medical Association, as reported in the Journal of the Association of Aug. 14, 1897.

As before stated, previous to five years ago my results in the treatment of typhoid were not such as to make me an enthusiast in the treatment of this disease. I had given the heroic doses of quinine and observed the fall in temperature from 104 degrees and 105 degrees F. to 100 degrees and sometimes to the normal point after two evening doses of thirty or forty grains each. With joy I have found my patient in the morning with a normal temperature after these small experimental doses, and exulted that I had produced a remittent type in typhoid, and would, with a pity for our forefathers in medicine, wonder how they could treat their typhoid cases successfully without quinine. I also have used the acid, the alkaline, the salol, the salicylate and nitrate of silver treatments, and also cold baths, tub baths where available, and cold sponging where a tub was not convenient, and when a dry, brown, cracked tongue, with sordes about the teeth and gums obtained, I fell back invariably on Prof. Wood's turpentine treatment for severe ulceration. I even, for a time, but for a very short time, used the coal tar derivatives, and had results of reduced temperature at the expense of my patient's power of vital resistance. With all these, at the time modern treatments, I had deaths to record and intestinal hemorrhages without number. In fact, I became proverbial among my neighbor physicians for my cases of intestinal hemorrhage.

About six years ago, while experimenting with guaiacol carbonate in other diseases, I got results which led me to believe that it had antiseptic value which might be utilized in certain stages of typhoid fever. On trial I soon found that not only was the particular condition for which I had used it relieved, but that the temperature was reduced and the cases ran a shorter course. At first I had doubts as to the correcness of diagnosis, when I found severe cases, but without all the characteristic features of typhoid terminate happily in shorter time, and my constant spectral ghost, intestinal hemorrhage, not occurring. Soon I met a few typical typhoid cases, with all the symptoms and conditions as clearly marked as Wood or Watson described them, and I ventured the antiseptic course to the exclusion of the other remedies, save that I used frequent baths, sponge baths, and not ice cold, either, with excellent results. A few such cases gave me such confidence that I began to think of making my results known, when Dr. Woodbridge published his so-called plan of treatment. I then determined to keep quiet and work on a little longer and find if I could see any advantage in any feature of his plan. I accepted his theory, in part, if he had any, and worked along my own. From my limited experience and reports of cases in the journals where the Woodbridge treatment was used, comparing results, I concluded that the Woodbridge formula, calomel, podophyllum, guaiacol carbonate, eucalyptus, menthol and thymol was all unnecessary, and his second one also; that one or two of the remedies alone were sufficient and valuable. Now came the Widal blood serum test and established itself as an important aid in diagnosis. I followed the course of treatment already mapped out for myself, and found as good results in the cases, however severe, where the Widal test had confirmed the diagnosis, so that if the Widal test is reliable it has not "checked my reckless laudation of methods of treatment based on speedy cure of doubtful cases," now without doubt, typhoid speedily cured. I now expect, and seldom am disappointed, to find my typhoid fever cases run their course and normal temperature obtain and convalescence be established in from ten to fourteen days' treatment.

Sept. 29, 1894, I signed the last death certificate where uncomplicated typhoid fever was the cause of death. In September, 1895, I saw in my own practice the last case of intestinal hemorrhage, and this case had existed ten days before I saw it, and the hemorrhage occurred the second day he was under my care. Since September, 1894, I have treated seventy-six cases, and excepting six, the disease terminated in from ten to fourteen days and recovered promptly. In one of these, after a high fever, delirium and sordes early in the case the temperature came down to 99 degrees on the twelfth day. Now an embolism of the internal saphenous vein of the left side occurred and consequently a severe phlegmasia dolens. Within a week another embolism occurred about the juncture of the brachial vein with the basilar with same side, and still later another at the base of the brain, for a day or two completely paralyzing the left side. This case continued with fever and delirium for nearly three weeks, but not wholly of a typhoid character after the sixteenth or eighteenth day. Perfect use of left hand and arm had not been restored a year after, but was improving. Another, a child of six years. Temperature had been 104 degrees on the twelfth day, was reduced to 97 degrees in the morning and remained for several days, varying from 97 degrees to 99 degrees, when a rise of temperature occurred, going up to 101 degrees. The face, limbs and body became somewhat puffy, and the skin waxy in appearance; though I could not locate it was satisfied that an embolism had occurred in some part of the circulation, most likely in some of the deeper veins, or perhaps several small infarctions. This case had a temperature varying from 99 degrees to 100 degrees for about four months. The appetite was good after the third week and the bowels were inclined to constipation for a few months. In the third month, while the temperature was still 100 degrees, I sent the child and mother to the country to recover, which it did fully. Two other children, sisters, of ten and twelve years, respectively, remained sick with a temperature of 99 degrees to 100 degrees for six weeks, though never over 100 degrees after the tenth day. They were able to sit up a little, they relished their allowed diet, and for the last four weeks were comfortably sick, still the excess of temperature would not away. The fifth case, a child of ten years, was the only relapse, and perhaps this should be more properly called a second or repeated attack. After a characteristic development of well marked symptoms, at the end of the second week the temperature became normal and remained so for a few days. A chill occurred, the temperature went up from day to day by regular text-book rule, until it reached 105 degrees. Very slight tympanites occurred, a second eruption of rose spots came, in profusion and brightness equalling the first. This relapse, or second attack, yielded to treatment, and before the end of the third week convalescence was established, and a good recovery quickly followed. The two cases, or this case with relapse, were only six weeks from the first sickness to well established convalescence. The Widal blood serum test was made in these last four cases, and a reaction found present, confirming the diagnosis. The sixth case, a girl of fifteen, from some reason was unable to take guaiacol carbonate, thymol, menthol, naphthol or listerine, could take only an infinitesimal dose of turpentine. Though the Widal or diazo-reaction test was not used in this case, the symptoms were so clear that there could be no doubt as to diagnosis. With mild calomel carthasis and small doses of turpentine emulsion, with sponge bathing four to six times a day she made a good recovery after thirty days in bed.

I will not weary you with detailed reports of any of the other seventy cases, but simply state that from ten to fourteen days was the average duration of their sickness or period of abnormal temperature. I have full record of a great many of these cases, though in the words of Gould's Year Book, they have not been studied in hospital practice, and therefore to some would not be considered reliable. The treatment used by me is very simple, the very simplest, too simple for the flourish of trumpets, or spread-eagle practitioner. No special formula, but varying with each case as seems to be best suited to it. Antiseptic, eliminative and supporting. Guaiacol carbonate I have found the one thing needed as an antiseptic. It is guaiacol carbonate whereever found in the system, stomach, intestines, mesenteric glands, fæces, blood, liver, spleen or in the sweat glands, it is still unchanged guaiacol carbonate and capable, I believe, of destroying Eberth's bacillus, notwithstanding that some of authority have persisted in stating that no antiseptic or germicide was yet discovered that would destroy the typhoid bacilli without first destroying the patient. In the urine or kidneys the guaiacol carbonate decomposes into carbolic acid and guaiacol. When you have reached the dose sufficient to cause the characteristic odor of carbolic acid or creosote in the urine or odor of guaiacol in the perspiration, I think you have reached a full antiseptic and therapeutical dose. I have found three grains three times a day usually sufficient, though four grains four times a day I have a few times found necessary. I have and I think you will find cases where great benefit will be obtained by an intestinal antiseptic as listerine or menthol, in addition to the guaiacol carbonate. These remedies can with a little care and atention be made palatable, or nearly so. When but a small dose of guaiacol of half a

grain or a grain can be borne well, I have supplemented with thymol, but only seldom will this supplementing be necessary. For elimination I do not think drastic catharsis necessary. One can err as much with extreme purging as does Osler in his praying for constipation when he cannot produce it in his typhoid patients. In children, up to twelve or fourteen years of age, calomel triturates of one-fourth to one grain or calomel and soda in small repeated doses is perhaps the best. In adults calomel alone is not so well adapted. The fever will reduce with calomel used for a cathartic, but even if no salivation is produced there is a certain something left behind, a lack of resistance or decreased vitality which shows itself with emphasis if other diseases attack the patient before the mercurial is eliminated. In women, who may become pregnant before the mercury is eliminated calomel should be guarded or perhaps better withheld in toto.

The combination of calomel, soda and podophylin is perhaps the best form of administering calomel to adults with typhoid fever, but with this I have once or twice passed the limit of salivation, but this caused no hindrance to cutting short the period of fever, but only a more slow convalescence resulted. Ordinarily, though, this combination in sufficient doses to produce three or four formed stools in twenty-four hours, is sufficient and no ill effects will follow.

For supporting measures alcoholic stimulants are seldom if ever needed, as ten to fourteen days of fever does not usually reduce the average patient to need alcoholic stimulation. The ordinary nourishment for fever as milk, broth, beef tea, eggs and milk, oysters or oyster broth, custards and blanc mange and farinaceous breakfast foods are well borne, with this course of treatment. I have never yet had courage or recklessness enough to allow the regular house diet as Woodbridge does. The baths I consider a very important supporting measure. The skin, whether a supplementary heart, as denominated by Dr. Hutchinson, of Buffalo, before referred to, or a gland with a very large surface, so called by Dr. Thomas, of our Society, plays an important part in our human economy, and the relaxation and contraction of the vessels of the peripheral circulation caused by bathing no doubt aids the heart in its labor, and I have no doubt that bathing does so affect the skin glands as to cause the blood, in its more active circulation in the periphery to take up or absorb a supplemental amount of oxygen, and thus increase the power to resist ptomaine poison. Tub bathing, if convenient, is perhaps more thorough, but sponge bathing will suffice, is less disturbance to the patient—and more easy for the nurse or family caring for the patient, and is always available. The cold bath is not necessary. In fact I think I have seen better results from a warm or hot sponge bath and the patient left exposed to the air without wiping dry. The results of hot and cold baths, relaxation and contraction of the arterioles are in this way accelerated.

This course of treatment is easily carried out, can be applied with the same ease in remote country places as in the best equipped hospitals, which cannot be said of some other plans, can be adopted with the family of small means and without modern conveniences, and take this state at large this class are in the majority as victims of typhoid fever.

Notwithstanding the statement of our text-books, and the teaching of men prominent in the profession, that typhoid fever is not amenable to abortive treatment, I make my feeble protest that it is. Six years ago I would not have made so bold an assertion, today I do not hesitate to. Perhaps some of you may think that senility has made rapid progress with me in those six years. Perhaps it has, but I believe that if premature decay does not hurry me off from this sphere I will see before ten years more roll by a complete revisal of treatment of typhoid fever, and see or read and learn of authors hurrying up revisions of their works on practice of medicine that they may climb on the tail-board of the band wagon of progressive treatment of typhoid fever.

Typhoid fever can be aborted to the extent of saving the business man, the laborer, the bread winner, the mother, the domestic from two to four weeks of productive time. What this saving of time would amount to in our commonwealth, and the increased production resulting therefrom may be estimated by figures given in a paper ready by Dr. Haggard before this Society during the closing year. The death rate can be reduced so as to save to the community the lives of a very very large percentage of those who yearly die of typhoid, and save us the regretting the untimely death of our friends, neighbors and citizens in the best time of their life. When we treat our patients consistently with the present day knowledge of pathology and bacteriology we will have less to fear from typhoid.

While the surgeon is successfully combatting the germ in surgical work by progressing with the investigators, and we as general practitioners are content to be nosed about by the teaching of years ago that typhoid fever cannot be cut short, must run its course, even when we believe that the germ diseases can be cured by antiseptic treatment and germicidal remedies, we are dolts, allowing our work as practitioners to be molded into ruts and kept there.

ORIGINAL ARTICLES.

ALCOHOL IN THE TREATMENT OF TYPHOID FEVER.*

By Chester M. Carlaw, M. D.,

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Alcohol has been employed in the treatment of typhoid fever since the earliest history of the disease, and the text-book on the practice of medicine of the present time that does not recommend its use during some stage of the disease is rather exceptional. One of the more recent productions of Wood and Fitz makes the statement that "alcohol in some form should be used in every case of typhoid from the beginning, unless there be some very strong reason for refusing it, as where there is a distinct heredity towards drunkenness." To discourage its use might result in the agitator being looked upon by his professional brothers as a "temperance crank," with as extreme views for its non-use as those inveterate advocates who believe alcohol is the only drug for any and all ailments.

Sir Dyce Duckworth has said that whenever he hears a man say: "I never give stimulants (alcoholic) in typhoid fever," he knows he has not an experienced practitioner to deal with, and that such a one has tied his hands and is helpless in the difficulties that may be waiting for him and he may lose his patient.

That alcohol has been the means of saving many lives from the ravages of typhoid fever is perhaps true; on the other hand, that it has caused the loss of many lives that were battling bravely with a terrific storm of the disease, is perhaps not untrue. Neither statement can, of course, be proved.

The alcoholic liquors commonly used in typhoid fever are whisky and brandy, and these in themselves are objectionable and defective from the variation in the amount of alcohol they contain, and from adulteration. The amount of alcohol in the official brandy of the United States Pharmacopœia varies from 39 to 56 per cent while in whisky it varies from 44 to 50 per cent Moreover, the market is crowded with cheap vile adulterated brands that are not only absolutely worthless as therapautic agents, but positively harmful. The majority of our druggists consider this grade of alcoholic liquors satisfactory and rarely keep in stock the better quality, claiming they cannot sell a whisky which retails for more than fifty or seventy cents a pint. No good or reliable whiskey can be bought at retail for less than one dollar per pint.

Pure brandy is much harder to obtain than pure whiskey. There are thousands more bottles of brandy sold yearly than are manufactured To overcome these difficulties many use alcohol itself, which is a much more scientific method and cheaper. D. P. Jackson recommends the following formula:

℞.

Tinct. Aurantii	℥i
Glycerini	℥i
Caramel	q.s.
Alcoholis	℥viii
Aquæ	ad Oi

This mixture he considers equal to any twenty-five dollar brandy in point of flavor, while the cost is only about thirty cents a pint.

It is the almost universal testimony of army surgeons that muscular overwork and hardship are much better endured if alcohol is entirely abstained from, although on extraordinary occasions of great fatigue, temporary stimulation will brace the men up and enable them to accomplish their end, when without it they would be too exhausted to do anything. The following observations on the use of alcohol during the campaign of Ashantee is interesting as comparing the effect of acohol and beef tea as stimulants. It was found that when a ration of rum (the spirit usually served out in the British army and navy, and of about the same strength as brandy) was served out, the soldiers at first marched more briskly, but after about three miles had been traversed, the effects of it seemed to be worn off, and they lagged more than before. If a second ration were then given its effect was less marked and wore off sooner than that of the first. A ration of beef tea, however, seemed to have as great a stimulating power as one of rum, and not to be followed by a secondary depression.

In typhoid fever the familiar indications for the use of alcohol are principally evidences of cardiac weakness, such as a frequent, weak, fluttering or dicrotic pulse, and faintness or absence of the first sound of the heart, the so-called Stoke's indications for wine or stimulants. Other indications for its use are exhaustion, muscular tremors, dry, brown tongue and a low, muttering delirium.

The commonly accepted rules governing the use of stimulants in fevers are those originally laid down by Armstrong, and later endorsed by Graves. They are as follows:

1. If the tongue become more dry and baked, alcoholic stimulants generally do harm; if it become moist, they do good.

2. If the pulse become quicker, they do harm; if it become slower, they do good.

*Read before the Minnesota Academy of Medicine, June 1, 1898.

3. If the skin become hot and parched, they do harm; if it become more comfortably moist, they do good.

4. If the breathing become more hurried, they do harm; if it become more tranquil, they do good.

To these Ringer adds:

5. Alcohol does good when it produces sleep and quells delirium.

The physiological actions upon which alcohol has gained its reputation in the treatment of typhoid fever are:

1. Its stimulating effect upon the heart and circulation.
2. Its stimulating or invigorating effect upon the nerve centres and cells.
3. Its ability to act as a food.
4. Its power to prevent nitrogenous waste.
5. Its ability to lower temperature.

ON THE HEART AND CIRCULATION.

We are told that small doses of alcohol stimulate the heart and circulation by (1) acting on the neuro-muscular structures of the heart; (2) by stimulating the cardiac centre, and (3) by acting on the neuro-muscular tissue of the middle coat of the blood vessles. As a result the circulation in every part of the body is increased, and the peripheral blood vessels become dilated. If the dose of alcohol be large this early stimulating action soon passes into one of depression, and as as a result the heart is hindered in its work.

The stimulating effect of alcohol upon the heart and circulation is perhaps the strongest argument for its employment in typhoid fever. That it is a valuable heart stimulant nearly all clinicians will agree. But in this action it is not nearly so persistent as some other drugs of the same group. Its influence is always more decided and its action more certain in emergency if it has not been previously administered. As a ready, reliable, diffusible stimulant it is most valuable, such action being almost immediate, and is largely due to a reflex influence excited through the nerves of the mouth and stomach. If, however, it be given for a number of days continuously in doses sufficiently large to produce its action, it is not such a valuable agent. The stimulating action on the heart and circulation seems to weaken with the duration of its use. If typhoid fever were an acute disease running a limited course and ending by crisis, as pneumonia, for instance, alcohol would be much more valuable in its treatment, should it become necessary to stimulate and sustain the patient until the crisis is over, and to prevent sinking from debility afterwards. But typhoid fever does not so end and its period of danger is not as a rule numbered by hours, but by days, and when the heart and circulation require constant assistance for such a period of time there are other agents more reliable, strychnine being foremost among them. Strychnine, moreover, is free from the objections due to alcohol. Strychnine and digitalis combined will often be found most valuable.

ON THE NERVOUS SYSTEM.

The effect of a small dose of alcohol upon the nervous system is to stimulate the functional activity of the nerve cells. This stimulation is due to the increased circulation and not to its direct action on the nerve cells. The direct action on the nerve cells is narcotic and paralyzant.

A noted Scotch writer a few years ago wrote: "In typhoid fever alcohol stimulates the nervous system, spurs the nerves and nerve centres, keeping them awake when otherwise they would go to sleep, and leave the vital functions first to flag and then to fail utterly." An entirely opposite view would be more correct. The narcotic effect of alcohol on the nervous system is becoming more generally believed year by year, and its efficacy to stimulate and invigorate the nerve cells no doubt has been much over-rated.

ALCOHOL AS A FOOD.

This property of alcohol has been much questioned. When taken in moderate quantities it does not reappear as alcohol in the urine, breath or other excretions of the body. It must therefore be destroyed within the body. As to the mode of destruction nothing is positively known, but it is generally believed to be oxidized in the tissues, the products of combustion being carbon dioxide and water, but these are both normal constituents of the blood, and could not be identified as derived from alcohol. The ordinary products of oxidation as aldehyde and acetic acid have not as yet been satisfactorily detected in the blood. If then alcohol be oxidized in the tissues, its decomposition must necessarily develope vital force and heat, as does the oxidation of sugar and fat. Gould says: "If to be oxidized within the body and to produce vital force and heat be all that is necessary to constitute a substance a food, then alcohol is a food; but if conversion of the substance into body tissue be necessary then alcohol is not a food."

In typhoid fever alcohol has been much lauded as a food, being absorbed promptly and requiring no preliminary preparation by the digestive organs which are therefore not taxed in any degree. But it does not add anything to the system. Sidney Ringer says: "Even if the greater part of alcohol is consumed and this ministers to the forces peculiar to the body, yet alcohol, by depressing functional activity, favoring degeneration etc., may do more harm than can be counterbalanced by any good it may effect by the force it sets free during its destruction."

Bauer considers its nutritive properties to be insignificant.

ALCOHOL AS A RETARDER OF NITROGENOUS WASTE.

The remarkable property of alcohol to save tissue waste is one of the foundations for its employment in fevers. Alcohol unquestionably interefers with metabolism, or the oxidation of other substances, especially saving the wear and tear of the formed protoplasm of the cells of the body. As a result of this interference the excretion of urea, uric acid and the various salts is lessened. To explain this action of alcohol is difficult. Mitchell Bruce states that it is probably due to the interference with the oxygenating function of the red blood corpuscles and its affinity for the oxygen present in the tissues.

In typhoid fever there in an increased nitrogenous waste, which it would be of benefit to check. Alcohol will accomplish this end, but as pointed out by Mitchell Bruce, Lauder Brunton, H. C. Wood and others, must be given in large quantities. Such doses will undoubtedly give rise to its narcotic effect and produce much more harm in this way than can be gained from checking the increased tissue metamorphosis.

ALCOHOL AS AN ANTIPYRETIC.

This action of alcohol is brought about principally in two ways: (1) By dilating the peripheral blood vessels, and thus causing an increase in the volume of blood to the surface, which permits of an increased loss of heat by radiation, and (2) by increasing the function of the sweat glands, thus causing sweating with consequent evaporation on the surface and cooling.

The use of alcohol to lower temperature in typhoid fever is certainly not feasible. Ringer says: "The efficacy of alcohol to diminish fever is insignificant."

Thus we see that the five actions of alcohol which have made its use in typhoid fever so popular are open to criticism. Further, its action on the blood and digestive functions works mischief in many cases of typhoid fever.

ON THE BLOOD.

Schunedeberg was the first to point out that when alcohol was absorbed into the blood it appeared to form a combination with the hæmoglobin and this combination takes up and gives off oxygen less readily than hæmoglobin itself. As a result oxygenation of the tissues occurs less freely and the normal chemical tissue changes are hindered or retarded.

ON THE STOMACH AND DIGESTION.

Alcohol in small quantities is quickly absorbed and produces a turgescence of the capillary plexus of the mucous membrane, which immediately stimulates a free secretion from the gastric follicles. On the secretion of gastric juice Hemmeter has shown that in quantities over one or two per cent. it inhibits the pepsin-hydrochloric digestion, and in quantities over six per cent. it retards stomach motility. Chittenden has shown that the weaker the gastric juice the greater will be the inhibition of digestion. There is not much doubt but that the gastric juice is weakened in typhoid fever. Again alcohol frequently produces vomiting, which might occur when exhaustion is so extreme that such a depressing act might produce a fatal termination. The writer well remembers a young woman who was struggling with a severe typhoid fever and for her weak pulse and exhaustion half ounce doses of whiskey every hour were prescribed. All went well until the fourth dose was given, when after a few minutes vomiting occured and she died in the act.

It has been claimed for alcohol that it hastens the rate of absorption from the stomach of other foods, but Hemmeter says its effect in this respect is unknown.

But little alcohol reaches the intestines, being as a rule completely absorbed in the stomach; however, should any of it reach the intestine it would act unfavorably on pancreatic digestion and thus tend to favor intestinal indigestion with its strain of troublesome symptoms.

Gilman Thompson, who in his work on Practical Dietetics gives a very complete article on alcohol and speaks highly of it as a therapeutic agent, says of its use in typhoid fever: "I am inclined to prescribe very much less alcohol than formerly."

B. W. Richardson says he knows of nothing in medicine more satisfactory than the treatment of typhoid fever without alcohol in any shape.

If, however, the patient be an alcoholic it is pretty generally claimed that he will do better if he be allowed the use of alcohol.

CONCLUSIONS.

1. That as regards the employment of alcohol the subjects of typhoid fever may for an analogy be compared to a regiment of soldiers, who have a long and wearisome work to perform, and as it has been proved beyond all doubt that they can accomplish the task much better without alcohol, so too the soldiers of typhoid fever, can in the writer's opinion accomplish their task much better if their commissary-general (physician) will spare them its use.

2. There may be times during the course of typhoid fever when collapse or urgent heart symptoms seem to threaten life that whiskey, brandy or champagne will be found most valuable as ready, diffusible, cardiac stimulants. Their employment, however, should be contin-

ued only until the system can be brought under the influence of other drugs more lasting in their stimulating effect.

3. That the stimulating effect of alcohol is too temporary to fulfill the requirements of an agent capable of overcoming and sustaining the heart through the period during which it generally requires support or aid.

4. The so called invigorating effect of alcohol on the nervous system in typhoid fever is a delusion.

5. That as a food its exhibition is apt to produce michief in excess of the value of the force produced by its decomposition in the system.

6. Alcoholic stimulants should not be withdrawn from those who have been accustomed to their continuous use

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INFLAMMATORY DISEASES OF THE MIDDLE EAR AND THEIR SEQUELÆ.*

By Thomas McDavitt, M. D.

St. Paul.

It is only a short time, comparatively, since even the medical man looked upon an inflamed middle ear as a disease to be waited upon and allowed to run its course. Any surgical procedure beside one seemingly to save life or because the pain was unbearable and the drum membrane was unruptured, was looked upon as meddlesome and dangerous. The numerous sad results in many hands from too long delayed relief and the teachings of those with great experiences, have, to a degree, changed this, and today excessive and continued pain in the middle ear is accepted as a sign of danger.

Bryant and Blake, of Boston, have been two of our most patient and painstaking investigators, and owing to anatomical causes have divided the middle ear into two portions by an imaginary horizontal line drawn through the short process of the malleus. The portion lying below this line is called the atrium, that above it the vault. Inflammation of the atrium is indicated by the symptoms of a catarrhal inflammation, by an effusion of liquid. According to Dench, owing to the small amount of connective tissue in the atrium, suppurative inflammation is practically impossible. On the other hand, an inflammation in the tympanic roof or vault invariable leads to connective tissue necrosis and the formation of pus. Theoretically, this division is true, but practically pus almost always results, let the inflammation start in either place. Undoubtedly, however, often the muco-serous discharge of a primary inflammation of the atrium has become infected through the external ear and has thus affected the vault.

This division of the parts of the middle ear indicates the primary treatment to be employed. In the atrium, or catarrhal form, abortive treatment is often of some avail. The use of hot injections, blood letting, etc., sometimes is successful. Time is lost, however, if the inflammation is primarily in the vault in any abortive procedures. In that case early incision into and through the inflamed tissues is the only safe treatment. The incision should be made into and through the posterior quadrant of the membrane, behind the short process of the malleus and upward, backward and inward. It should be carried through the space and mucous membrane. Hemorrhage is abundant and frequently a watery, bloody discharge keeps up for some hours, and all symptoms quiet down without any pus formation. The most absolute cleanliness and asepsis is necessary for both the instruments and the meatus. Dench's method of using 1-5000 bichloride, drying, and using just preliminary to the operation one part of 1-1000 bichloride solution in twice its volume of alcohol furnishes as perfect antisepsis for the canal as is possible. If pus is formed and the opening in the drum mebrane is not sufficiently large, or is not in a posititon to drain properly, it must be enlarged and placed properly. Warm antiseptic injections are to be used while the discharge is profuse. When the discharge begins to decline and give evidence of gradually subsiding, an antiseptic powder blown into the ear gives good results. Burnet's powder, iodoform one part, boracic acid five or six parts, is a very desirable formula, or boracic acid alone. Packing the ear in this class of cases frequently effects a cure.

A frequent class of cases, however, exists, in which the discharge still continues and the acuteness of the symptoms have long since passed away. When we consider the close relation of the middle ear to the mastoid cells (in fact it is a continuation of the same cavity lined with the same mucous membrane) and also only separated from the middle fossa of the skull by a compartively thin lamella of bone, we realize that grave consequences may follow suppuration of the middle ear. All practitioners are familiar with cases of middle ear suppuration, which break out periodically, frequently following up scarlet fever, measles or diphtheria, one or more attacks a year sometimes for several years. In the interval, no perceptible discharge. These cases are always in danger, and many practitioners can point to patients who have suddenly died with few symptoms beyond unconsciousness, and probably the only symptom he could

* Read before the North Dakota State Medical Society, May 25, 1898.

find would be either a constantly discharging ear, or one that discharged periodically. It is almost impossible for a pus discharge to keep up from an ear for any length of time without an infection of surrounding parts, particularly the mastoid cells. If it becomes chronic and there are no active inflammatory symptoms in the mastoid, there is often a low grade of infection that has destroyed the integrity of the cells, without activity enough to be acute. Often on account of want of drainage the pus is backed up and more or less necrosis of the bone of the vault occurs, and many cases occur where an opening is made into the brain cavity and pachymeningitis occurs, or brain abscess from direct infection. In the acute infections of the mastoid there can be no question as to the necessity of immediate opening into and drainage of the mastoid. In many of the chronic discharging ears, besides fully cleansing and curretting the middle ear, the mastoid should be also opened and thorough drainage established, even though the outward signs of pain, tenderness and swelling over the mastoid are absent. Frequently this is the only means by which the discharge can be cured and the patient rendered safe. After opening the mastoid in some cases no pus is formed, or very little, but the cells are disorganized and broken down, and it is necessary to clean it out thoroughly, curetting out everything until only the shell is left. Frequently the entire tip of the mastoid must be chiselled off, and in some cases, especially in cases of tuberculous infection, the entire mastoid must be removed.

The after treatment consists in packing to the bottom with iodoform gauze and healing by granulation. There seems to be a peculiar infectiousness about the pus from a middle ear, and the afterward infected mastoid. Notwithstanding thorough drainage and packing, after chiseling the mastoid, infection of the parts frequently takes place. A. G. was seen by me in consultation in March, 1898. Gave history of a discharging left ear of three or four weeks' standing. Discharge very profuse, patient septic; temperature from 95.5 to 103 degrees; pulse 120 to 130; somewhat tender over the mastoid, but little or no swelling. Chiselled the mastoid and found pus and broken down cell tissue. Curetted out thoroughly, also cleansed and curetted the middle ear, and established perfect drainage. Packed with gauze. Patient left hospital at end of ten days. The history of this case was uneventful and the healing process progressed uninterruptedly for three and a half or four weeks, when one day he complained of inability to open his jaws. There was a slight rise in temperature, pulse again rapid and patient very weak. Slight chilliness and occasionally a genuine chill. Discharge from mastoid again became profuse, but the discharge from middle ear had ceased after the first week or ten days. Jaws continued tightly closed for several days, so that liquid nourishment was neccessary. After a little time swelling and pain appeared in front of and over the ear. It was bounded below by the zygoma and all its other boundaries coincided with the fascia of the temporal muscle. There seemed to be no softening any where indicative of pus. After waiting several days, under an anæsthetic an incision was made in front of and above the ear from the upper boundary of the temporal muscle to the zygoma below, clear down through the temporal fascia and muscle and the periosteum. The incision over the mastoid was reopened and drainage established between the two openings underneath the bridge of tissue which was still left over the ear. The periosteum underneath was thoroughly incised. Gauze drainage was run through and each opening packed to the bottom with gauze. No pus was found, but improvement began at once and has continued and the patient has gained rapidly. The only explanation I could give for the closure of the jaws was the interference with the action of the temporal muscle from the swelling.

Was called in consultation to see I. E. Found him with profuse suppuration of the right ear of about six weeks' standing. Discharge so profuse that it was necessary for him to get up two or three times during the night and syringe the ear and change the bandage. No swelling or particular tenderness over mastoid. Temperature nearly or quite normal. Pulse normal. For the previous six or seven days he had complained of double vision and inability to coördinate properly in walking. I found his vision very uncertain as well as his gait. I advised immediate surgical interference. Chiselled into the mastoid and had barely made a small opening when the pus shot up six or seven inches above the head as though there was a force behind it. After enlarging the opening I found the mastoid cells disorganized. Curetted thoroughly, leaving only the shell and joined the vault with the mastoid and packed. I feared a brain abscess, but as there had been no unconsciousness, concluded to carry the operation no further. The wound was packed with gauze, also the external meatus. The peculiarity of gait and diplopia continued for several days and caused some uneasiness for fear of secondary infection, but as the temperature and pulse were not affected, and the discharge gradually decreased, no further operative procedure was considered advisable and complete recovery ensued promptly.

The infection of brain tissue is another source

of great danger in the case of suppurative middle ears. A patient with chronic middle ear discharge may or may not have any premonitory symptoms except somnolence, or there may be certain paralytic symptoms which would give evidence of pressure. Often no symptoms except those of general sepsis. Frequently a subnormal temperature exists. Many cases of this kind the surgeon sees for the first time in a condition of complete coma, and little data on which to base a diagnosis, except the fact of preëxisting purulent discharge from the middle ear. Often this can not be established and frequently no discharge has existed for weeks. Whenever a discharge can be proven to have existed in a middle ear and within a reasonable time thereafter a patient complains of any localized pain in the head, or any loss of muscular power or localized paralysis, especially if accompanied by sepsis as proven by the temperature, pulse rate, etc., it behooves that patient to have a very thorough and critical examination made, as the chances of infection are more than probable.

Even if abscess does not exist, the chances of a pachymeningits or infective meiningitis, a leptomeningitis or an infective thrombosis of some sinus are so possible, that a suppurative middle ear should never be neglected, but always looked upon as a danger. Macewin, in his classical work on "Diseases of the Brain and Spinal Cord," says: "Since the majority of pyogenic affections of the brain arise from neglected otitis media, they ought to be regarded as preventable diseases and their prophylaxis scrupulously attended to." It is not necessary to dwell on this; but the practical point I desire to make prominent is that all suppuration from a middle ear is dangerous, and that proper surgical interference is not meddlesome but absolutely necessary for the safety of the patient.

HOSPITAL AND CLINICAL MEMORANDA.

AN UNUSUAL CASE OF PERFORATING ULCER OF THE STOMACH*

History of the case from which the specimen was secured: Male. American. Teamster. Ætat, 55.

Family history negative; habits good in every way. Taken sick ten days ago with abdominal pain and vomiting, anorexia and general malaise. On examination the urine was negative; stomach contents normal.

Blood: There was marked anæmia; blood count 1,200,000 reds, with no poikilocytes or other irregular forms. Leucocytes were increased in number, especially the eosinophile forms.

*Read before the Minnesota Academy of Medicine, June 1, 1898.

Lungs: There was slight dullness at the right apex.

The abdominal symptoms were relieved and blood count improved to 1,700,000. Two weeks after admission he died quite suddenly, without the occurrence of any new symptoms, the immediate cause of death being œdema of the lungs.

Clinical Diagnosis: Pernicious anæmia. Thorax: There was a good deal of yellow stained fat over the pericardium. There was slight hypertrophy of the left ventricle. No valvular or muscular lesions. The lungs were congested and œdematous; no other lesions.

Abdomen: Both kidneys showed chronic diffuse nephritis, being small, hard, with adherent capsules, loss of cortical markings and numerous cortical cysts. One cyst in the right kidney was one and one-half inches in diameter, the others small. The other viscera were normal, except the stomach, which was markedly dilated, the dilatation being entirely at the expense of the anterior wall. On the posterior wall was a peptic ulcer three inches by one and one-half inches, almost midway between the pylorus and œsophagus and having contracted the lesser curvature so that it measured about five inches.

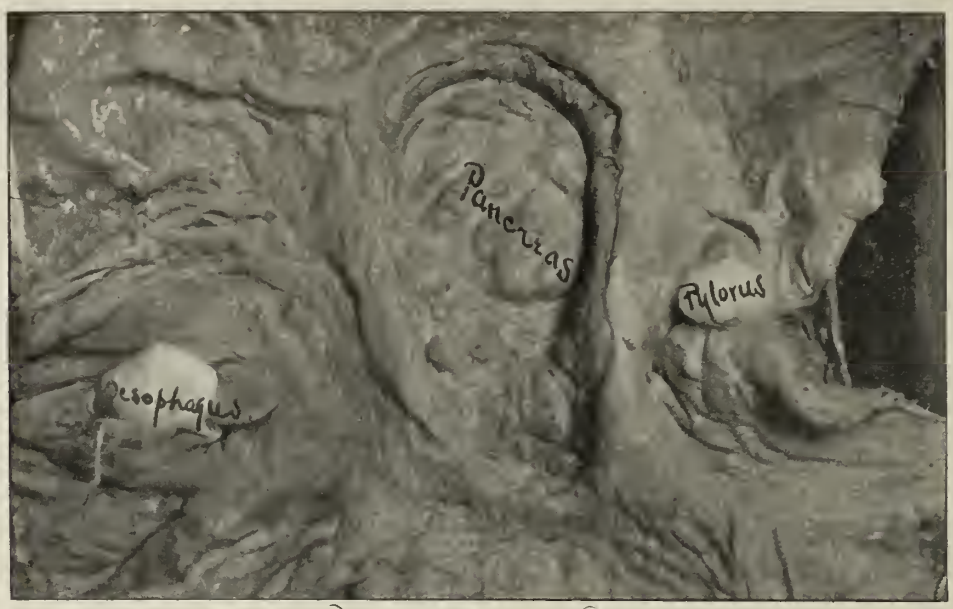
The stomach wall had been completely perforated, but nature had preserved the stomach cavity by sealing the perforation by the body of the pancreas, which lay denuded in the floor of the ulcer.

The large size of this perforation and the absence of clinical symptoms in the history pointing to its presence, together with the frequently observed occurrence of the complex of symptoms and physical signs which we designate as pernicious anæmia, with unrecognized ulcer of the stomach is my excuse for presenting this specimen.

According to Welch there are a number of clinical types:

1. Latent ulcers giving no symptoms; found open or cicatrized at post mortem.
2. Acute perforating ulcers, with or without preceding gastric disturbances.
3. Acute hemorrhagic ulcers, with or without preceding gastric disturbances.
4. Gastralgic-dyspeptic: The common form, gastralgic, dyspeptic and vomiting form.
5. Chronic hemorrhagic form with dyspeptic symptoms.
6. Cachectic form; usually a late stage and may resemble cancer.
7. Recurrent form.
8. Stenotic form. At pylorus.

Situation of 793 cases by Welch: 235 on posterior wall, 299 were on lesser curvature, 95 at pylorus, 69 on anterior wall, 50 at the cardia, 29 on fundus, 27 on greater curvature.



Size varies greatly. Largest reported by Peabody, of New York, 19x10 c. m., which was non-perforating.

J. CLARK STEWART, M.D.

Minneapolis.

Diet of Prospective Mothers.—This subject of diet is very often brought to the attention of the physician. Without doubt, some of the discomforts of pregnancy and child-bearing are greatly aggravated by improper diet. The following suggestions found in a French journal may be of use to some one:

An excess of water and albuminous food should be avoided—water, on account of its tendency to produce hydroamnion, and albumen, because it favors excessive growth of the child.

The following is the diet prescribed, which has been tried in a number of cases:

Meat once a day, green vegetables and potatoes, avoid eggs, peas and beans, as they are too rich in albumen. The advantages claimed for this regimen are:

1. The patients are active until the eve of their accouchement; they do not suffer from a sensation of fulness, excessive formation of fat, thirst or constipation.

2. Rapid and easy delivery, even in those cases in which the previous labors have been prolonged and difficult.

3. There is never an excess of liquor amnii.

4. All the women thus dieted have nursed their babies. The quality and quantity of the milk were always good. The children were very small, but healthy and well formed. They averaged about six pounds in weight.—*Public Health Journal.*

An editorial in *Pediatrics*, says there are many varieties of coughs which do not proceed from pulmonary complications. Emil Mayer has recently published a pamphlet dealing with this not generally recognized fact. Some of these coughs which Thompson designates as useless are common both to adult and child, while one or two are peculiar to the age of childhood. These coughs, which are reflex in origin, are often the cause of much thought to the physician, and are by no means easy to diagnose correctly. The hacking night coughs of children fall into this category. According to Dr. MacCoy, of Philadelphia, these coughs are mostly due to naso-pharyngeal obstruction, and the reason that they are only troublesome at night is because when the child is in an erect position during the day gravity lends its force to facilitate the escape of the secretions from the nasal passages; but at night, when the child is lying down, this secretion cannot escape by these means, and the cough is brought on by mechanical irritation. Again, there is the paroxysmal hacking cough of children described by Dr. Francis Warner, of London. This cough occurs in children who, although emaciated and unable to eat, have a normal temperature and the physical signs of healthy lungs. Dr. Warner attributes this condition not to peripheral irritation, intestinal worms, affection of tonsils or pharynx, but to unbalanced central nerve action, and as his conclusions were based on the examination of 22,000 children in schools, he is in a position qualifying him to speak with authority. Lastly, there is the hysterical cough which is common alike to adults and children.—*Medicine.*

Northwestern Lancet.

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JULY 15, 1898.

THE MEDICAL PRACTICE ACT.

Within a few weeks prosecutions have been brought in the District Court of Ramsey County against two men for practising medicine illegally; in both cases the prosecution has failed, and there have come to light weak points in the law which make it a feeble bulwark indeed against the incompetent and unqualified who may attempt to practise medicine in this state.

In the first of the two cases the accusation was the practice of medicine without a license. Section 3, Chapter IX, of the Laws of 1887, amended April 22, 1895, says: "It shall be unlawful for any person to practise medicine in this state without a license from said board, or without having filed with the secretary of said board an affidavit setting forth the times and places in which he or she has practised medicine within the state prior to the passage of this law." The court held that under this statute any person who had practised medicine in Minnesota prior to April 22, 1895, could practice legally by merely filing the affidavit described above. This opens the way to most of those who were refused license between 1887 and the approval of the law in April, 1895, making a gap in the state's defenses that it will not do to leave unrepaired.

The second case was a so-called "divine healer," who was prosecuted under Section 6 of the law, which says: * * * "Any person shall be regarded as practising within the meaning of this act who shall append the letters 'M. D.' or 'M. B.' to his or her name, or for a fee prescribe, direct or recommend for the use of any person any drugs or medicine, or other agency for the treatment, care or relief of any wound, fracture or bodily injury, infirmity or disease; provided, however, this act shall not apply to dentists." The trial judge is quoted as of the opinion that by the words "other agency for treatment" the law meant agencies similar to drugs or medicine, and that to construe it otherwise might be to bring under its prohibition "Turkish baths, massage, osteopathy, and other useful methods of treatment."

What the medical profession wants is a law that shall protect the people against imposition by providing that no physician shall be allowed to come into the state and practise medicine without passing an examination that shall prove him competent for the work, an examination such as that set forth in the present law. The examination should be flexible, as it is manifestly unfair to expect the physician of twenty years' standing to have as intimate a knowledge of such branches as anatomy and chemistry as would be looked for from the man just out of the medical school, while on the other hand, the older practitioner would be expected to have the better practical knowledge of general medicine, surgery, obstetrics and therapeutics. A law is wanted that shall effectually restrain those who without license, and for a fee, usurp the functions of the medical practitioner, that is, assume to know the nature of the patient's complaint and prescribe for it any kind of a remedy whether external or internal, palpable or impalpable. No one wants to prevent people from going to the barber to have their heads shampooed for dandruff, from taking a Turkish bath to break up a cold, nor from putting a rheumatic shoulder into the hands of a massagist. The law has not attempted to prevent the druggist from recommending and selling Dr. Bull's cough syrup to the man complaining of a cough, although there are probably cases where the druggist oversteps the line that should divide him from the doctor.

The necessary changes in the law should be made at the coming session of the legislature, and the best legal talent should be employed to so amend the law that it will hold water. The legislative committee of the State Medical Society should take the matter in hand in coöperation with the State Board of Medical Examiners. This legislative committee was provided for by a resolution passed in 1896, requiring that the president of the Society should appoint a committee of twenty-five every two years to look after needed medical legislation. An appropriation of one hundred and fifty dollars is made from the funds of the Society to go with each committee.

On this page will be found a letter from a correspondent who complains of the inefficiency of the medical practice act to prevent the operation of notorious quacks and medical pretenders within the state. That there is illegal practice cannot be denied. Where the fault lies is not so easy to settle. The physicians call upon the Board of Medical Examiners to drive out the offenders. The Board replies that this is not one of its functions, that it has no funds for the purpose, and that it is for the local physicians to make complaint and see to it that the county attorney prosecutes violations of the Medical Practice Act, a duty which the law imposes upon him. In this manner there is a deadlock, and if the framers of the improved law can find a remedy the medical profession will be grateful, and a service will have been rendered to the public.

CORRESPONDENCE.

THE MINNESOTA MEDICAL PRACTICE ACT.

Editor of Northwestern Lancet:

Sir: I was interested in your editorial article of June 15, entitled "A Short Cut to a Degree," but feel disposed to make some critical comment upon it.

As she has done in many other directions, Minnesota has certainly manifested a tendency to progression in her Medical Practice Act, but I do not think we are quite ready to exclaim with the Pharisee: "Lord I thank Thee that I am not as other men are," etc., for while our Medical Practice Act has undoubtedly resulted in much good, it is still so defective that the state still abounds with charlatans and is overrun with medical mountebanks.

When the status of affairs is such that a man who is practising unlicensed writes insulting letters to the State Board of Medical Examiners and defies them to prosecute him; when a sprig of a boy, who a year ago was canvassing for the sale of awnings and who never saw a medical college, goes about from town to town advertising to treat diseases of the eye with his improved electrical method and administers such treatment so far as he can obtain patients to do it; when a graduated practitioner travels all over the state and publishes his marvelous cures and puffs himself up as being a graduate of several medical colleges, and also takes pains to inform the people that he stands in with all of the best practitioners of the state, adding as a relish to their prurient ears that he is at the head of one of the greatest medical institutes of the country—I say when all of this happens and has happened many times in this state during the past year, then it is high time that we stopped and cleared out both the motes and beams from our own eyes before suggesting a prescription for our sinning brethren.

Just how to apply the remedy is not the object of this communication.

That there is a remedy there is not a particle of question, and it should be the province of our State Medical Society, through its committee on medical legislation, to apply the remedy and apply it so that it will be effective.

Fraternally yours,

THEO. L. HATCH.

Owatonna, June 28, 1898.

REPORTS OF SOCIETIES.

HENNEPIN COUNTY MEDICAL SOCIETY.

W. B. Pineo, M. D., Secretary.

Annual meeting held at Public Library Building, Minneapolis, on June 6, 1898, at 8 o'clock. President Dr. J. C. Cockburn in the chair.

The Board of Censors having reported favorably on the following physicians they were duly elected to membership: Drs. W. G. W. Tupper, Seth E. Howard, M. C. Johnston, D. G. Beebe, John S. McNeil, A. A. Noyes, G. Deziel, J. A. Crosby, C. A. Lapiere, A. Hirschfield, Robt. A. Campbell, Thos. B. Hartzell, G. W. Moore, C. E. Bachman, J. C. Farmer, E. O. Cosma and C. H. Bradley.

The President then read his annual address, entitled

THE TREATMENT OF TYPHOID FEVER,

which on its conclusion was discussed by Drs. Brown, Haggard, Chapman, Cotton, Donaldson, Little, Kelley, Crosby and Driesbach.

The following officers were lected for the ensuing year:

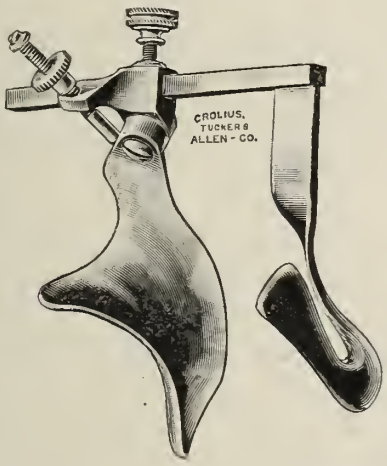
President—Dr. L. A. Nippert.
Vice-President—Dr. R. E. Cutts.
Secretary—Dr. T. A. Knights.
Treasurer—Dr. Henry Cotton.
Librarian—Dr. R. O. Beard.
Censors—Drs. J. H. Stuart, R. J. Hill, G. D. Haggard, C. G. Weston, C. K. Bartlett.
Executive Committee—Drs. J. W. Little, C. H. Hunter, M. L. Staples.

NEW INSTRUMENTS.

A New Self-Retaining Vaginal Speculum.

By A. W. Abbott, M. D., Minneapolis.

This speculum is self-retaining and is equally useful in all positions. It should be introduced closed, the large blade toward the posterior vaginal wall. The forefinger is then introduced between the blades and by making counter pressure by the thumb on the bar the requisite divergence is obtained and fixed by the nut on the retaining screw. The blades are then spread to the required degree by sliding the posterior blade on the bar.



To remove the speculum simply reverse the process. With this instrument and without assistance, curettage, trachelorrhaphy, vesico-vaginal operations and uterine and vaginal dressings have been made.

This instrument was made for me by Crolius, Tucker & Allen Company of Minneapolis, Minn.

A. W. Abbott, M. D.

NOTES.

Coca Erythroxylon.

We need not enter into a full description of the history of the Erythroxylon Coca, as we believe that most medical men are fully acquainted with the principal facts concerning the plant. We may, however, recall to mind that the leaf is the only part of the plant used. Very much depends, therefore, upon the plucking of the leaf, and the time at which it is plucked; the subsequent care of the leaf being a matter of considerable importance, and affecting very materially the preparations made from it. M. Mariani was the first in Europe who took up the study of the plant, and over thirty years ago commenced manufacturing for the medical profession the various specialties associated with his name, viz., "Vin Mariani," "Elixir Mariani," "Pâte Mariani," "Thé Mariani," "Pastilles Mariani," etc., preparations which are known all over the world, and which have acquired their well-known reputation by their purity and efficacy. The stimulating and strengthening property of the leaf in its natural state has been tested by experienced travelers and botanists during several centuries, and it is this invigorating property which the physician wishes to bring into use, and which he is enabled to do in a palatable form by means of "Vin Mariani," this wine being indicated where there is great depression, long continued exhaustion, and where Mariani" is agreeable, palatable, imparting by its diffusibility an agreeable warmth over the whole body, and exciting functional activity of the cerebro-spinal nerve centers. We have frequently prescribed this wine, and we can, from practical experience, recommend it.—The Provincial Medical Journal, London, Eng.

To Increase the Oxygen-Carrying Powers of the Blood.

J. A. Stoutenburgh, M. D., late resident physician Columbia Hospital, Washington, D. C., says: "We need a remedy or combination of them that will increase the oxygen-carrying power of the blood, increase the appetite and stimulate the stomach and intestines to renewed activity. Many so-called blood-makers attempt to do too much for us by supplying predigested and artificial food. It is better to give nature a chance, by coaxing her to resume her work, and then furnishing a nutritious and easily digestible diet. 'Gray's Glycerine Tonic Comp.' is a preparation which has done me excellent service in many cases. I am well satisfied that we have in this tonic a most valuable medium, one sure to grow in favor as its merits become better known." It is manufactured by The Purdue Frederick Co., New York, No. 15 Murray St.

A Charming Outing.

To the invalid, the busy man, and the pleasure seeker who are looking for the best place to go for a week or two, and at the smallest cost, we can recommend the Georgian Bay trip in the fullest assurance that everyone who takes it will come home with nothing but words of praise for those who have planned so charming an outing at so small a cost. For instance, one can leave St. Paul or Minneapolis in the evening, by the "Soo Line," and the next morning he will be on the steamer for a trip through the 30,000 islands of Georgian Bay, where he will find some of the most beautiful lake scenery in this country; and if he takes the short trip known as "Route 2," he will be at home in a week. During this time he will have had four or five days on the lake in a beautiful steamer, with good beds and an excellent table. He will have found a rest for mind and body, and the total expense with no extras, will have been only a little over $25.00, which is only a trifle more than the regular railway fare from here to the "Soo," where he takes the boat for the four-day trip. If he wishes to extend the trip for another week, or even longer, the additional expense will be small.

We know of several physicians who have taken this trip, and have recommended it to patients; and they say they have never spent so delightful and restful a week.

The ticket agents of the "Soo Line" in St. Paul and Minneapolis will cheerfully furnish descriptive circulars of the various routes, over twenty in number, which include the shorter one above mentioned.

A Testimonial.

Very seldom do I say anything for a preparation that might be used as a testimonial, but I feel that I have sufficienty tried Unguentine to lend a word of encouragement to its varied uses. I used it almost exclusively in a case of severe conjunctivitis, due to strong caustic Silver Nitrate, with the most gratifying results. The severe pain ceased almost instantly, the severe burning subsided and the lachrymal fluid checked. Patient comfortable in twenty minutes and slept soundly for the night. He never had any more swelling or further alarm. I have treated another case of conjunctivitis with similar results, that was brought about by Chrysophanic Acid, used for ringworm. We use Unguentine exclusively in our family for all sores, bruises, diseases of the skin (including parasitic troubles) and mucous membranes, such as hæmorrhoids, etc. We have equally as good results in general practice. I treat all my cases of operative hæmorrhoids with Unguentine, successfully. Endomitritis is treated handsomely by filling six grain capsules with Unguentine and putting two or three of them as far in the uterine canal toward the fundus as possible with suitable forceps and adjusters. The results have been fine with all I have treated so far.

Unguentine is the fat man's friend. I speak from personal experience. It has no superior for chafes. It is worth it's weight in gold for this alone, to fat folks. The so called "Tetter" in the hands of our fishermen and watermen has no show for existence when Unguentine is applied freely twice a day.

I am, very respectfully,
F. P. Gates.

Diet in Acute Gastro-Intestinal Catarrh.

In some cases a cream mixture agrees better than diluted milk, or whey thickened with a small quantity of malted food or predigested gruel, is retained when other forms of food are rejected. Gradually, and with caution, the amount of milk is increased, until at last the child is able to take the full allowance suitable to its age. Even when the stage of convalescence is well advanced, it is advisable to restrict the infant to a milk diet, with or without Mellin's Food, and to avoid the use of unmalted foods for some time.—From "Disorders of Digestion in Infancy and Childhood," by W. Soltau Fenwick, M. D., B. S.

For Sale.

The practice, instruments, and the library of the late Dr. J. B. Cole.

Address Mrs. J. B. Cole,
Wabasha, Minn.

Practice in Minneapolis For Sale.

A Minneapolis physician who is about to retire from general practice to take up a specialty, offers for sale his household and office furniture and his horse and carriages. All articles in good condition and are of good quality.

To the purchaser he will turn over his practice without charge, giving him a proper introduction, and doing whatever he can to install such successor in his practice, which has been established eleven years.

The publisher of the Lancet believes this to be an excellent and an unusual opportunity for any one wishing to begin practice in Minneapolis.

For full particulars address "Doctor," care of N. W. Lancet, 734 and 735 Lumber Exchange, Minneapolis.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology in the University of Minnesota.

St. Paul.

(Continued from LANCET of July 15.)

Following Harvey and an ardent supporter of his theory of the circulation was Marcello Malpighi, a professor at Bologna who discovered and demonstrated the connection between the arteries and the veins which we know as the capillary circulation. He was familiar with the use of the microscope, which although invented early in the century was little known until the latter years of it, and by means of it he discovered the blood corpuscles and witnessed for the first time their actual movements in the capillary circulation in the lungs and mesentery of a frog. He also first described the pigmentary layer of the skin, which preserves his name as the rete Malpighi. Other investigators in this direction were William Cowper, Anton Van Leeuwenhoeck and William Molyneaux, all of whom witnessed and described the capillary circulation, the most complete demonstration of which, however was made by Frederick Ruysch, a professor at Amsterdam, who invented a method of minute injection which has done so much to advance anatomical teachings. Ruysch also made the first important collection of anatomical preparations which was afterwards purchased for an enormous sum ($75,000) by Peter the Great and transported to Russia. It is said that the men who were intrusted with the transportation of the collection drank a large part of the alcohol in which the specimens were preserved, so that many of them were ruined. (It would seem as though the theft must have carried its own punishment with it, and that the punishment must have fitted the crime!) The enthusiastic study of the phenomena of the circulation, which was stimulated by Harvey and his disciples, soon led to the discovery of the lymphatics and the thoracic duct, the termination of the latter in the left subclavian vein being demonstrated by Jean Pecquet, of Dieppe, a professor in Montpelier, and later (in man) by Jan Van Horne, of Leyden.

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

Nicholas Steno, of Copenhagen, who discovered Steno's duct, was another Harvey enthusiast, and further illustrated the physiology of the circulation. He first showed that the heart is a muscle and that the blood is propelled by its contraction. At the same time that all these investigations and discoveries concerning the circulation were being made, another line of research also originated and set in motion by the work of Harvey was being followed. The publication of his work on generation had made an epoch in the history of embryology, and his methods of investigation were taken up by many students who added much to what he had discovered.

The correct theory of generation was pretty well completed by the discovery of the spermatozoa in semen, made by a young microscopist of Leyden, Ludwig von Hammen. The function of the spermatozoa as the fertilizing power of the ovum was not immediately appreciated, and there was much dispute as to whether the spermatozoa or the ovum was the essential factor in generation; but the light which illuminated the path towards the complete elucidation of this complex subject had been shed from the lamp first kindled by William Harvey.

The anatomy of the testicle was accurately studied about this time by Nathaniel Highmore, of London, who described the seminal ducts, the epididymis and the so-called corpus Highmorianum. The many experiments upon animals and the increased activity in the study of both gross and minute anatomy, which took place during the seventeenth century resulted in much new physiological knowledge, especially in regard to the nervous system and the organs of special sense. Thomas Willis studied the anatomy of the brain and was the first to appreciate its function as a general presiding organ over the nervous system, and to assign distinct functions to different parts of it. He practically inaugurated the modern theory of cerebral localization. The circle of Willis perpetuates his name. The most complete and accurate description of the anatomy of the central and peripheral nervous system was given by Reymond Vieussens, a professor at Montpelier, who also wrote extensively on the anatomy of the heart and on the circulation. Ruysch, Leeuwenhoeck and Kepler elucidated the anatomy and physiology of the eye, the latter demonstrating that the crystalline lens was not, as previously supposed, the seat of vision, but that the expansion of the optic nerve into the retina was the essential part of the organ of sight. Casserius studied the minute structure of the ear and described the ossicles, the muscles of the internal ear, the semicircular canals and the auditory nerves. Glisson, a professor at Oxford, first recognized the

property of irritability of the nerves and was also an able anatomist. He succeeded Harvey as lecturer before the College of Physicians.

One of the most eminent physicians and as a practitioner of medicine, perhaps the most eminent of the seventeenth century, was Thomas Sydenham. Although not an investigator of either anatomy or physiology he was an eminently scientific man, and devoted himself chiefly to the study of the symptoms of disease and their treatment. He was the son of a prosperous farmer of Dorsetshire and was born at Winford Eagle in 1624. At the age of eighteen he entered Oxford, but his studies there were interrupted by the Civil War and for a time he served in the army, on the Parliament side. It is interesting to remember that at the same time William Harvey was in the service of Charles I. He afterwards returned to Oxford where he took his bachelor's degree in 1648. He then went to Montpelier, and on his return to England took the degree of doctor of medicine at Cambridge, after which he settled down to the practice of medicine in London, where he became a busy, distinguished and successful practitioner. He was possessed of a cool, well balanced mind, absolutely free from prejudice and which refused to be influenced by any of the systems and irrational doctrines so common in his time. In his methods of thought and reasoning he followed Hippocrates (indeed he has been called the Hippocrates of England), and his views were entirely based upon experience and observation, which taught him much more than he could learn from books. His writings, which were numerous, and many of which may be read with profit by physicians of today, consisted chiefly of careful descriptions of the symptoms of disease and of such methods of treatment as his experience had taught him to be useful. His minute and accurate descriptions of the various febrile diseases and his treatise on the gout (from which he was himself a sufferer and of which he finally died), have rarely been surpassed.

The great plague of London occurred in 1665, while Sydenham was in active practice. He remained at first in the city, but when the disease was at its height he removed with his family into the country, but returned again before the worst of it was over, and has left a very accurate description of its nature. This fearful epidemic which was the bubo plague, and which but recently existed with such a fearful mortality in China, has been so graphically described both by Sydenham and by De Foe, who remained in London during its entire duration, that I shall give you an account of it, chiefly taken from their writings:

In September, 1664, there began to be rumors in London that the plague was again raging among the Dutch, and in the latter part of November two men said to be Frenchmen, died of the plague in a house at the upper end of Drury Lane. During the next few months there were occasional cases in the same part of the city, but it was not until early in the following May that there began to be any serious apprehension. With the warm weather the cases became more numerous, and in the second week in June, about one hundred died of the plague in the out parishes, and the disease began to appear in the city, and by July 1 the pestilence had become so general that business of all kinds was suspended, and many of those who had the means to do so shut their homes and places of business and fled to the country. The panic among the people became so great that many went mad through fear, and others deliberately committed suicide to avoid the infection. Great numbers of quacks, mountebanks and imposters seized the opportunity to prey upon the fear and credulity of the people.

De Foe records that the posts of houses and corners of streets were plastered over with doctors' bills and papers of ignorant fellows quacking and tampering in physic and inviting the people to come to them for remedies.

"Infallible, preventive pills against the plague. Never failing preservatives against infection. Sovereign cordials against the corruption of the air. Anti-pestilential pills. Incomparable drink against the plague. The only true plague water. The Royal Antidote against all kinds of infection, and such a number more that I can not reckon up, and if I could would fill a book of themselves to set them down."

Others assuming specious titles, summoned people to their lodgings by such bills as these:

"An eminent High Dutch physician, newly come over from Holland, where he resided during all the time of the great plague last year in Amsterdam and cured multitudes of people that actually had the plague upon them."

"An ancient gentlewoman, having practiced with great success in the late plague in this city, Anno 1636, gives her advice only to the female sex."

"An Italian gentlewoman, just arrived from Naples, having a choice secret to prevent infection, which she found out by her great experience, and did wonderful cures with it in the late plague there, wherein there died 20,000 in one day."

"There is no doubt," says De Foe, "but these quacking sort of fellows raised great gains out of the miserable people, for we daily found the crowds that ran after them were infinitely greater, and their doors were more thronged than those of Dr. Brooks, Dr. Upton, Dr. Hodges, Dr. Berwick, or any, though the most famous men of their time."

The Lord Mayor and Aldermen adopted very sensible and very stringent measures for the separation of the sick from the well, and for general disinfection, which doubtless had a considerable effect in controlling the disease. An infected house was at once shut up and a watchman appointed to guard it day and night, to see that none entered or left it without special permission. By this means, harsh and cruel as it was in many instances, the infection was to some extent confined and localized. During August the deaths became so numerous that it was impossible to give decent burial to the bodies. Great ditches were dug, and the bodies, without discrimination were cast into them. It was estimated that above ten thousand houses in London were deserted and that about two hundred thousand people left the city. From August 8 to October 19, according to the mortality bill, there died in London 59,810 people, of whom 49,605 died of the plague. The total number of deaths from the plague during the epidemic is placed by De Foe at 100,000. From November 1 the number of cases began to diminish, the death rate of those attacked became smaller, and as winter came on, people returned to London, resumed their business, and by February of the next year, the Great Plague was over.

A very accurate clinical description of the disease is given by Sydenham, and I will presently refer to it. In regard to the nature of the infection by which the disease is spread, De Foe, after discussing various opinions, says: "Others who talk of infection being carried through the air only, by carrying with it vast numbers of insects, and invisible creatures, who enter into the body with the breath or even at the pores, with the air, and there generate or emit acute poisons or poisonous ovæ which mingle themselves with the blood and so infect the blood." Strange that the actual discovery of germs and of the ptomaine theory should have been delayed for two centuries!

The symptoms of the disease are thus described by Sydenham:

"Its first approach is almost always accompanied with shaking and shivering like the fits of an ague; presently violent vomiting, a pain about the region of the heart, a burning fever, with the usual concurrence of symptoms perpetually afflict the sick till either death itself or a happy eruption of a bubo discharges the morbific matter and so frees them from that deplorable condition. It does now and then happen that it comes without any sense of fever before, and suddenly kills men; the purple spots which are the forerunners of death breaking out as they are about their business. But this sudden death scarce ever happens but at the beginning of a dreadful plague. It sometimes also happens that swellings appear when neither a fever nor any violent symptoms went before. The victims sometimes died within a few hours of the first symptoms, and rarely lingered beyond four or five days. If the buboes suppurated it was considered to be a favorable circumstance, and they were therefore treated by incision or by caustics."

The other local manifestations were carbuncles, furuncles and ecchymoses. A peculiar and characteristic stench was emitted from the bodies of the sick. At the beginning of the London Plague upwards of 90 per cent. of those attacked perished. Towards the end of the year the disease seemed to become milder and the mortality was much less.

Although it is true that Sydenham left London during the height of the plague, it was probably more on account of his family than any fear of his own account, and he soon returned. He frankly describes his conduct as follows, and I quote directly from his own book, of which I am fortunate enough to possess a copy: "When I was endangered by the near approach of the plague to my own home, at length, by persuasion of friends, I accompanied the vast numbers of those that left the city, and removed my family some miles from thence, yet I returned so soon and when the plague continued so very violent, that it could not be, but by reason of scarcity of better physicians, I should be called to the assistance of those who had the plague." In another place he says: "As to the cure of these fevers, some may count me rash and arrogant, for pretending to write of this disease, being several miles distant from the city the greatest part of the time the plague reigned; and so not sufficiently furnished with observations; but seeing more skillful physicians who bravely ventured to continue during so very dangerous a time have not yet published those things they frequently observed concerning the nature of this disease, I hope all good men will pardon me for publishing my opinion concerning this dreadful disease, raised from my own observations."

Sydenham, in his methods of treatment, departed often very widely from the methods of the then existing authorities, but always having a clear and well defined reason for all his therapeutics, and ably defending his views, often against the greatest opposition and prejudice. This was particularly so with regard to the treatment of fevers, which he treated by the plentiful admission of fresh air and cooling, acid and diluent drinks, a plan directly the reverse of that of most practitioners of his time. Like Hippocrates, he had a high regard for the "vis medicatrix naturæ," and his efforts to cure disease were always directed towards the assisting of nature by encouraging what seemed to him the natural methods of ridding the system of

its malady. In the opening sentence of his work on acute diseases he says: "Reason dictates, if I judge right, that a disease is nothing else but Nature's endeavor to thrust forth with all her might the morbific matter for the health of the patient; though the cause of it be contrary to Nature." His practice was large and lucrative, and his reputation extensive, and he enjoyed the familiar friendship of the most eminent men of his time, although on account of his political opinions (he having served on the side of parliament during the civil war) he was not in favor at court. The manner of his death, which occurred in 1689, is thus quaintly described by the translator of his works: "He died in the 68th year of his age. A great age it was for one that had been closely besieged near half the time, with the "opprobium medicorum," the gout, which finding its frequent efforts repelled by his great skill, called in its auxilliary the stone, and together, with much ado, they stormed the tottering tenement of clay, when by reason of age it was scarce tenable any longer." The three greatest pioneers of modern medicine were beyond question, Thomas Linacre, William Harvey, and Thomas Sydenham.

The first was a profound scholar; the second, an original and scientific investigator; and the third, by combining and applying the learning and knowledge of the former two, and adding thereto the accurate study of all the phenomena of disease, and by fearlessly maintaining the courage of his own convictions in spite of the strong prejudice of his time in favor of theoretical systems and absurd doctrines, became the perfect type of the practitioner of medicine, not alone of his own time, but a worthy model for all time.

During the first half of the seventeenth century a discovery of the greatest importance to medicine, and which has given us one of the most important drugs we possess, was made in the knowledge of the properties of the Peruvian bark. Its introduction into England is said to have been due to the fact that the Countess of Cinchon, wife of the Viceroy of Peru, was cured of a fever by its use, and that she caused a great quantity of it to be imported into Spain, from whence, its valuable properties being recognized, it soon became distributed over Europe. It was at first called "The Countess' Powder," but afterwards received the name of cinchona, by which it is known today. Its high price at first caused it to be much adulterated, and for a time it fell into disrepute in England, but its universal value in malarial fever was recognized by Sydenham, and it was chiefly through his influence that it became generally used. The true botanical history of cinchona and the chemical nature of its chief alkaloid quinine, were not known for a century after Sydenham's time.

(To be continued.)

ORIGINAL ARTICLES.

ELEMENTS OF ERROR IN INTERPRETING THE WIDAL REACTION IN TYPHOID FEVER.*

By Louis Blanchard Wilson, M. D.

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In the two years which have passed since the first publication by Fernand Widal[1] of the serum reaction for typhoid fever, the results of the test in several thousand suspected cases have been reported in the literature of the subject. Of the many observers, only one gives a low percentage of accuracy, seventy-seven per cent. This observer, reporting on 194 cases, includes in his list of possble errors many cases on which it is evident that too early and too few observations were made.

Aside from this list the percentage of accuracy claimed by the various observers ranges from ninety-two per cent. to ninety-nine per cent.

Up to May 1, 1898, some three thousand specimens of blood from 1595 patients had been tested in the laboratory of the Minnesota State Board of Health. Only the first thousand of these cases have as yet been accurately tabulated, but the percentage of error appears to be a trifle over five per cent., or accuracy above ninety-four per cent. Dr Barber,[2] of this city, has studied clinically 350 and reported on 205 of the cases tested in the State Board laboratory, and notes but one error in all, or a percentage of accuracy closely approaching one hundred.

When the Widal reaction for typhoid fever was first brought before the scientific world there were many who from reasonable premises, prophesied that it would become almost a pathognomonic sign for the disease. But though the degree of accuracy attained, as will be seen from the foregoing figures, is already very great, probably averaging ninety-five per cent., yet the test is not apparently as certain as sputum examinations in pneumonic phthisis, as throat cultures in diphtheria nor as animal inoculations in rabies. What, then, are the elements of error in this which would appear, on bacteriological grounds, to be a highly specific diagnostic phenomenon?

First of all may be considered errors of technique. It is obviously necessary that a chemical or bio-chemical test, which as usually made is microscopical as well must be made with

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accurately proportioned reagents, unmixed with foreign substances, and by a competent observer. As a rule, upon the clinician rests the burden of transmitting to the laboratory blood that is blood and not a hopeless mixture of extraneous matter, nor a seething mass of bacteria. Of the many methods proposed for accomplishing this result, the modifications of the original plan of transmitting dried blood, first put into active use by Dr. Wyatt Johnson[3] of Montreal, have given the most general satisfaction.

The modifications devised by the writer,[4] and used in the collection and examination of some 1,500 specimens, consists essentially in the collection of the blood on a square of polished aluminum foil, its transmission to the laboratory in a tight packet formed by rolling and folding the foil, and finally the accurate weighing and diluting of the dried blood. The work of the collector is very simple. The skin, at the point from which the blood is to be obtained must be thoroughly cleaned, preferably with boiled water. It is then pricked deeply with a clean large needle or small scalpel. Four or five large drops of blood are then removed and placed near one edge of the square of aluminum foil. The metal is then made into a roll about one c. m. in diameter, turning inward the edge bearing the blood. One end of the roll is then flattened and the end turned over to prevent it from opening. The blood is then allowed to dry. If this is not done, when it reaches the laboratory it may be badly smeared over the aluminum and in warm weather may even be contaminated by bacteria. When the blood is dry the roll is flattened and the open end turned over, thus making a tight packet.

It requires from five to ten minutes for the blood to dry. Aside from this the actual time spent in the proper collection of a specimen need not be over two minutes. The whole outfit for the collection of a specimen is so small and light, so easily obtained, used and forwarded, that there would seem no longer to be any excuse for the various makeshifts, such as paper, rags, glass and bits of broken crockery, which have sometimes been pressed into service.

When a specimen, which has been properly collected, dried and forwarded, is opened in the laboratory, the blood readily flakes off from the foil, and is with ease accurately weighed and diluted.

It is not necessary to discuss in detail here the laboratory technique, suffice to say the observer must be competent and conscientious, must make accurate dilutions, must use cultures with whose purity, motility and reactionary power he is familiar by daily observations, and must exercise considerable judgment in adjusting the time limit to the degree of dilution employed and the amount of agglutination which shall be considered a reaction.

But with good technique throughout, reactions certainly have been occasionally missed in cases which clinically were typhoid fever, and again have been obtained in cases in which there was little or no clinical evidence of the disease.

Probably the failure to find the reaction in cases of clinical typhoid are most generally due to too early or too few examinations. The agglutinating principle is in a very large percentage of the cases present as early as the seventh day of the disease, but in some instances it is not found until the close of the second or even of the third week. In a few isolated cases it has even been missed entirely until a clinical relapse in the fifth or sixth week. Again it has been found to become so feeble at times during the course of the disease as to be almost impossible of recognition. In about twenty-five cases reported to date it has not been found at all in daily tests made during the entire period of clinical typhoid to convalescence. All these anomalies taken together, however, make up less than one per cent. of the cases tested.

We do not understand these delayed or absent reactions and cannot even form a working hypothesis to account for them until we know more of the agglutinating substance itself, e. g., whether it is toxic or immunizing, or, if neither, with what condition of the body fluids it is associated. It is possible that some of the cases of apparent clinical typhoid without reaction may be due to infection with Gartner's bacillus as shown in a few cases reported by Durham.[6] But the cases, few as they are, teach us to be persistent in the collection and testing of specimens. Indeed, at least until the diagnosis is clearly established it should be as much a routine matter as the taking of the patient's temperature. And even if the reaction does not appear at all, we have no right in our present state of ignorance to relinquish a diagnosis of typhoid fever if the clinical symptoms support it.

When we come to consider the third element of error in the typhoid reaction, namely the occasional appearance of the phenomenon in the apparently healthy individual, or in those without the clinical symptoms of typhoid fever, we are a little, though a very little, more able to explain it

Of course, it is within the range of theoretical possibility that two different species of bacteria growing within the body should produce precisely the same bio-chemical substance, or that they should cause the same reaction of the organism to their toxines and thus indirectly the production of the same substance. Such a supposition, is, however, practically so highly improbable that it seems almost absurd. There seems quite as much reason for the specificity of

the agglutinating subtance in typhoid fever as of diphtheria antitoxine, tuberculin and the other direct and reactionary products of bacterial development.

It then is germaine to inquire into the possibility of error in the clinical diagnosis, or in the exclusion of a previous typhoid infection from which the reaction may be still persistent.

It is not the writer's purpose to attempt to give in detail the various difficulties met with in the clinical diagnosis of typhoid fever. But it must be noted that the anomalous cases in which either the diagnostic symptoms or the usual anatomical intestinal lesions were absent, and yet in which the typhoid bacillus has been isolated from various organs of the body have rapidly multiplied within the last two years.

Duflocq[7] analyzes 49 cases taken from recent literature in which the typhoid bacillus has been isolated from portions of the body whose inflammation would not have produced symptoms ordinarily recognized as typhoid fever.

These include five cases of abscess of the skin, eleven of periostitis, three of osteomyelitis, eleven of costal chondritis, two of thyroiditis, four of meningitis, five of pleurisy, two of orchitis, one of epididymitis, one of an ovarian cyst, two of suppurating kidney, one of liver abscess and one of biliary calculus.

Some of these occurred in the course of ordinary or atypical typhoid, others months or years after the original attack and others still gave no history whatever of typhoid fever. In a case quoted by Prof. Welch,[8] occurring recently at the Johns Hopkins Hospital, a positive serum reaction was obtained and "Dr. Flexner cultivated in large numbers typical typhoid bacilli from the gall bladder, although there was no previous history of typhoid fever, and there were no intestinal lesions."

Recently Cushing[9] has reported one case and reviewed five others of cholecystitis in which the bacillus typhosus was isolated from the gall bladder. Four of these were following typhoid fever, in the fifth the history was uncertain, and in the sixth there was no history of previous typhoid. Miller[10] reports the isolation of B. typhosus from the gall bladder seven years after typhoid fever.

Quite as much care would seem to be necessary in drawing conclusions from negative anatomical autopsy findings as from negative clinical data.

Besides the cases quoted above, several of which showed no intestinal lesions, there have been summarized from the recent literature, by Flexner[11], and by Nicholls and Keeenan[12] of Montreal, eighteen cases which exhibited more or less of the symptoms of typhoid fever, but which post mortem were found to be entirely without intestinal lesions, and yet yielded culturally from the spleen and other organs as well, the bacillus of Eberth-Gaffkey. In several of these the spleen was not enlarged, though from it the bacilli were cultivated.

In a case of Dr. Flexner's,[11] the patient's symptoms during the two days he was under observation at the Johns Hopkins Hospital were almost entirely thoracic. The spleen was not palpable. Post mortem: The chief gross lesion was gangrene of the lung with perforation of the pleura. The œsophagus, stomach and intestines showed nothing abnormal. The mesenteric glands were not swollen, yet typhoid bacilli were isolated in large numbers from both lungs, the spleen and the liver.

In Guinon and Meunier's[13] case the symptoms had been those of acute miliary tuberculosis and typhoid fever. The serum reaction was present. Post mortem: The lesions were only those of acute miliary tuberculosis, small, typically tubercular ulcers being present in the intestine. Typhoid bacilli were cultivated from the spleen and other organs. Both the symptoms and the bacteriological findings showed that the typhoid infection was already disappearing. Had the case, therefore, come to autopsy a few weeks later, it would probably have been quoted as discrediting the Widal reaction.

It would seem necessary from the evidence furnished by the foregoing cases to relinquish the old idea that B. typhosus does not invade organs other than the alimentary canal. Indeed, it would appear that the intestine is not at all necessarily the site of primary invasion even. This is in accord with the laboratory experience that the bacilli may be sufficiently dried to be readily blown about as dust and yet not be killed, and with the animal experiments of Sanarelli,[14] who concludes that the disease in animals is not primarily one of the intestine but of the mesenteric glands.

Commenting on certain of the cases which have been cited, Professor Welch[8] says: "We are justified in the light of such cases as these in demanding that thorough bacteriological examinations be made before cases which have given during life the characteristic serum reaction, but which do not present at autopsy the anatomic lesions of typhoid fever, be recorded as free from infection with the typhoid bacillus."

Since it is true, then, that we may not only have typhoid fever without intestinal lesions, but may also have typhoid infection without typhoid fever, it is readily seen how difficult it is to exclude a present typhoid infection by clinical evidence alone, or a previous typhoid infection by the history given by a patient or his friends.

The numerous cases of "mild," "afebrile" or "abortive" typhoid which occur during epidemics

of the disease, especially where the common water supply is infected, do not frequently exhibit intense or long persistent agglutinating properties, but their possibility must be taken into account in excluding previous typhoid infections.

It may be noted in passing that this class of cases would appear to be of little value in determining the accuracy of the Widal or any other test for typhoid fever, except in those rare instances in which evidence other than clinical is furnished of their true nature.

* * * * * * * *

The foregoing notes may be summarized into the following practical rules for the interpretation of the serum reaction:

1. A negative reaction indicates (a) that the patient does not have typhoid infection; or (b) that it is too early in the course of the disease for the reaction to appear; or (c) (very rarely) that the case though clinically typhoid fever gives no reaction. In other words, a single negative reaction is of little value.

2. A positive reaction indicates that the patient has now, or (rarely) has had in the recent past, an infection with the bacilli of typhoid fever. Note that while he may not have typical typhoid fever, the presence of the reaction, except in rare instances of persistence from a previous infection, indicates the presence of the germs of the disease.

3. In doubtful cases the daily examination of specimens will aid materially in fixing the diagnosis.

REFERENCES.

1. Widal, F. Le Bull. Med. June 26, 1896.
1a. Thompson, W. G. Brit. Med. Jrnl. Dec. 18, 1897.
2. Barber, J. P. N. Y. Med. Jrnl. April 16, 1898.
3. Johnson, Wyatt. N. Y. Med. Jrnl. Oct. 31, 1896.
4. Wesbrook and Wilson. Phila. Med. Jrnl. March 26, 1898.
5. Brill. N. Y. Med. Jrnl. Jan. 8, 1898.
6. Durham. Lond. Lancet. Jan. 15, 1898.
7. Duflocq. Lecons sur les Bacteries Pathogenes, 1897.
8. Welch. Jrnl. Am. Med. Asso. Aug. 14, 1897.
9. Cushing. Johns Hopkins Hosp. Bull. May 1898.
10. Miller. Johns Hopkins Hosp. Bull. May 1898.
11. Flexner. Johns Hopkins Hosp. Bull. Dec. 1897.
12. Nicholls and Keeman. Montreal Med. Jrnl. Jan. 1898.
13. Guinon and Meunier. Le Bull. Med. 1897, p. 313.
14. Sanarelli. Annals de L'Institute Past. 1892.

It is said that Esquimaux women do not breed during the winter months, their menstruation ceasing at that time. The natives of Queensland also have a special breeding season but their menstruation continues all the year round.

THE VALUE OF THE DIAZO-REACTION IN THE EARLY DIAGNOSIS OF TYPHOID FEVER.

By J. P. Barber, M. D.,

Minneapolis.

The diagnosis of typhoid fever is made, often, after many days of weary watching, and sometimes after the patient has been unsuccessfully treated for some other disease. The symtomaology of this disease is so vague and indefinite, its onset so variable and its course so erratic and uncertain, that, like many a rose, it often blossoms and sheds its fragrance on the desert air. Like hysteria this disease may simulate almost any other of the entire nosology, and the diagnostician can with the greatest difficulty exclude it in the beginning of any acute, and during the course of many chronic diseases. It behooves us then to study with the greatest care any sign or symptom that will materially aid us in the diagnosis of this most interesting and important disease.

The diazo-reaction has had a variable, and, if I may so speak, a most romantic career. Discovered accidentally by Ehrlich in 1882, it was believed by him to be pathognomonic of typhoid fever. VonJaksch,[1] Penzold,[2] Munsel and Oertel,[3] and others investigated it and all unconditionally condemned it. In publishing their technique, however, it is seen that each used a five per cent. solution of sodium nitrite. Rutimeyer tells us that he finds it in certain diseases, and adds with equanimity that the reaction was yellow. Dr. C. L. Greene,[4] our worthy chairman, experimented with the test in 1893, and in a report of some 260 cases demonstrated its usefulness. And to him belongs the credit of bringing back to the profession what, in the writer's estimation, is, next to the serum test, the most useful sign in the diagnosis of typhoid fever.

The reagents for the test consist of two solutions:

No. 1. A saturated solution of sulfanilic acid in a five per cent. solution of hydrochloric acid.

No. 2. One-half of one per cent. of sodium nitrite in distilled water.

Solution No. 1 will keep indefinitely, but No. 2 must be made fresh every few days, and, in very warm weather, every day.

In making the test the proportion used by the writer is that recommended by Dr. Greene, viz: One part of No. 2, to 100 parts of No. 1. This is mixed with equal parts of the urine in a

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test tube, about two c. c. of each being used, and overlaid with a small amount of aqua ammonia. The result if positive will be a ring between the two fluids of some shade of red, varying in intensity from a slight rose tint to a deep garnet red.* Every urine gives a colored ring between the colorless ammonia and the urine mixed with the test fluid and it is on the color of this ring that the test depends. It must be some shade of red and not yellow.

Sometimes the urine from patients with high fever other than typhoid gives a deep red ring which on shaking produces a yellow foam. This is a pseudo-reaction and must be carefully excluded in making each test. Diluting the test after it is made with five to ten parts of clear water will often bring out the yellow color in a pseudo-reaction much more clearly than the foam. The writer cannot agree with Hewlett[5] that urine giving a slight rose or pink reaction, but on shaking producing a clear white foam must be excluded. In a number of such cases the course of the disease and the serum reaction have proven typhoid fever to be present.

The writer has made 1,975 tests from 452 patients. Of these, 276 have shown a positive and 176 a negative reaction. The following table shows the results in the various diseases in which the test was made:

TABLE SHOWING REACTION IN VARIOUS DISEASES.

		PRESENT.	ABSENT.
Typhoid Fever,	234	218	16
Tuberculosis,	19	14	5
Pneumonia,	31	11	20
Measles,	13	12	1
Scarlet Fever,	11	10	1
Diphtheria,	6	4	2
Erysipelas,	5	4	1
Mumps,	4	2	2
Chicken Pox,	2	1	1
Bronchitis,			9
Acute Diarrhœa,			14
Acute Rheumatism,			5
Tonsillitis,			8

Orchitis	4
Appendicitis	1
Valv. Heart Dis.	1
Albumenuria	1
Abscess	2
Tetanus	1
Acute Pleurisy	5
Cancer of Liver	1
Puerperal Fever	2
Acute Mania	2
La Grippe	13
Pelvic Inflam.	8
Cystitis	5
Doubtful	30
Normal	13

It will be seen that of 234 cases of typhoid fever the test was negative in sixteenth. Of these eight had been tested for the first time after the fourteenth day, and can be very properly ruled out. In two others only one examination was made, and in only one case was the urine examined from day to day from the fourth to the fourteenth days.

In several cases of mild infection the reaction has appeared only on one or two days, and in others it has disappeared and reappeared again during the course of the disease. To be sure, then, that the reaction was absent in any given case the test must be made daily from the fourth to the fourteenth days.

In severe cases it generally remains constant as long as the fever continues above 101 or 102 degrees, but in milder cases it is usually absent after the twelfth or fourteenth day, and often much earlier.

The following table shows the date of first appearance:

Table showing date of first appearance of diazo-reaction:

Day	1	2	3	4	5	6	7	8	9	10	11
No. of cases.	1	24	28	41	26	26	20	16	3	10	—
Day	12	13	14	20	21	20	42				
No. of cases	3	1	3	1	1	1	1				

The test appears even earlier than these figures show, for in many cases it was present on the first examination and would probably have been found had the urine been examined earlier. In only one case examined from day to day was it delayed until the tenth day. All the cases in which the figures show a late appearance had not been examined before the date on which it was found.

A comparison as to date of appearance with this and the serum test was made in 196 cases. The diazo-reaction appeared first in 92 cases; the serum test gave a reaction first in 40 cases; and both were found on the same day in 64 cases. These figures are somewhat deceptive, for very often the serum test is delayed several days after the appearance of the diazo-reaction, but in almost every case in which the serum reaction is found first the urine shows a reaction the next day.

The most important diseases other than typhoid fever which showed the reaction were tuberculosis and pneumonia. Almost every case of tuberculosis with fever will give the reaction at some time during its course. Eleven of thirty-one cases of pneumonia gave the reaction and nine of these were children under three years of age. In one of the two adults typhoid fever was strongly suspected, although the blood tested daily gave a negative reaction, as it did in each of the others.

Nissen,[6] of St. Petersburg, made 2,500 analyses from 462 children, from six months to sixteen years of age. He found the reaction constant

*The writer desires to express his thanks to Dr. Chas. L. Greene for exhibiting some beautiful water-color drawings, showing the characteristics of the test.

in typhoid fever, tuberculosis and measles; present or not in chronic pneumonia, pleuro-pneumonia, pleurisy, tubercular meningitis, laryngitis, diphtheria, scarlet fever and erysipelas; and always absent in other diseases of the infantile nosology. This corresponds very closely with the writer's experience and would seem to show that this test is not nearly so reliable with children as with adults.

Fifty-five per cent. of the cases in this report have been so exceedingly mild that the diagnosis was very difficult; twenty-eight cases were abortive, and twenty-eight began as another disease. Altogether making 111 cases that might be called atypical. In such cases as these the diazo-reaction is indispensable to the general practitioner. It appears in almost every case, even the mildest, if properly sought for, and finding it, no matter what the symptoms, or in the course of what disease, typhoid infection should be strongly suspected. Not finding it after daily examinations from the fourth to the fourteenth days is strong evidence that typhoid fever is not present.

The diagnosis should be confirmed by the serum test in every case.

REFERENCES.

1. Von Jaksch: Clinical Diagnosis.
2. Penzoldt: Berlin Klin. Moch., No. 14, 1884.
3. Munsel and Oertel: N. Y. Med. Journal, Feb. 4, 1893.
4. Charles Lyman Green: Journal Am. Med. Ass'n., Feb. 24, 1894.
5. Hewlett: British Med. Journal, Jan. 18, 1896.
6. Nissen: London Lancet, Sept. 12, 1896.

LEUKÆMIA.

By Hugh F. McGaughey, M. D.,

Winona, Minn.

The term leukæmia is applied to the condition in which hypertrophy of the spleen, bone marrow and lymphatic glands is associated with increase in the leucocytes and characteristic changes in their varieties. The organs mainly involved are those which we believe to be concerned in the formation of the corpuscular elements of the blood.

Two varieties, quite sharply differentiated both clinically and pathologically, include a large majority of the cases. The splenic-myelogenous type is marked by especial involvement of the spleen and bone marrow; the lymphatic form, which is comparatively rare, by enlargement of the lymph nodes throughout the body. In many points these two sets of cases differ so widely as to suggest distinct diseases, yet examples of a mixed character make a complete separation difficult.

Hodgkin's disease, or pseudo-leukæmia may imitate all the lesions found except those of the blood. In a few well authenticated cases this disease has developed into a true leukæmia.

The real causation of leukæmia is obscure. It occurs in the male about twice as often as in the female. It may appear at any age, but is most frequent between thirty and forty years. Malaria, syphilis and starvation have been assigned as causal factors. Some cases have followed injuries of the splenic region. Instances of heredity are not wanting. The acute cases, in particular, are suggestive of an infectious process.

The main pathological changes are hyperplasia of the blood making organs and deposits of lymphoid tissue in various parts of the body. The increase in size of the spleen is often enormous. Patches of lymphoid infiltration, hemorrhages and infarcts are common. The bone marrow is redder than normal, or mottled with gray, or a great increase of leucocytes may give it a puriform appearance. In the lymph nodes there is increase both of the reticulum and of the enclosed lymph cells. Lymphatic infiltration is especially common in the liver and kidneys. Deposits may occur in the lungs, stomach, intestines and peritoneum. The faucial, pharyngeal and lingual tonsils, which are developed from a common ring of lymphoid tissue, are liable to hypertrophy. There is a marked disposition to hemorrhage, which occurs from the mucous and serous membranes and within the tissues. A peculiar form of retinitis is characterized by aggregations of round cells and by hemorrhages with degeneration. The excretion of uric acid is greatly increased. This substance is believed to be an end product in the metabolism of the nuclei and indicates that increased destruction of the leucocytes accompanies their increased production.

The blood is modified in many respects. Its specific gravity and alkalinity are lowered. There is increase of fibrin but coagulation is slow. The blood platelets are increased in number. There is a tendency to separation of crystals of hæmoglobin, and the octahedral crystals of Charcot are found. In the fresh specimen amœboid movements are noticed in comparatively few of the leucocytes, because the polynuclear cells which normally exhibit these movements are in the minority.

The red blood cells average about three million to the c. m. m. and present more or less marked anæmic changes in size, shape and staining properties. In the splenic-myelogenous form nucleated red cells occur with comparative frequency. They reach a proportion not exceeded even in pernicious anæmia. They may be present without diminution in the number of red cells. In lymphatic leukæmia they are less

common and vary with the grade of anæmia present. In either type they are relatively more numerous in children. These nucleated red cells are generally of normal diameter, while in pernicious anæmia the majority are enlarged.

The leucocytes in the two types present distinctive variations from the normal, not alone in number, but also in the proportions of the different forms. In the normal blood five main varieties are commonly distinguished. The small lymphocytes, about the size of a red cell, have round nuclei, filling nearly the entire cell, and have no granules. The large lymphocytes have a similar structure, but the nuclei are larger and the cell bodies very much wider. In the so-called transitional form the nucleus becomes somewhat irregular and faint granules may appear, indicating an approach to the next variety. The polymorphonuclear leucocyte has a very irregular, twisted nucleus. The cell is filled with fine granules, designated as neutrophilic because they take a mixed stain when subjected to combinations of aniline colors such as Ehrlich's triple mixture. The eosinophile cells differ from the last mainly in their granules, which are large and prominent and have a special affinity for the acid stains, of which eosin is a type.

In splenic-myelogenous leukæmia the characteristic leucocyte is one not found circulating in the normal blood. It is termed the myelocyte from the occurrence of similar cells in the bone marrow. The myelocytes vary greatly in size, but their average diameter is large as compared with the normal white cells. They have large, oval, faintly staining nuclei situated at one side of the cell. These distinguish them from the lymphocytes. In their granules they resemble the polynuclear forms, but here the shape of the nucleus affords a distinction. The myelocyte thus appears to be intermediate between these two normal forms. This cell occurs occasionally in the blood in a variety of conditions, especially in the anæmias, diseases of the bones, burns and starvation. In pernicious anæmia it exceptionally forms nearly ten per cent of the leucocytes. In splenic-myelogenous leukæmia it regularly constitutes from twenty to sixty per cent. of the white cells, averaging thirty-seven and seven-tenths per cent. A small proportion of the myelocytes show eosinophilic granules.

The polymorphonuclear cells, forming seventy to eighty per cent in normal blood, are here reduced to an average of fifty per cent., ranging from twenty-six to sixty per cent. Ordinarily one of these cells is very like another, but in this disease they present marked variations in size and staining. The lymphocytes which are important in normal blood, constituting twenty to thirty per cent. of the total leucocytes, here average only seven and six-tenths per cent. The eosinophile cells were not long ago considered an important and characteristic feature of this type. They vary from one and five-tenths to eleven per cent. as against one-half to four per cent. normally. Thus their relative increase is not a constant feature, but their striking appearance in the stained specimen at once attracts attention. With or without treatment the total leucocyte count may fall to normal, but the myelocytes remain in large percentage. In such a case only a differential count would suggest the diagnosis.

In lymphatic leukæmia the increase in the leucocytes is much less than in the form just considered. The average number per c. m. m. is about 100,000. Of these, the lymphocytes usually form over ninety per cent. Often either the large or small type of cell prevails, but they may be mixed. The remaining ten per cent. is mainly composed of polymorphonuclear leucocytes. Eosinophiles and myelocytes are present in small and varying proportions.

The averages are those given in Cabot's comprehensive work on "The Clinical Examination of the Blood."

The exact diagnosis of the leukæmias rests on the investigation of the blood. Increase of the leucocytes occurs in a great variety of conditions. The so-called massive leucocytosis, sometimes found in infectious processes and in malignant disease may exceed 100,000 per c. m. m. In leucocytosis the increase, however, is regularly in the polymorphonuclear cells, which form about ninety per cent. of the total, presenting a striking contrast to the conditions in leukæmic blood.

Hodgkins' disease shows only a more or less marked anæmia. Enlargement of the spleen due to malarial or tubercular disease does not affect the leucocyte count. The enlargement caused by amyloid disease, resulting from suppuration, is associated with leucocytosis. Malignant disease of the spleen or kidney may be a source of error if attended with extreme leucocytosis. There is, however, the usual predominance of polymorphonuclear cells.

In the diagnosis of lymphatic enlargements, leucocytosis may be found with syphilitic adenitis, but is absent in tuberculosis unless there is a mixed infection.

Intercurrent infectious diseases generally cause a diminution of the total leucocytes in a leukæmia, with relative increase of the polynuclear cells. Occasionally a leucocytosis is superimposed upon a leukæmia. Artificial reduction of the leucocytes has been accomplished by hypodermatic injection of splenic extract and of certain drugs, but without improvement in the disease.

The course of the disease is generally acute in the lymphatic cases and chronic in the splenic-myelogenous type. The former, as a rule, ter-

minate fatally in a few weeks or months. The latter run for months or years and occasionally recover. There are, however, exceptions to the rule in each class. It is characteristic of the disease to show periods of temporary improvement without assignable cause.

The symptoms are systemic and those due to local enlargements. There is loss, first of strength, then of flesh. The skin has a grayish tinge and the mucous membranes are pale. Fever is common. Digestion is impaired. Diarrhœa or constipation may be present. Dyspnœa and palpitation may be due to anæmia or to great splenic enlargement. Enlarged lymph glands may interfere with the air passages, blood vessels or nerves. Where the marrow is involved the bones may be tender and present expansions. Hemorrhage occurs most commonly from the nose, gums, stomach and meninges. Large retroperitoneal hemorrhages may occur as a cause of death. Priapism is a peculiar and unexplained symptom. In the presence of retinitis impaired vision results. The rather frequent deafness is believed to be due to hemorrhage.

The prognosis is always grave but not entirely hopeless. It is worse in the lymphatic type.

Treatment is empirical. Arsenic has the greatest reputation. Iron and phosphorus are recommended and recently inhalations of oxygen. The variability in the course of the disease makes it difficult to estimate the value of treatment. Extirpation of the leukæmic spleen is an unjustifiable operation, it having been fatal in all but one of twenty-five cases.

The following case was a very well marked example of splenic-myelogenous leukæmia:

Wm. C., a farmer, aged 19, was referred for examination to Dr. J. B. McGaughey, August 19, 1897. His family history and habits were good. He gave a history of a protracted fever, probably typhoid, some six years previously. His health had been otherwise good until the present illness. For several months he had not felt well, and had been treated for obstinate constipation, but had kept at work up to this time.

The patient was languid and very pale. There was dyspnœa, especially on exertion. His temperature was 100° in the morning, rising to 101.2° in the evening. Pulse rate 100. The spleen was greatly enlarged, extending slightly beyond the median line of the abdomen and down to the level of the superior iliac spine. The superficial veins were distended over the enlarged abdomen. No hypertrophy of the liver could be made out. The lymphatic glands were not involved. No tenderness of the bones was observed. The urine contained amorphous urates in great quantity. The blood flowed thin on puncture. The volume of corpuscles by centrifugation was fifty-four per cent., the proportion of large white cells more than compensating for the decrease in the total number of corpuscles. The blood column in the hæmatokrit was shaded from red to white, as complete separation into layers could not be produced. Hæmoglobin estimation is not satisfactory in this condition, as the excess of leucocytes interferes with the color comparison. The red blood cells were reduced to 2,450,000 per c. m. m., one-half the normal. The leucocyte count was 800,000, about 100 times that of health. A differential count of 500 cells showed fifty per cent. of myelocytes, two and two-tenths per cent. being eosinophile. The polymorphonuclear leucocytes numbered thirty-eight and six-tenths per cent., and the ordinary eosinophile cells three and four-tenths per cent. The remaining eight per cent. was made up mainly of small lymphocytes, forming six and two-tenths per cent., the others being large lymphocytes and transitional forms. Three nucleated red cells were found while counting 500 leucocytes, which is equivalent to two per thousand red cells.

The patient was placed on Fowler's solution in increasing doses. One week later he had lost eight pounds in weight. His temperature had risen to 103°. The red blood cells were diminished to 2,001,000 per c. m. m., and the white cells increased to 940,000, a proportion of nearly one to two. He appeared to be going down hill very fast. A very unfavorable prognosis was given. The patient later passed into the hands of a practitioner who promised to cure him. He survived for about six months.

The source of the blood corpuscles and the stages of their development remain to be definitely explained. The forms of leucocytes found circulating in the blood appear to represent disconnected periods in a continuous life history. The location and manner of the transition from one type to another are, to a large extent, uncertain. In the myelocyte we have reason to believe that we have one transition form, which, under certain conditions, may be forced into the blood stream before its time. Until we learn more of the physiology of this interesting process we can scarcely hope to determine the true nature of the leukæmias.

In a recent journal* Dr. Letulle cites several cases to show the liability to a mistaken diagnosis in dysentery. In one a laparatomy was performed for cancer of the intestines, when a dysenteric ulceration revealed itself. In other cases which occurred at a hospital in Paris, one pronounced cancer of the rectum proved by autopsy to be dysentery, another case, entered as influenza, was shown upon autopsy to be one of dysentery, etc.

THE TREATMENT OF ACUTE LOBAR PNEUMONIA BY COLD.*

By H. W. Gentles, M. D., C. M.,

Chicago.

One cannot take up the question of the treatment of acute lobar pneumonia without being struck by the diversity of opinion regarding the value of the various methods now in vogue.

In the New York State Medical Reporter† a number of opinions are quoted, the bulk of which are decidedly antagonistic to the use of cold, while the minority, among whom may be mentioned Dr. Whittaker, of Cincinnati, are equally as strong in favor of its use.

Turning again to the Journal of Practical Medicine, January, 1898, Dr. Elmer Lee almost compels one to believe that all the difficulties of pneumonia can be met by cold applications, in baths and plenty of cold water by mouth and per rectum.

Cold has been used in a variety of ways, and one cannot do better than enumerate them.

1. The rigid cold bath. The use of this measure has been deprecated on account of its tendency to throw work on the heart and lead to syncopy.

2. Gradually cooled bath, begun at a temperature of about 90° F., and lowered below 80° F. The patient spends ten to fifteen minutes in the bath, and has three or four baths a day. The patient must make no effort, but be quite still and a gentle but constant friction must be kept up by the attendants during the bath.

Dr. Sam J. West* reports a case in which these baths combined with packing and sponging produced very marked drops in temperature (4° to 5° F.).

3. Cool spongings combined with friction.

4. Ice cradling.† Two or more bed cradles are put over the patient, and two or more pails with ice are hung from them, the bed temperature dropping from 88° to 60-70° F., 87° to 65-74° F.

5. Cold pack. Ice pack.

6. Local cold, in the form of ice bags filled with chipped ice or snow, cold compresses, etc.

Breitenstein (Archiv f. Exper. Pharmakol. Bd. 37, p. 253) claims that in typhoid a cold bath increased the red blood cells 50,000 per c. m. m. with an almost corresponding increase of hæmoglobin, and that the same result takes place to a less pronounced degree in healthy people.

It is claimed for the cold bath or sponging that it strengthens and slows the pulse, and deepens and slows the respiration. It stands to reason with a rise of red blood cells and hæmoglobin in the general circulation better oxygenation of the blood should be had.

T. B. Futcher (Jour. Prac. Med., 1898) shows that the coagulability of blood in pneumonic patients is increased, and quoting Monti and Berggrün makes out that the specific gravity of the blood is very high and increases up to the time of crisis. This would tend to show that the point emphasized by Dr. E. Lee, i. e., diluting the blood by large quantities of water so as to distend the capillaries is of great importance.

1st. In saving the heart by lessening the friction.

2nd. By dilution of the blood, the degree of toxæmia is lessened.

3rd. Washing out the kidneys; probably it is easier for the kidneys to get rid of a dilute urine than excrete the same amount of waste products in a concentrated form. Also where there is a free excretion of urine it requires a much larger dose of toxic material to kill.

The temperature of the patient is preferably kept a little cooler by night than by day, as it will be found that the slight cooling will aid him in sleeping and prevent his having any feeling of closeness in the air, a feeling which is an enemy to sleep.

The writer prefers, as a rule, to use cold locally over the affected portions of the lung, combined with cold water spongings three to eight times in the twenty-four hours.

A small, brown, thin-walled rubber bag, such as may be got at any drug store, is filled with ice water, wrapped in a couple of folds of thin flannel and applied over the desired spot. In half an hour another filled with chopped ice and similarly protected is reapplied to its place. The bag is never applied directly to the chest, but always has a light undershirt or thin piece of flannel between it and the chest wall. If so desired, two or more bags may be applied, and, if the patient is restless, the bags are retained by a binder. The ice in the bag gives a click when tapped, and in that way the nurse knows when to change it.

The ice bag is kept on night and day. If the temperature goes down by lysis till it reaches 100° F., then it is left on but not refilled. If the bag is removed too early the temperature will run up again. If the temperature keeps up, the nurse is warned to be ready for the drop and have extra blankets and hot bottles and stimulants ready. The ice bag is preferable to compresses because your patient is kept absolutely dry and there is little chance of his being chilled through moist and damp bedclothes. If there is delirium, headache or irritability of the nervous

*Read in the Section of Practice of Medicine of the Minnesota State Medical Society, June 14, 1898.

†New York State Medical Report, 1896, Vol. III, p. 257. Collective Investigation.

system, the ice bag or cold compress to the head with cold spongings will often relieve the symptoms without the use of further medication.

Unhappily there are exceptions. In one alcoholic case, delirium was so acute and violent, and the engorgement of the right heart so extreme, that after pushing most of the sedatives as far as was possible venesection was resorted to. Ten ounces of blood were removed, and resulted in the patient falling into a quiet sleep for over four hours. Nearly the same amount was removed next evening on the delirium recurring. Beyond the patient having a somewhat slow resolution no bad effects were evident.

The spongings are done with, if possible, ice cold water. One limb or portion of the body is done at a time. The sponging of the part is followed by brisk friction, then sponging, again followed once more by friction. This is carried out over the body and is generally followed by a drop of temperature (.5° F. to 1.5° F.), a sensation of well being and restfulness and a letting up of nervous symptoms.

The claims made for this method of treatment by cold applications are:

1st. Its simplicity.

2nd. It does away with perspiration and chance of chilling where poultices are not applied skillfully.

3rd. The ice in most cases relieves pain and is fully as efficacious as the mustard poultices.

4th. It may tend to limit or arrest the development or extension of the disease.

5th. It lowers the temperature and in some cases seems to produce fall of temperature by lysis.

6th. In many cases it seems to limit the catarrhal pneumonia by resolution, making it a drier process, the expectoration being small and less typically purulent.

7th. Reduces the frequency of the pulse.

8th. Induces sleep.

9th. Obviates venesection.

10th. Hastens convalescence.

11th. The spongings dilate the superficial vessels and relieve the heart.* (Modified extract from F. & G.)

In proof of these statements Thos. J. Mays gives a collective report of 299 cases; ten deaths = 3.3 per cent mortality.

On the onset of the disease a smart purgative, such as three grains of calomel and five grains of soda, followed by a saline, empties the digestive tract.

If vomiting is present tablespoonful doses of a solution of effervescing citrate of magnesia given every one-half to one hour till the bowels move will generally succeed in stopping the vomiting and aid the kidneys. If need be each dose is preceded by a small dose of subgallate or salicylate of bismuth. Until the tongue begins to moisten no food is given unless it be a little milk. Fluid should be given in as large amounts as can be taken, seltzer, vichy water, potio imperalis, etc. By the use of the latter the bowels can be regulated and the urinary secretions kept up. As soon as the digestive system has accommodated itself to the new state of affairs, nutritive and easily digested food should be given, but not enough to risk upsetting his stomach.* The food must not be merely "ingested" but "digested."

From the onset great care must be taken of the mouth, teeth and lips. The mouth should be washed out with some antiseptic solution before and after taking food. The teeth brushed two or three times a day, and sordes and dried mucus removed as quickly as possible. Care in this respect insures an earlier return of desire for food.

If the urine is scanty diuretics given in effervescing mixtures are indicated and nitroglycerine is said to be very efficacious at the time. If the cough is very troublesome pilocarpine, terebene, or codeine, one-fourth grain and apomorphia one-twelfth to one-eighth grain may be given early in the disease; the latter is sedative and avoids drying up the secretions.**

It is well in many cases to begin with strychnia hypodermically or by mouth early in the case so that cardiac failure may be prevented.

Oxygen if possible should be kept at hand and not be used except as a last resort.†

Carbonate of ammonia is a very potent remedy, but its use is apt to upset the digestion. Alcohol in many cases is very necessary, especially towards crises, also to procure sleep and quiet from delirium.

If there is extension of lung trouble late in the disease perchloride of iron in large doses has been strongly advocated.‡

The use of digitalis has found many advocates.§ Noegeli and Kerblom, 64 cases; 11 died=

*Fowler and Goodlee. Diseases of Lungs, p. 231, et seq.

*Practitioners Handbook of Treatment. Murrell & Fothergill, p. 122.

**Brit. Med. Jour. 1896, Vol. II, p. 13.

†Murrell. Treatment of winter cough.

‡Sir Douglass Powell, B. M. J. 1895, Nov. 9, p. 1154.

§Fowler and Goodlee, p. 233.

17.18 per cent. Petrescu, 1,192 soldiers = 1.2, 2.6 per cent. Massini, 475 = 11 per cent.

G. W. Balfour also advocates it very strongly. Half an ounce of infusion of digitalis every four hours with chloral, grains ten. Chloral, grains twenty, is given with the first dose. Others, as Loewenthal and Renier are very strong against its routine use.*

Practically all deprecate its use in large doses after consolidation has set in, unless there are urgent symptoms of cardiac failure.

During convalescence it is of the utmost importance that the patient should be given respiratory exercises to be repeatedly used during the day. It opens up the bronchioles and alveoli as soon as possible and promotes circulation and absorption, especially in those cases where consolidation remains in spite of counter irritants and other methods of treatment. This is not sufficiently emphasized as a rule.

LITERATURE.

Respiratory Gymnastics, Medical Annual, 1898.

Boston Medical and Surgical Journal, May 28, 1896.

Otis. Value of Respiratory Gymnastics.

Von Ziemssen. Handbook of General Therapeutics, p. 30.

Holbrook. Lung Gymnastics; Jour. of Hygiene, N. Y., 1896. LXVI., p. 101.

Value of Venesection. Int. Clinics. Jan. 1898.

Baruch. Hydrotherapy. Ibid. July, 1897.

Cecil. Treatment of Pneumonia. Ibid. April, 1897.

Amidon. Med. News, March 6, 1897.

Pneumonia. Sturges and Coopland. 2nd Ed.

210, 51 Boulevard, Hyde Park.

The Treatment of Fractures.—Dr. W. L. Estes, in an article on the treatment of fractures, in the International Journal of Surgery says:

1. Unless a fragment is threatening to break through the skin the fracture should never be reduced except by the physician, and then only when apparatus is at hand to keep the parts in permanent apposition.

2. Men carrying an injured person should not keep step, as the jar to the wounded part is much greater.

3. Strychnia for shock, morphia for pain, but no alcohol.

4. Always give anæsthetics for reduction of a simple fracture. It is better and easier to reduce and set compound fractures without anæsthesia.

5. It is very rarely necessary to make a patient go through the double agony of temporary and permanent setting of the broken bones.

6. In simple fracture gentle rubbing of the ends will assist in getting rid of shreds of tissue which invariably are caught there.

7. Nowadays a surgeon will rarely be satisfied that a bone is properly set, until verified by the X-rays.

8. Plaster splints, preferably plaster-of-Paris, are surely the best apparatus when they can be applied.

9. Ambulant treatment is coming more into vogue. No simple fractures require constant confinement to bed, except of the innominata and upper third of the femur.

10. It is not necessary and sometimes very harmful to wait for swelling to disappear before putting on a permanent dressing.

11. A well-applied splint with good apposition of fragments should not be removed too early. It is not necessary to apply massage early in ordinary cases.

12. Proper time for massage is about two or three weeks after fracture of upper extremities and four or five weeks for lower extremities—if the bones are slow to unite firmly.

*Centralbl. fur inn. Med. Aug. 10, 1895. Barth. zur le Traitm. et de la Pneumonie, Semadne Med., Par. 1896. XVI p. 281.

In the Gazette Hebdomadaire, Charpentier says that he considers four classes of patients are especially liable to repeated abortions. In the first classes malformations of the uterus prevent its normal enlargement during pregnancy, and abortion is apt to occur as early as the second or third month. A second class abort on account of the abnormally displaced uterus. A third class show great congestion about the neck and body of the womb during pregnancy; they are apt to bleed easily and sometimes suffer from hemorrhoids. The fourth class are those in whom a tumor of the neck or body of the uterus is present. The treatment should be directed to removing the existing conditions which cause the abortion.

Stanton in the American Journal of Obstetrics, reports a case where the intrauterine injection of two ounces of glycerine to induce labor caused most alarming symptoms of shock. The pulse went down to 40 or 50, was extremely feeble, and remained so for three hours, and the patient complained of severe pain in the head. He considers the method dangerous and has discontinued its use, although he had formerly recommended it.

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WIDAL'S REACTION IN INDIA.

A rather striking article appeared last year in the British Medical Journal, in which the writer, Surgeon-Major Freyer, made the claim that the natives of India are, generally speaking, immune from typhoid, that this immunity was due to a mild attack of the disease in infancy, and what was most striking of all, that the blood serum of healthy natives of India gave, as a rule, a positive reaction to Widal's test, the corollary following that a mild attack of typhoid in childhood confers permanent agglutinative powers upon the blood serum.

In dealing with propositions of this kind the first thing to do is to confirm positively the statement upon which the whole theory rests, that is, that the adult natives of India do not suffer from typhoid fever. Issue upon this point is taken by another East Indian surgeon, Dr. W. C. Brown, of Penang, who quotes the records of surgeons to show that in that city of 100,000 inhabitants there were in 1896 one hundred and eighty-six cases of typhoid reported, of which fifty-five went to the hospital where forty-six died, the diagnosis being confirmed in most cases by post mortem examinations. This would indicate that the natives of the East Indies have little or no greater immunity from typhoid than have the acclimated European. While it is well known that newcomers in a community where typhoid prevails are much more susceptible than old residents to infection with the disease, it has never been shown that this difference was due to a tolerance of the poison acquired by passing through an attack of the disease. For some reason the mucous membrane of the intestinal tract of the new comer offers a better soil for the development of Eberth's bacillus than is to be found in the old resident, but just wherein the difference lies has never been satisfactorily shown, and is one of the phenomena whose elucidation is likely to be long deferred.

It is evident that Surgeon-Major Freyer's propositions require for their support the establishment of another premise, that is, that one attack of typhoid confers immunity upon the subject. Upon this point leading writers upon medicine are fairly well agreed, although several do not mention the point at all in their articles upon the subject in various manuals and systems of medicine. It is generally agreed that second attacks are not uncommon. J. C. Wilson, in the article "Enteric Fever," in the American System of Practical Medicine, says that there are many cases of second or even third attacks that are well authenticated, and mentions one instance of three attacks, the last one fatal, that came under his personal observation. Fagge quotes Murchison to the same effect that exceptions occur. Still this part of the theory may be accepted.

The weakest part of the whole structure, however, lies in the assertion that healthy natives of India gives as a rule a positive reaction to Widal's test. Dr. Brown's results upon this point are far from confirming this claim. Although Penang is not, strictly speaking, within the limits of India, that is, of Hindostan, it is in the adjoining straits settlements which are included under the general title East Indies, and Dr. Brown has had an opportunity to make tests of the serum reaction of the blood of natives of India in comparison with that of Malays, Chinese, Burmese, Siamese and others, without finding that there is any constant difference as regards race, even when Europeans are included in the comparison. He gives a table showing the results of the serum test in fifteen natives of India, all adults, thirteen of whom gave negative

results and two positive. Of the latter one died with marked symptoms of typhoid and the other lived through a severe attack of fever, with hemorrhage from the bowels. Dr. Brown's explanation of the apparent prevalence of the Widal reaction in India is that owing to some peculiarity of the climate there is a tendency to the formation of false clumps which are likely to lead to error. He says that in India it is necessary to use a virulent culture of the typhoid bacillus, with a dilution of one to ten, and to fix a short time limit for the reaction, say fifteen or at the most twenty minutes. If this misleading phenomenon is a matter of temperature it would suggest the necessity of extra caution in applying the Widal test in this latitude during the summer season.

One of the most interesting points opened up by the investigation of this subject is the fixing of a limit to the length of time that the phenomenon of agglutination persists after an attack of typhoid. To maintain Surgeon-Major Freyer's original proposition it must be assumed that the phenomenon never disappears after the disease, but Widal himself says that it is usually quite gone in from two to three months after the disappearance of the fever, and Dr. Brown states that he himself has not known one positive reaction as late as the fortieth day after a mild attack.

REPORTS OF SOCIETIES.

WABASHA COUNTY MEDICAL SOCIETY.

W. F. Wilson, M. D., Secretary.

Regular meeting, July 14, 1898. The President, J. C. Adams, M. D., in the chair.

The following papers were read and discussed:

President's address, by Dr. J. C. Adams, of Lake City.

Malarial Fever, by Dr. P. N. Kelly, of Wabasha.

External Perineal Urethrotomy, with and without a Guide, and without the Retention of a Catheter, with Report of Cases, by Dr. George R. Patton, of Lake City.

Treatment of Diphtheria, with Report of Cases, by W. F. Milligan, of Wabasha.

Report on Twelve Cases of Nephritis, by Dr. W. F. Wilson, of Lake City.

The following resolution was adopted by the Society:

"Whereas, this Society has learned with unmitigated grief, the sudden death of our beloved member, Dr. J. B. Cole, of Wabasha.

"Resolved, That to his family and to his aged father, we extend our sad condolence; and ask the secretary to spread these resolutions upon the book of records, and send a copy to his family."

A vote of thanks was extended to Father Wurst and the sisters in charge of the hospital for their very hospitable entertainment of the society.

The following officers of the society were elected for the ensuing year: President, Dr. J. P. Waste, Plainview; vice-president, Dr. J. A. Slocum, Plainview; secretary and treasurer, Dr. W. F. Wilson, Lake City.

It was decided to hold the next meeting at Plainview on the second Thursday in July, 1899.

Dr. A. H. Wright, in the British Medical Journal, describing the methods used in the Burnside Lying-in Hospital, in Toronto, says, in regard to eclampsia, that he has found that morphine administered hypodermically subdues most quickly the excitability of the nerve centers. Chloral, he believes, is the best remedy to prevent recurrence of convulsions after they are to some extent brought under control. It is also sometimes useful as a preventive remedy when the symptoms of toxæmia are severe and convulsive seizures are feared, but have not yet appeared. He sometimes combines the two remedies for severe convulsions, giving morphine hypodermically and the chloral by enema. Chloroform sometimes has a good effect on the convulsions, but its administration has frequently disappointed him. Bleeding in properly selected cases he believes is of value. Veratrum viride he has used but little, and has not been favorably impressed by it. Pilocarpin he mentions, to give it his unqualified condemnation, considering it both uncertain and dangerous.

BOOK NOTICES.

The Diseases of the Stomach. By William W. Van Valzah, A. M., M. D., Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Medical School and Hospital; and J. Douglas Nisbet, A. B., M. D., Adjunct Professor of General Medicine and Diseases of the Digestive System in the New York Polyclinic Med-

ical School and Hospital. Illustrated, Phila: W. B. Saunders. 1898. [Price, $3.50.]

The difficult subject of gastric disease is handled in this book in a thoroughly scientific manner which shows the authors to be men well up in their subject. In its early chapters the work takes up the general subject of diagnosis, studying the physical, the functional and the bacteriological signs. It then takes up the subject of diet in general, disagreeing at the outset with Trousseau's dictum that "the best, the only good, the only suitable, diet, is the one which the patient knows by experience will agree with him." The authors think that more is known about diet now than in Trousseau's day, and have prepared an elaborate chapter which the general practitioner will find adds many useful ideas to his stock of knowledge upon this most important subject.

Going from the general to the particular, the individual diseases of the stomach are fully treated of. They include a number of affections not classed as separate diseases in works on general medicine but which the practitioner will recognize as things he has met clinically and been puzzled by, so that he will be glad to find their description and have pointed out to him the measures to be taken for their relief.

The American Year-Book of Medicine and Surgery. By Many Writers. Edited by George M. Gould, M. D. Illustrated. Phila.: W. B. Saunders. 1898. [Price, $6.50.]

A section on general medicine by Pepper, one on general surgery by Keen, one on obstetrics by Barton Cooke Hirst, one on gynæcology by Baldy, and one on pædiatrics by Starr—these make a very promising beginning for a book on American medicine and surgery. To mention the first five sections particularly is not by any means to disparage the rest of the book, every department of which is in the hands of a man whose name is well known throughout the land in connection with the speciality of which he writes.

Brief Essays on Orthopædic Surgery. By Newton M. Shaffer, M. D., Surgeon-in-Chief to the New York Orthopædic Hospital and Dispensary; etc. New York: D. Appleton and Company. 1898.

In this little collection of papers the writer defines his subject, justifies its existence as a special branch of general surgery, points out its present needs and future demands. He believes in the future of orthopædic surgery as a great specialty, but only on condition that it be kept well apart from general surgery.

An American Text-Book of Genito-Urinary Diseases, Syphilis and Diseases of the Skin. Edited by L. Bolton Bangs, M. D., Consulting Surgeon to St. Luke's and to the City Hospital, New York City; etc.; and N. A. Hardaway, A. M., M. D., Professor of Diseases of the Skin and Syphilis, in the Missouri Medical College; etc. Illustrated. Phila.: W. B. Saunders. 1898. [Price, $7.00.]

Those who know the other volumes published under the title "American Text-Book" will expect much of the present work and they will not be disappointed for the three subjects grouped together under the above title have never been handled in a more masterly manner than in the present case.

A long list of contributors furnishes the many separate articles of which the volume is made up; among the names are included many of the best known and most active of the teachers of genito-urinary and skin diseases in this country. By an extensive subdivision of the subjects each in the hands of a single writer, it has been possible to obtain the greatest elaboration of detail and thoroughness of research.

The illustrations, which are numerous and well executed, are a great assistance to the explanation of the text, particularly in the department devoted to the skin, which is enriched by a number of excellent colored plates.

Atlas of Methods of Modern Clinical Investigation. By Dr. Christfried Jakob, formerly First Assistant in the Medical Clinic at Erlangen. Edited by Augustus A. Eshner, M. D., Professor of Clinical Medicine in the Philadelphia Polyclinics, etc. Illustrated. Phila.: W. B. Saunders. 1898. [Price, $3.]

In an atlas the important part is the plates, and upon their quality depends the success of the book. The illustrations of this volume are of two kinds: Drawings from original preparations showing normal and pathological blood sputum, stomach contents, and urinary sediments; diagramatic representations of the results of anscultation and percussion of the viscera in health and disease, the diagrams being made from actual cases. To this is appended an epitome of the special pathology and treatment of disease together with some general therapeutic notes upon diet, the rest cure, the reduction cure of obesity, and similar matters.

The plates are handsome lithographs, clearly described, and the epitome is concise yet entirely complete.

Accident and Injury. Their Relation to Diseases of the Nervous System. By Pearce Bailey, M. D., Attending Physician to the Department of Correction and to the Almshouse and Incurable Hospitals, New York

City. New York: D. Appleton and Company, 1898.

This is one of the volumes of Appleton's Medical Library which is now a conspicuous object upon the shelves of physicians' libraries.

The author's plan is to describe first the method of examination in a case, and then to take up nervous diseases with organic lesions, paying particular attention to the investigation of the important question, how far can organic lesions of the nervous system be traced to injury? From this he goes on to a study of the inorganic disorders of the nervous system following injury. This is ticklish ground, as all know, and is here fairly and freely discussed without partisanship. It is not necessary to tell the individual profession that many cases of this kind get well after their claim is settled; Dr. Bailey admits this but he says that there are others that do not get well and some that continue to get worse. His summary is: The prognosis for men is less speedy and permanent recovery in any case of neurasthenia is good if the patient has no claim to bring and can put himself at once under the care of a skillful physician, although even then recovery is not always assured

Atlas and Abstract of the Diseases of the Larynx. By Dr. L. Grünwald, of Munich. Edited by Charles P. Grayson, M. D., Lecturer on Laryngology and Rhinology in the University of Pennsylvania, etc. With 107 Colored Figures on 44 Plates, Philadelphia: W. B. Saunders. 1898. [Price, $2.50, net.]

This little work, although one of "Saunder's Hand Atlas" series, is, as the title indicates, more than an atlas. It is a veritable "multum in parvo," comprising, as it does, a comprehensive treatise on the anatomy, physiology and methods of examination of the larynx, together with a very complete section on the pathology, etiology, symptomatology and treatment of the various diseased conditions of that organ. In addition there are a large number of beautifully executed, colored plates showing the laryngoscopic appearance of the vocal apparatus in health and disease. There are also a number of plates showing stained miscroscopical sections of diseased tissue. The plates are all taken from actual cases and with each one is given the clinical history and an explanation of the abnormal appearances. This work, like those of the same series, which have preceded it, will prove of great value, not only to the general practitioner, but to the specialists, for it contains an amount of clinical material which few hospitals, even large ones in the cities, afford. The plates are true to nature in both drawing and coloring, and the mechanical work on the volume reflects credit upon the publishers. J. M.

MISCELLANY.

SOUTHERN MINNESOTA MEDICAL ASSOCIATION.

The seventh annual meeting of the Southern Minnesota Medical Association will be held at Rochester, Minn., August 4, 1898, in the New Library Hall, at 10:15 a. m. A full and varied program will be presented, including many papers upon interesting topics. A cordial invitation is extended to all regular medical practitioners to attend this meeting.

NOTES.

physicians, under whose care he continued until November of the same year, when I was consulted.

After hearing his history and the treatment given, I urged him to return to his physician, insisting that nothing more could be done. My protest was in vain.

Examination revealed an emaciated, thin and badly nourished body, his eye, skin and color, fair though pale; his temperature normal; the bowels inclined to constipation with occasional diarrhœa, with white, pasty offensive stools; the lungs, heart and kidneys healthy; the liver a trifle small.

There was no painful point and no evidence of enlargement, tumor or ulcer. He was so thin that the abdomen could be most thoroughly examined. His tongue was heavily furred, red at the tip, indented at the edges, and the papillæ red and prominent.

He complained of being unable to take either solid or liquid food even in small quantities without causing heaviness, weight, oppression, pyrosis, eructation of gases, nausea and finally headache and vomiting.

Since 1894 these symptoms had increased in severity, the nausea never ceased and this whole array of complaints would gradually accumulate in force and energy, overwhelming his system with an attack of headache and intermittent vomiting, that would last from three to five days.

In 1895, these storms growing worse, rendered his life almost unbearable. I had been attending him about a week, when one of these attacks occurred. He had been vomiting one day before I saw him. The scene was truly pitiable. I found my poor emaciated patient in a small darkened room scarcely able to raise his head, gagging and straining constantly, bringing up finally by the greatest of efforts, a teaspoonful of white glary mucus; his head bound tightly or wrapped in ice cloths; his eyes congested; his cheeks hollow; his skin sallow and pale; his face bespeaking the intense agony he suffered, begging and pleading to those around him for relief from the horrible nausea and retching.

I remained with him an hour and during that time he was not free for five minutes from efforts at vomiting. His sleepless, aching brain seemed racked to distraction. He would gag, vomit, and fall back exhausted.

This continued three days, gradually lessening. Sleep came only through exhaustion. Every particle of food (liquid or solid) was promptly vomited. During these attacks, the temperature was increased from 99° to 103°.

These attacks were always of a similar character, and from November 1, 1895, to July 3, 1896, they occurred every ten days or two weeks.

The physician who had treated him had used drugs, diets and lavage faithfully and persistently, so that at the outset, I was completely handicapped.

I began with the remedies which had given relief in similar cases, and in turn used acids, alkalies, alteratives, pepsin, digestants, purgatives, tonics, bitters, sedatives, diets, etc., either singly or in combination, until I had exhausted all the resources at my command.

The only perceptible relief came from the use of small doses of diluted hydrochloric acid between the attacks and a solution of cocaine and morphine during the paroxysm.

About July 3, 1896, I read the article referred to above, and in desperation and despair of ever relieving him, I ordered glycozone one-half, then one drachm, well diluted, twenty minutes before meal time.

In a few days he said he felt better; within a week he repeated the assertion. To the utter astonishment of myself and his friends, one, two, four and even six weeks passed, without a recurrence of his severe symptoms.

About August 20th, he was so much improved, that to hurry matters, I concluded to try lavage again. This was done at 5 p. m. and at 10 that night he was in the throes of an attack, which lasted two days.

He then resumed his glycozone and continued to improve till October 15th, when on account of inactivity of the bowels and costiveness, he was given two grains of calomel, which brought on a slight headache and considerable nausea.

He had already been taking more food, but from this time, it was increased in quantity and character, eating three fairly good meals a day, and enjoying them.

After beginning the use of glycozone, the acid was continued a few weeks, after meals, then left off entirely. No other medicine was used, except occasionally a pill of aloin, belladonna, strychnia, cascara, when bowels were sluggish.

To him the glycozone proved the greatest boon, and to me, the relief given was simply wonderful.

It is useless to add that I have used the remedy in many cases since, and have met with excellent and even astonishing results.—New England Medical Monthly.

Bromidia in Hay Fever.

The hypnotic effect of Bromidia does not by any means represent the sole benefit to be derived from this preparation, but it meets, in a very perfect manner, many other indications involving hyperaesthesia of nerve tips and over-excitability of spinal cord. In doses of one-half

teasponful, given every four hours for two days, will so benumb the sensatory nerve tips of the buccal cavity that dentists can take impressions of the mouth, fit in rubber dams, etc., that would otherwise be impossible on account of the gagging peculiar to some patients. In the hands of the medical practitioner, given in half-teaspoonful doses every four hours, it will make life endurable for hay-fever patients during the months of August and September. A teaspoonful will completely quiet the paroxysmal pain following childbirth or miscarriage without in any way interfering with uterine contractions.

For Uterine Trouble.

I consider Dioviburnia almost a specific in uterine troubles. In threatened abortion it gives almost instant relief; has never failed me in a single case of uterine colic. In all cases of female neurosis I combine Neurosine ℥ iv, Dioviburnia ℥ ij with the very best results. I shall continue their use in my practice.

J. P. Carrington, M. D.,
May 30, 1898. Waller, Texas.

Mining Practice for Sale.

In Northern Minnesota iron mines. A fully equipped Hospital with surgeonship, at fixed monthly fees, of all the mines in vicinity, $3,000 a year assured, owner will sell on time.

For full particulars address,
Doctor J.
734-5 Lumber Exchange,
Minneapolis, Minn.

For Hay Fever.

Quinine Hydrobromate	gr.	120
Antipyrine	gr.	15
Gum Camphor	dr.	1
Cocaine Hydrochlorate	gr.	15
Acid Hydrochlorate	m.	20
Benzoin Nebulizing Fluid Q. S.	oz.	4

Ms. et. sig.:—Apply with a nebulizer three to five times daily.

Gives immediate relief even in the most aggravated cases of Hay Fever. Its thorough and persistent use obviates the necessity of a change of climate, and in time produces a permanent cure.

The above statement is based on the experience of a number of prominent specialists. For further particulars and for information relative to nebulizers, write the Globe Manufacturing Company, Battle Creek, Mich.

Sanmetto in Hypertrophy of the Prostate—Also in Cystitis.

I have used Sanmetto myself for hypertrophy of the prostate, from which I have suffered for fifteen years. My age is eighty-three years. I have found out the value of Sanmetto, and am persuaded that this remedy will cure me entirely. I prescribed it for two of my patients who suffered with cystitis, one forty years of age was perfectly cured from the use of two bottles. The other, sixty years of age, thinks he will never stop it. I think so much of Sanmetto that I, for the first time in my life, feel induced to recommend the same to any physician. Isaac Saalfeldt, M. D.

Chicago, Ill.

A Reliable House Makes Reliable Preparations.

The attention of our readers is called to the advertisement of Robinson-Pettet Company, which appears on another page of this issue.

This house is one of long standing, and enjoys a reputation of the highest character.

The preparations referred to, we commend specially to the notice of Practitioners.

Practice in Minneapolis For Sale.

A Minneapolis physician who is about to retire from general practice to take up a specialty, offers for sale his household and office furniture and his horse and carriages. All articles in good condition and are of good quality.

To the purchaser he will turn over his practice without charge, giving him a proper introduction, and doing whatever he can to install such successor in his practice, which has been established eleven years.

The publisher of the Lancet believes this to be an excellent and an unusual opportunity for any one wishing to begin practice in Minneapolis.

For full particulars address "Doctor," care of N. W. Lancet, 734 and 735 Lumber Exchange, Minneapolis.

Physician Wanted.

A bright, energetic young physician, well up in general practice can hear of an opening with another physician who has an old established practice, by addressing X. Y. X., care of Northwestern Lancet, Minneapolis, Minn.

For Sale.

The practice, instruments, and the library of the late Dr. J. B. Cole.

Address Mrs. J. B. Cole,
Wabasha, Minn.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology and Lecturer on the History of Medicine in the University of Minnesota.

St. Paul.

(Continued from LANCET of Aug. 1.)

Surgery during the seventeenth century, while on the whole it made in various directions a slow but steady advance, presents no such conspicuous forward strides as were apparent during the preceding century. The chief progress in surgery was made by the French, who retained their supremacy in this branch at least to the beginning of our own century. Morel is famous for the invention of the tourniquet, and Jean Baptiste Denis, physician to Louis XIV., was the first to perform transfusion of blood. Lithotomy was an operation much cultivated by the French surgeons, and the last of the famous Colot family, above mentioned, practised with great success at this time. Pierre Dionis, surgeon to the Queen of France and to the Empress Maria Theresa, was a man of much reputation and made some original observations concerning diseases of bones, especially rickets. George Mareschal, another of Louis XIV.'s surgeons was a rapid and skillful lithotomist, and Saviard, surgeon at the Hotel Dieu made some important advance in the diagnosis and surgical treatment of strangulated hernia.

We find also that among the French at this time ophthalmology was especially studied, and the investigations of Antoine, Maitre-Jean and of Pierre Brisseau resulted in the first accurate knowledge of the pathology of cataract. I find in studying the history of medicine in France during this century the names of many others who were earnestly devoted to the study of surgery, and although many of them did good work, none attained any very conspicuous or lasting fame, although their accumulated labors and experiences laid the foundation for the brilliant era of French surgery which the next century was to witness.

Neither Italy, Germany or Spain produced during the seventeenth century any surgeons of more than ordinary ability and for the most part surgery remained at a low ebb in these countries.

England produced one or two surgeons who deserve a place in our history, not so much on account of their marked genius or originality, as on account of their comparative superiority in an age when scientific surgeons were very rare. Richard Wiseman (1625-1686) was a bold and skillful operator and was apparently not afraid to adopt any new surgical procedure which gave promise of being valuable. He was one of the first English surgeons to use the ligature in amputations, although he always had the cautery at hand in case the ligature should fail. He favored primary amputation in gun shot wounds and he developed the modern method of flap operations. Wiseman describes the first operation of external urethrotomy of which we have any record. He had considerable experience in military surgery and was surgeon to James I., and to Charles I., and Charles II. Wiseman has been called the English Parè, and his writings although little known outside his own country exercised considerable influence for the good on the surgery of England. He was present at the battle of Worcester and was there taken prisoner. He afterwards served two or three years in the Spanish navy. The first edition of his works was printed in 1672 and entitled "A Treatise of Wounds." He insists on the importance in gun shot wounds of extracting the bullet at once when possible, and of removing all foreign bodies while the wound is fresh. He devotes an entire chapter to the account of a severe compound fracture of the arm which he thought ought to have been amputated. A sudden emergency of the battle during which the wound occured, having prevented the immediate amputation, he describes how after a few days he decided that it was possible to save the limb. At the end of two months he says: "There was in this patient a strong callus filling up the void place of the lost bone at least two inches, with little or no shortening of the arm." A good instance of conservative surgery, the lesson of which Wiseman evidently appreciated. When speaking of gunshot wounds, he insists upon the bullet being searched for and extracted at once. "The part is at first dressing, with what diligence you can, to be cleared of all such Foreign Bodies as have made violent Intrusion into it, while the patient is warm with the heat of Battel, and the wound fresh and very little altered by either Air or Accidents, so that less pain must necessarily follow upon the extraction. In the Armada Naval de Dunquerque, where we Chirurgeons were oft employed in this service, we after every fight went together visiting one another's wounded men. Amongst us it was thought a great shame if any of this work of Extraction was there to be done. It hath been the cause of the death of many a brave Souldier, and every Battel produces instances of it, to the discredit

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

of our profession." This is good surgery and straight talk. I think it must have been a fine spectacle to have seen these rough old surgeons, with their limited knowledge and their miserable means of treatment, walking around to see each other's patients and learning how best to mend their mistakes.

William Cowper, known also as a zealous student of anatomy and physiology, and one of the earlier followers of Harvey's investigations on the circulation, was a surgeon of reputation and also paid some attention to dentistry. John Brown was one of Charles II.'s surgeons and also surgeon to St. Thomas' Hospital, but he has left no remarkable evidences of special ability. While as we have seen, the seventeenth century in England was remarkable for the development of anatomy, physiology, and practical medicine, surgery was still in an undeveloped condition, and made but slow progress. The barber-surgeons (usually without education) who were still the chief operators in Germany had not yet entirely disappeared from England, and it is not to be wondered at that the practice of surgery was held in ill-repute while it continued to be in the hands of this illiterate and disreputable class of men. In the French schools at Paris, Leyden and Montpelier, surgery was taught with some degree of method and regulation, and the surgeons of all countries during this century received their education from these schools. There being no adequate facilities for the teaching of surgery in England at this time, and the number of those who could afford to go abroad to study being limited it naturally followed that the number of surgeons with any pretense to education was small, and so it happened that for a long time there continued to be a marked distinction between physicians and surgeons and the latter except in a few conspicuous cases, were held in much less esteem than the former.

The general condition of the medical profession both in England and on the Continent during the seventeenth century was greatly in advance of its condition in any previous time, although there was not yet any scientific regulation which prevented ignorant and unscrupulous men from practising upon the credulity of the people. The growth of the universities and the improved methods of medical teaching, however, had placed the educated physicians upon an intellectual level with all men of learning and there was a perfectly recognized distinction between physicians and charlatans; in spite of which, the latter, then, as they do now, found plenty of patronage among the most cultivated as well as the more ignorant classes of the people. Medicine, however, was very generally recognized as a learned profession and most of the great men of the times applied for the relief of their sufferings and illness to the physicians of recognized ability. Conspicuous genius, then, as indeed must always be the case, did not fail of recognition, and we find almost without exception that the physicians who were honored by the confidences of royalty and who received the highest public recognition and rewards, were men whose ability, accomplishments and professional attainments made these honors worthily bestowed.

During the seventeenth century the practice of obstetrics began to be quite generally undertaken by physicians, it having been hitherto almost entirely left to midwives, as its name, midwifery, indicates, a name still in very general use. The Dutchess of Villiere, one of the mistresses of Louis XIV., of France, is said to have been the first woman who deliberately entrusted herself during her confinement to a professional surgeon, although no surgical operation was anticipated. This was in 1663, and her surgeon, Julian Clement, then in high repute, was conducted in disguise to the home of the patient. Later Clement was appointed accoucheur to the princesses of France and also to the Queen of Spain, wife of Phillip X. In 1666 Mauriceau published his system of midwifery which was the first serious and successful attempt to place this branch of medicine on a scientific basis. This book was soon afterwards translated into English by the Chamberlanes, who were the inventors of instruments similar to the present obstetric forceps.

Daventer and Le Motte also wrote treatises on midwifery, and Nymmanus published an essay of some value on "The Fœtus in Utero." In England both Willis and Highmore, already mentioned as anatomists studied and wrote on the physiology of pregnancy, and among the writings of Willis is a judicious and able account of puerperal fever. This century then, we may say, while it accomplished comparatively little of real value in either surgery or obstetrics, laid the foundation upon which these sciences were built, and upon which the glorious superstructure was so soon to arise.

During the latter part of the seventeenth century there began to be evident among the scholars in the medical profession, an appreciation of the importance and value of the study of the history of medicine, and a number of books on this subject were writted. The anatomy of the ancients was studied and written about by Hartman, Döring, Helmont and Neander. Solomon Cellarius wrote on the origin and antiquity of medicine. Daniel Le Clerc, in 1696, wrote an extensive and important work on the history of medicine from the earliest times, which was remarkable for the erudition and research which it displayed. It was an evidence of considerable culture that the importance of the study of the early struggles of ancient medicine was appreciated at this early day. It is worthy of mention

in connection with the history of medicine that during the seventeenth century several new articles of food and luxury were first introduced into Europe. Tobacco, tea, coffee and chocolate became generally used, and what seems peculiar, potatoes were first introduced into Europe from America.

The eighteenth century presents for our observation a period which from every point of view is of most surpassing interest. The student of morals, of philosophy, of literature, of art, of intellectual development of whatever kind, finds in this century evidences of extraordinary progress in all that pertains to elevate the tendencies of human thought. The history of medicine, likewise, has many and brilliant triumphs to record. We have noticed hitherto a gradual tendency of the various arts and sciences, the professions and the industrial and the public affairs, to lean upon and to learn from and to help each other, but as yet they had not reached that harmonious condition of interdependence, so essential to universal progress and to all human interest. This binding together, this unifying of the various elements of civilization begins at this time to be more distinctly apparent, and the result was, of course, for the good of all. The inductive philosophy of which its great father, Lord Bacon, had first sown the seeds in the last century, began to flourish and to bear abundant fruit. Writers on the philosophy of history have described the tendency of thought in the eighteenth century as being a continuation, but in a much higher and loftier degree of the idealism of the sixteenth century. Baas speaks of it as a revolutionary idealism, whose mightier development in the department of politics was in the establishment of the doctrine of the rights of man, and of popular sovereignty, accomplished first, and first introduced into practical life by the Jesuits of the Netherlands, and later by the great American and French revolutions. In literature, science and art this spirit of idealism prompted a fearless criticism of the theories and doctrines of former ages, which rejected much that was false and added much that was true. We are also confronted with the increasing signs of skepticism which began to influence the religious thought of this century and which began to rebel against the prevailing creeds, and which established a freedom of thought concerning spiritual matters, which characterized much of the literature, especially that of philosophy.

Three great writers are of especial importance as having done much to mould the thought of this period. Montesquieu, whose satirical "Persian Letters" did much to weaken the influence of dogmatism, and whose "Spirit of Laws," in its just and original views concerning history and government, place him foremost among the founders of modern political science. Voltaire, poet, dramatist, historian and critic, the most popular writer of his day, and Rousseau, who revolutionized politics and education, and whose doctrines furnished a theory for the political revolution in France.

In England, in matters pertaining to philosophy and morals, we find such men as Locke, Berkeley, Hume and Butler. In history, Robertson and Gibbon, whose "Decline and Fall of the Roman Empire" will be a classic for all time; and in lighter literature centuries to come will still delight in reading the works of Richardson, Fielding, Addison, Steele, De Foe, Swift, Johnson, Goldsmith and many others who lived in this Augustan age of English literature. Germany produced during this century that great mathematical philosopher and scientist, Leibnitz; Klopstock, author of the "Messiah," and the great poet-philosopher, Lessing. In industrial and commercial science we must not overlook the fact that the foundations of our present knowledge of those two great forces, steam and electricity, were laid at this time by Papin, Stephenson, Benjamin Franklin and Robert Fulton, the two last named being Americans.

I have mentioned but a few of the great men who helped to make the intellectual history of the eighteenth century, but enough I think to suggest to you the original and progressive spirit of the times, of which we shall see still further and perhaps more remarkable evidence in the history of medicine, to the study of which we must now return. We shall see that medicine still continues to be influenced to some extent by various special systems, but these systems, fallacious and incomplete though they be, as we know all systems to be when applied to science, are much broader and more comprehensive than any of the similar systems of former times, and their influence was rather that of the men who founded and elaborated them, men who were in many instances well worthy of being followed and imitated, than of the systems themselves.

Eclecticism originated, but scarcely developed by Galen, was revived and elaborated and made the basis of much that was of real value by Hermann Boerhaave, a man whose influence on the medicine of this century was immense, and for the most part good. Boerhaave was the son of a clergyman and born in a village near Leyden in 1668. He was educated and originally intended for his father's profession, but being somewhat influenced by the teachings of Spinoza, which were opposed to the religious views of his father, and having become much interested in the natural sciences, especially biology, botany and chemistry, he soon turned his attention to anatomy and physiology, and the fascina-

tion of these subjects decided for him that he should become a physician. He took his degree at Leyden in 1693 and began the practice of his profession in that city, where he met with conspicuous success from the first. So much so, that he was offered, but declined, the position of physician in ordinary to the king He received several positions of honor in the university and was successively professor of botany, of the practice of medicine and of chemistry and his reputation as a lecturer and teacher became so great that students flocked from all parts of Europe to hear him, so much so that no lecture room in the university was large enough to contain the crowds who came to listen to him. As a practitioner he was no less popular and his waiting room was crowded constantly, and the greatest people of the age, royalty included, waited hours to consult him. He is said to have been the first teacher to give a special course of lectures of ophthalmology, a subject in which he was much interested. He accumulated an enormour fortune by his practice, which was a very rare circumstance among the physicians of that time. Boerhaave possessed many of the qualities of greatness. He was a profound scholar, but without pedantry, he was dignified, but simple and modest; he was absolutely truthful, and in his personal life, charitable, upright and pure. His theories and teachings are not so conspicuous for originality as they are for their boldness and independence in selecting from all the available sources of knowledge and recorded experiences the best and the truest, according to his own honest belief. This is the ideal eclecticism, and in this sense of the word there is no more appropriate designation for the true theory, not only of medicine but of all science. Boerhaave, although not the originator of clinical teaching, was the first to insist upon this as the only method by which the students of medicine could be properly instructed concerning the nature of diseases and their treatment and it was his example and influence that established and diffused clinical teaching, which was soon adopted in all the medical schools of the world. In his therapeutics, although not entirely free from the curious superstitions of the times (indeed many therapeutic superstitions have not yet disappeared), he was comparatively simple and rational. He learned much from Sydenham, of whom he was an ardent admirer and whom he appreciated more perhaps, than did any of his contemporaries, even in England. Like Sydenham, Boerhaave was afflicted with that "opprobrium medicorum" the gout, which incapacitated him from practice for some years before his death. He died at the age of seventy in the year 1738. His greatness as a physician and a teacher is attested by the fact that for nearly a century after his death scarcely a writer on medical subjects failed to mention his name and to allude to his teachings.

Hieronymus David Gaub was the next most conspicuous teacher of medicine of this age. He was born at Heidelberg in 1705, and at the age of 26 he was a professor at the university of Leyden. His fame rests chiefly on the fact that he wrote the first complete work on the subject of general pathology. He was very popular as a teacher and his views on pathology and therapeutics prevailed for a long time. George Ernst Stahl (1660-1734) was an opponent of Boerhaave and Gaub, although he was a man of great learning and a profound thinker. He was a follower of that religious school known as pietists, who sought to revive the declining piety of the Lutheran Church, and was one of those who believed that his convictions could not be wrong as he claimed that they were revelations from God. He was an eminent chemist, and although a confirmed systematist, and his systems were as a rule narrow and unscientific, his medical knowledge was extensive and his teachings were in many respects valuable and profitable, in spite of the fact that he paid no attention to anatomy or physiology, studies which he declared valueless to medicine. In disposition he was harsh and stern and most bitterly antagonistic to all who opposed his own peculiar views, and in his later years he became misanthropic and melancholy. He must have been a man of considerable force, for his influence was wide spread, his views extensively quoted and he gained a considerable number of enthusiastic followers, among whom the best known were Unzer, of Hamburg, the renowned physiologist of the nervous system, Whytt and Porterfield, of Edinburgh, and Francois de Sauvages, of France.

A "system" which became very popular in this age of systems, and which retained its popularity for a long time was known as the "Mechanico-Dynamic System," and was introduced by Frederich Hoffman, born in Halle in 1660. (Hoffman's Anodyne, is still recognized in our pharmacopoeia). He was a skillful oculist and was at various times professor of anatomy, surgery, medicine and chemistry at the University of Halle. He was a man personally attractive and popular and his practice was extensive, successful and lucrative. Hoffman's peculiar system, which like all the systems of medicine, seems to us absurd, was really a mixture of systems, and a mixture of absurdities, although many of its essential features were perfectly true. He maintained that life is movement, especially of the heart, and that death and putrefaction result from its cessation. Health is a result of their disturbance. The body is a ma-

chine whose movements are effected by a peculiar volatile fluid known as "æther," whose chief reservoir and center is in the medulla. This æther was supposed to circulate with the blood and also through the nerves. Atony and plethora were the two chief causes of disease, according as the circulation of the æther is diminished, or on the other hand is too active. Fever was supposed to be due to spasm of the arteries and veins arising in the spinal cord. All this seems to us fanciful and foolish, and I have outlined it as a type of the systems, which seemed to be inseparable from the study of medicine, even in the minds of the greatest thinkers of the times. After all, it was but the earnest seeking for an explanation of the phenomena of the various normal and pathological precesses, which their crude methods of investigation were as yet insufficient to clearly reveal.

A celebrated English, or rather Scotch, physician was William Cullen, born at Lanarkshire in 1712 . He was of humble parentage and his early education was meagre. He was successively a barber, an apothecary, a ship surgeon, and finally surgeon of a small Scotch village. Early in his career he became acquainted with William Hunter (elder brother of John Hunter), who was also in poor circumstances, neither of them having sufficient means to obtain a university degree. They accordingly formed a unique and curious partnership arrangement, by means of which each agreed to earn by practice money enough to allow the other to attend the university. Cullen, being six years the senior received the first advantage of this arrangement and was thus enabled to take his degree in 1740. He soon afterwards became professor of chemistry at Glasgow and in 1755 he was called to Edinburgh as professor of medicine, where he continued during his life as an active and successful teacher and gained a great reputation as a medical author. He apparently made little effort to obtain private practice and he died in 1790, a poor man. He attributed great importance to the nervous system and advanced a theory of nervous pathology which contained much that was original and correct. He speaks of a "nervous force," a "nervous activity," and a "nervous principle" as being the active vital element as opposed to the æther of Hoffman's system. Perhaps his most popular and widely known book was his "First Outlines of the Practice of Physics," published in London in 1777. It soon became recognized as an authority and was republished in America in 1793. Cullen made an elaborate classification of fevers and advanced the most rational theory which had yet appeared concerning the nature of gout, which he maintained to be a general disease depending chiefly upon digestive derangements, and that the joint inflammations were reparative efforts on the part of nature. Cullen was of a most generous and charitable disposition, and although from his teachings and his books he gained a considerable income and his own tastes were simple and inexpensive, he left a very small estate. Cullen's reputation extended to all the medical centers of the world and his views were held in the very highest esteem.

(To be continued.)

ORIGINAL ARTICLES.

MECHANICAL AND SURGICAL TREATMENT OF FRACTURES OF THE NECK OF THE FEMUR.*

By Arthur J. Gillette, M. D.,

St. Paul.

In 1888, Lewis A. Stimpson, of New York, reported because of its rarity a case of intracapsular fracture of the hip with bony union in a woman aged 65, treated by Thos. F. Raven. Sir James Paget in commentating upon the case, stated that he had never seen so thorough a repair of this kind of fracture, and the specimen was presented to the Royal College of Surgeons, where it may be found in the Pathological Museum.

Prior to this and since, scattering cases of this fracture have been reported as united, and we have looked upon the reports in as charitable a light as possible, believing that they were extracapsular instead of intracapsular fracture.

Since then to the present time all surgeries have clung to the old tradition, and stated that intracapsular fracture of the hip seldom if ever united.

While this has been a great consolation to many of us, it has lessened our ardor in our attempt to get a bony union by persistent reduction of the fracture and its thorough immobilization and perfect apposition of the fractured ends.

Then, too, we have been told that it is distinctly a fracture of the aged. This is disproved by Dr. Royal Whitman in the Annals of Surgery, 1897, Vol. 25, where he reports ten cases of fracture of the neck of the femur in childhood.

The old theory of the structure of the bone in the neck of the femur and the peculiar physiological changes in the aged as a cause for nonunion, is disproved by the many cases of union where proper mechanical and surgical means

*Read before the Interurban Medical Society, at West Superior, Wis., June 20, 1898.

were employed to hold the fragments in apposition. In looking over the records since 1888, not a single case have I found reported of a failure of union when proper mechanical or operative measures were employed, and the limb immobilized a sufficient time to permit union.

In the Journal of the American Medical Association, Vol. 13, 1889, Dr. N. Senn reports eight cases of fractures of the neck of the femur treated by immediate reduction and permanent fixation. His mode of applying and continuing the mode of immobilization is best explained in his own words: "The patient is dressed in well fitting knit drawers and a thin pair of stockings. For strengthening the plaster of Paris dressing over the joints, and at other points where greater strength is required, oaken shavings are placed between the layers of plaster; these small, thin splints greatly increase the durability of the dressing without adding much to its weight. The bony prominences are protected with cotton before the plaster of Paris dressing is applied. The drawers and stockings furnish a more complete and better protection to the skin than roller bandages. Usually about twenty-four plaster of Paris bandages are required for a dressing. The fractured limb is first encased in the dressing as far as the middle of the thigh, when the patient is lifted out of bed by two strong persons, the physician supporting the limb so as to prevent disengagement of the fragments if the fracture is impacted, and to guard against additional injuries in non-impacted fractures.

"The patient is placed in the erect position, standing with the sound leg upon a stool or box about two feet in height; in this position he is supported by a person on each side until the dressing has been applied and the plaster has set. A third person takes care of the fractured limb, which is gently supported and immovably held in impacted fractures until permanent fixation has been secured by the dressing. In non-impacted fractures the weight of the fractured limb makes auto-extension, which is often quite sufficient to restore the normal length of the limb; if this is not the case, the person who has charge of the limb makes traction until all shortening has been overcome, as far as possible, at the same time holding the limb in a position so that the great toe is on a straight line with the inner margin of the patella and the anterior superior spinous process of the ilium.

"In applying the plaster of Paris bandages over the seat of the fracture, a fenestrum, corresponding in size to the dimensions of the compress with which the lateral pressure is to be made, is left open over the great trochanter.

"To secure perfect immobility at the seat of fracture it is not only necessary to include in the dressing the fractured limb and the entire pelvis, but it is absolutely necessary to include the opposite limb as far as the knee, and to extend the dressing as far as the cartilage of the eighth rib.

"The splint which is represented in Fig. 1 is incorporated in the plaster of Paris dressing, and must be carefully applied so that the compress composed of a well cushioned pad, with a stiff, unyielding back rests directly upon the trochanter major, and the pressure, which is made by a set-screw, is directed in the axis of the femoral neck. The set screw is projected by a key which is used in regulating the pressure. Lateral pressure is not applied until the plaster has completely set. If the patient is well suported and the fractured limb is held immovably in

FIG. I.

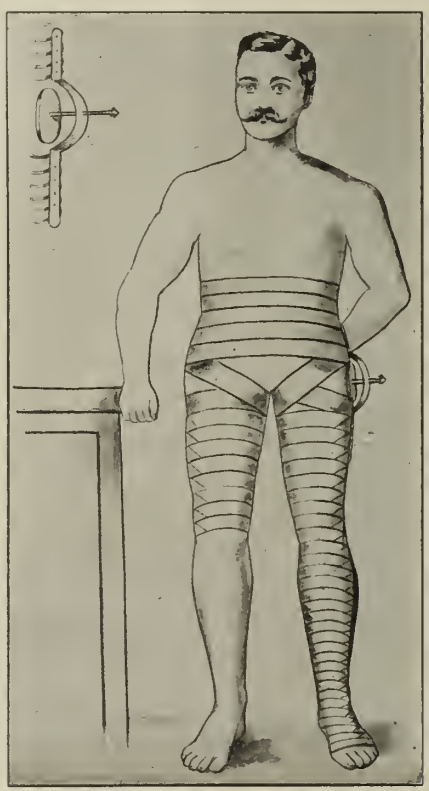

FIG. II.

proper position, but little pain is experienced during the application of the dressing. Syncope should be guarded against by the administration of stimulants. As soon as the plaster has sufficiently hardened to retain the limb in proper position, the patient should be laid upon a smooth, even mattress, without pillows under the head, and in non-impacted fractures the foot is held in a straight position, and extension is kept up until lateral pressure can be applied. The lateral pressure prevents all possibility of disengagement of the fragments in impacted fracture, and in non-impacted fragments it creates a condition resembling impaction by securing accurate ap-

position and mutual interlocking of the uneven fractured surfaces. No matter how snugly a plaster of Paris dressing is applied, as a result of shrinkage in a few days it becomes loose, and without some means of making lateral pressure it would become necessary to change it from time to time in order to render it efficient. But by incorporating a splint as shown in Fig. I. in the plaster dressing (Fig. II.) this is obviated, and the lateral pressure is regulated from day to day by moving the set screw, the proximal end of which rests in an oval depression in the center of the pad. From time to time the pad is removed and the skin washed with diluted alcohol for the purpose of guarding against decubitus."

In the Annals of Surgery, 1892, Dr. John Ridlon reports twelve cases of fracture of the neck of the femur treated by means of the so-called Thomas hip splint, the ages ranging from 43, the youngest, to 70 and 80, the oldest, all with fairly good results. In May, 1897, Dr. Newton M. Shaffer read before the American Orthopædic Association an article on "The Mechanical Treatment of Ununited Fracture of the Neck of the Femur with Traction Apparatus Producing Abduction of the Thigh and Direct Lateral Pressure over the Trochanter Major," in which he employs a modified long straight Taylor hip splint. (Fig. III.)* "In addition to this splint a belt about three and one-half inches wide, made of surcingle material, such as is used by saddlers, is passed around the pelvis, a crescentic shaped horse hair pad being placed over the trochanter major. This belt is firmly buckled at the opposite side of the pelvis.

"The limb is placed in abduction at an angle of about 20°, the origin of the abductor muscles being used as a fixed point to throw the distal toward the proximal fragment. A lever is thus created where the fulcrum (the origin of the abductors) is between the power (the lower end of the limb) and the resistance (the seat of the fracture). The entire limb is now placed on an inclined plane at an angle of about 135°.

"Thus the traction maintains the length of the limb, and the abduction of the thigh approximates the fragments. To still further increase the lateral pressure a tourniquet is passed over the padded surcingle, thus absolutely controlling the lateral pressure. When the patient is moved in bed for any purpose, or when the traction is modified in any way, or when the perineal pads are loosened the tourniquet pressure is carried up to the point of toleration. At other times the tourniquet pressure is modified. This pressure does not give rise to any trouble, nor does it seriously interfere with the circulation."

Two of the cases reported by Dr. Shaffer were ununited fractures, and they came under his care because the conventional method had failed.

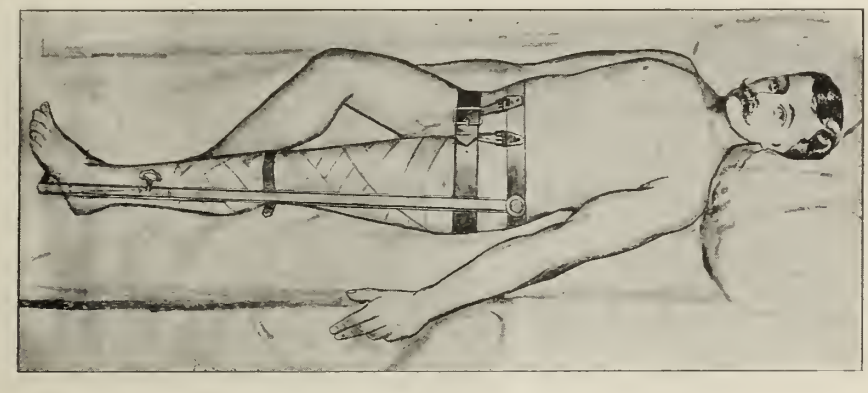

FIG. III.

I have employed Dr. Shaffer's method with the long traction hip splint but once, and only varied from the treatment in that I did not find the tourniquet over the padded surcingle necessary. It was in the case of a man, aged 45, who had sustained not only a fracture of the neck of the femur but a fracture of the middle third of the thigh, the fracture demonstrated by etherization. No fracture-bed was used, and the bed pan could be easily placed in position, and there was no discomfort or pressure from plaster or perineal pads —in a word, no irritation in any way. The result, so far as union was concerned was perfect, although there was some shortening, and the man is now employed as a day laborer.

Notwithstanding the reports of eight cases by Dr. Senn, twelve by Dr. Ridlon, seven cases by Dr. Shaffer, and four cases by Dr. Myers, making a total of thirty-one cases of fracture of the neck of the femur united by these methods, our surgeries still repeat the old story of non-union

*Fig. III. represents the splint recommended by Dr. Shaffer but without some of the details.

and make little, if any, reference to these reports. In a work on surgery placed upon the market within the last six months, highly recommended by reviewers, and claiming to be up to date, we find the following statement regarding fracture of the neck of the femur: "Union in old and enfeebled persons is doubtful. Should they show the bad effects of confinement to bed, we must make the treatment of the fracture a secondary matter and attend to their general health. Traction should be employed gently, and impaction, if existing, should not be disturbed. Make the patient as comfortable as possible, and guard against bed sores. Sandbags or cushions may be used to steady the limb, or a plaster of Paris cast to include the whole limb and the pelvis. Buck's extension, with a five-pound weight will allow the patient to sit up in bed, and will keep up just enough traction to make him comfortable."

What he says of Buck's extension is true, and it is a comfort to the patient so far as pain is concerned, but it does not immobilize the hip sufficiently to permit union, and the plaster of Paris cast, including limb and the pelvis will not come as near immobilizing it as the Buck's extension, for you must have both limbs, the pelvis and the body to at least the eigth rib, included in the plaster, and the lateral pressure as mentioned by Dr. Senn.

I have had four cases where I employed the conventional Buck's extension, supplemented by Hamilton's long splint, and met with complete failure in all but one. Three of them were treated in one of the best of appointed hospitals, where we had house surgeons and nurses who were given special instructions regarding these particular cases, yet time and again I have gone there and found that my patient, while asleep, had gradually slipped down in the bed until the foot would be against the pully, notwithstanding the elevation of the foot of the bed. I have repeatedly found the trochanter major above Nelaton's line. It is impossible to place the bed pan under the patient and a fracture-bed must be used.

The idea of the Hamilton splint is to prevent rotation. It makes a very pretty picture as shown in surgeries, but when applied, because of the lack of contour of the leg, it is impossible to adjust it snugly, from foot to axilla, and the very parts which prevent its snug adjustment—viz: the ankle, trochanter major, crest of the ilium and ribs, will not bear pressure as they are so slightly padded by muscular tissue. Often after I felt sure the splint was well applied, and adjusted with bandages and adhesive straps to toleration, I have visited my patient the following morning and found my Hamilton's splint on top of the leg, crossing the abdomen and chest, or slipped around and the upper portion of it under the body.

FIG. IV.

All of these conditions are obviated in the long extension hip splint, as suggested by Dr. Shaffer, the extension made by adhesive straps attached by buckles to the foot piece of the brace and the counter extension by the perineal straps. Extension can be made until the fractured ends are brought in apposition by the use of the ratchet and key to extend the leg. It is still more firmly fixed by the abduction of the leg and the surcingle about the pelvis making lateral

pressure over the trochanter major. There is no occasion to guess at the amount of extension necessary as we do with Buck's extension. In the long traction hip splint when the fracture is reduced, you have sufficient extension and it can be locked there.

If mechanical measures fail we are justified in surgical procedures, now that surgery has reached such a point that we enter the various cavities of the body with impunity.

Prior to the report of cases cured by the long extension hip splint I had three cases in which an operation for ununited fracture of the neck of the femur was performed.

Case I. On Feb. 2, 1897, with Dr. Edouard Boeckmann, of St. Paul, I saw Michael C., age 36, who gave the following history:

On Sept. 15, 1897, nearly five months before, he was thrown from a wagon, the wheel of which struck his hip; the injury was such that his physician kept him in bed for five weeks. It was impossible to find what diagnosis was made at the time of the injury. When he entered Bethesda Hospital he was able to go about only on crutches. Even with this protection to the limb he suffered great pain whenever the limb or foot came in contact with an object that disturbed it in the least. He suffered great pain at night especially upon any attempt to move.

He was given an anæsthetic, and it was easily demonstrated a case of intracapsular fracture of the hip.

The hip was forcibly manipulated and the patient placed on a hard bed with extension by weight and pully, and sand bags on either side of the limb, which treatment was continued for one month.

He was then again examined under an anæsthetic, which examination showed that there had not been the slightest attempt at union.

Dr. Boeckmann operated, making a horse shoe shaped incision (Fig. IV.) beginning it an inch below and an inch posterior to the anterior superior spine of the ilium, carrying it down two inches below the trochanter major, and bringing it up the buttocks to about the center of the gluteus maximus muscle; the skin, superficial and deep fascia were dissected en masse. A chain saw was then passed between the posterior border of the tensor vaginæ femoris muscle and the gluteus medius, hugging the neck of the femur and the base of the trochanter major; it

FIG. V.

was brought out between the posterior surface of the gluteus medius and anterior surface of the gluteus maximus (Fig. V) thus sawing off the trochanter major and its muscular attachments which were then turned back, making an exposé of the capsule of the joint. Then by making a longitudinal incision in the capsule of the joint, the line of the fracture through the neck of the femur could be easily seen. The surfaces of the fractured ends were denuded and a bone peg was driven through the neck of the femur (Fig. VI), thus holding the fractured ends together. The capsule was then stitched with cat gut, the trochanter major nailed with a small bone peg back to its original position, the skin and fascia flap sutured and a silicate spika applied.

Very little pain followed the operation, and the only constitutional symptom was a tempera-

ture for three days of 100° F. From that time until his discharge his temperature was normal.

April 5, 1897, after having been in bed for six weeks, and for about ten days allowed to walk about the ward on crutches, and finally with only a cane to support him, he was discharged.

I regret that the amount of shortening and motion was not accurately recorded. I can only say that at my last examination, just previous to his discharge, I was perfectly satisfied that there was a solid union. There was no pain on motion; there was sufficient flexion and extension to enable him to walk without evidence of stiffening and he could sit naturally in a chair.

On April 16, 1898, one year after his discharge from the hospital, in answer to a letter, he stated: "I can move the leg in every direction; it pains a little when I lift it high and a little when I have walked sufficiently to become fatigued, and I am walking without a cane."

Case II. A. L., age 36, gave the following history:

Entered a hospital Feb. 28, 1897, having sustained a severe injury of the hip in slipping on the sidewalk on Jan. 5.

The patient was placed in bed with extension by weight and pulley, which treatment was continued for about one month. He was then discharged, but because of his inability to walk and great pain he was admitted to Bethesda Hospital, where I first saw him. On March 16 he was given an anæsthetic and the same operation performed as in the case just reported.

In this case it was necessary to give some morphine following the operation, as the man was very nervous and we were a little anxious as to his mental condition, as a few months previous to the injury he had been an inmate of an insane asylum. The day following the operation he had a temperature of 101.5° F., which continued to decrease, however, until the sixth day, when the temperature was normal. It was necessary to keep him in bed for about ten weeks before we were satisfied that a solid union had taken place, at which time flexion to an angle of 45° could be made without eliciting any pain, and abduction and adduction were nearly normal. Considerable trouble was experienced, however, in inducing him to walk, as he had a mild attack of his former melancholia, and he was fearful of the results. We were finally successful in getting him to walk with a cane. He left the hospital fourteen weeks after his admission with a little over an inch shortening, free from pain and walking with only a slight limp. Within the past two weeks, Dr. Earl, his family physician, reported to us that he is able to do manual labor.

FIG VI.

Case III. On June 29, 1897, Miss Annie W., age 23, was admitted to the City and County Hospital, suffering pain in her left hip, she having one year previous slipped on the sidewalk and received and injury to the hip.

She was placed in bed for two months with splints applied, after which she was allowed to get up and go about on crutches. When she was admitted to the Hospital, however, she was walking with a cane, with the foot markedly everted, and every step was attended with great pain.

It was very evident she was placing little weight upon the foot, relying entirely upon the

cane. The trochanter major was above Nelaton's line; there was marked atrophy of the calf and thigh, and a shortening of one and one-half inches of the diseased limb. She was placed under an anæsthetic, and an intracapsular fracture of the hip was very apparent.

The hip was forcibly manipulated and the limb brought down in good position. She was placed upon a hard bed, extension by weight and pulley applied, the limb slightly abducted, with sandbags extending from the axilla to the foot on the outer side of the leg, and a sand bag extending from the ankle to the perineum on the inner side of the leg, with a bandage about the sand bags and leg. She was kept in this position continuously from the last of January to March 10, 1897. She was patient and remarkably tractable, and tried in every way to keep the joint perfectly quiet and the limb in the position desired, thus emphasizing a fact which the orthopædic surgeon already realizes, that it is impossible to hold a fracture of the neck of the femur in apposition by this means, that is by Buck's extension.

On March 20, 1897, she was placed upon the operating table and the same incision and operation performed as in the other cases just reported, with this exception, that instead of a bone peg being used, a few moments before the operation it was discovered that we had no bone pegs, so we were obliged to make a peg from the ivory handle of a surgical instrument. The subsequent dressing was also a little different, plaster of Paris was used for the spica instead of the silica dressing, and adhesive plasters were applied to the leg for extension by weight and pulley, when she was put to bed. Slight temperature and pain followed the operation for a few days, after which she was comfortable.

About eight weeks after the operation she was allowed to begin walking, as there was every evidence of a complete bony union. She continued under observation for nearly a year, when she left the city to accept her old position of waitress. The following conditions were recorded: One inch shortening, extension and flexion normal, adduction normal, no pain or tenderness whatever, and with an elevated shoe to compensate for the inch shortening, she walked with normal gait.

The shortening in the cases just reported, was due to the absorption of the fractured ends that were ununited for so long a time, and also to the curetting at the time of the operation.

An English physician recommends the use of lemon juice as a hæmostatic. He tells of two cases of severe nose bleed that were controlled at once by washing out the nostrils with a mixture of lemon juice and water, one to four.

CÆSAREAN SECTION—RECOVERY.*

By Chas. F. Denny, M. D.,

St. Paul.

It gives me pleasure to report a successful case of Cæsarean section, both mother and child making an uninterrupted recovery.

The early history which I shall give is drawn largely from my memory, as the notes of the case in 1895, when I first attended the patient, were entirely destroyed when my office burned in 1896.

On August 12, 1895, I was in attendance on Mrs. S., a primipara of twenty-three years of age. Everything progressed normally during the first stage. The pains became very strong after the membranes ruptured and the head advanced nearly through the os. The occiput was O. L. A. After a couple of hours no farther progress was made. The head would advance and make a mighty effort to rotate and then recede. I etherized and applied my forceps, the os having slipped over the head, and much to my chagrin the head would come but so far, and then would not move and the forceps would slip off. This was about 6 a. m., and I sent for Dr. C. E. Lee, who when he arrived repeated my fruitless endeavors to deliver with forceps. There was some obstruction within the pelvis which evidently prevented the descent of the head to the perineum, but what it was we could not ascertain with the examining finger. We then turned the child and delivered the body, but the after coming head refused to be delivered, both of us trying our best. The patient was beginning to show signs of weakness, so I hastened and obtained my craniotomy set and perforated the head, the delivery being quickly effected. The child was a large one, a male, and had long been dead from pressure. The mother's soft parts were bruised and lacerated. Absolute asepsis was impossible owing to bad surroundings, although all possible care was used. The perineum was repaired, and catgut was used, if my memory serves correctly. For ten days she did fairly well, when in spite of care a septic cellulitis developed and I removed her to the hospital where for weeks we had a fight with death, which was finally averted.

A careful examination now showed us the source of our troubles in delivery. There was a hard, firm tumor attached to the posterior wall of the uterus which had prevented the delivery of the head, preventing its proper advance on the pelvic floor. The perineum had only a partial union, and some months afterwards this was

*Read before the Ramsey County Medical Society, June 27, 1898.

properly repaired at the hospital. She again came to me for pregnancy a short time after this and I induced an abortion at two months.

In March of this year she still again came to me for pregnancy, which was well along on its course and I refused to bring on a miscarriage, fearing we would have some serious trouble. I explained to her that I would perform a Cæsarean section at full term, which was reckoned for May 15 (the labor occurring on the 12th), and that unless I could do that I did not care to have her consult me again. A few weeks later she returned, and gave consent to have it done. The child was alive and the head presenting at this time and the tumor felt crowding the uterine neck upwards toward the pubes, making it somewhat hard to reach the os. The physical condition of the patient was most excellent, and her age twenty-six.

On May 12, 1898, at 3 a. m., she was admitted to St. Joseph's Hospital in the beginning of labor. I was not called until 5 a. m., when I found the pains active, the os dilating and the membranes beginning to bulge. The os was the size of a fifty cent piece. Immediate orders were given to at once prepare the patient for operation, bowels cleared, vagina rendered sterile, abdominal wall shaved and dressed with sterilized gauze. In the meantime I got my instruments ready, and returned to the hospital at 7 a. m. Strychnia and tincture of digitalis had been given the patient, and the labor pains were excellent. She was etherized, and under the strictest surgical asepsis in my part, and that of all my assistants, the operation was performed. Dr. Daniel Pool, Dr. J. H. Murphy, the house officers and nurses at the hospital gave me most valuable assistance, and I wish to thank them for the ready acquiescence on their part to my directions in every particular.

The incision was the long one, extending from above the umbilicus down to within a short distance of the pubes. The bladder was catheterized before incision was made. The uterus was raised out of the abdominal incision without difficulty. The growth, a fibroid, was found attached posteriorly at the juncture of the lower and middle third of the uterus. As the patient had refused the removal of her ovaries, and the chances of the removal of the growth itself at some future time being so good, the Porro operation did not to my mind seem warranted. The fibroid was apparently the size of a small cocoanut, and did not appear to be very firmly aherent to any parts except the posterior uterine wall. No time was lost in meddlesome investigation. Towels were packed all about the uterus wet in normal salt solution, completing shutting off the abdominal cavity. The uterus was now rapidly opened by a straight cut, hand pressure being made at the uterine neck to control hemorrhage. The placenta was directly beneath the incision, and I tore through it at once and delivered the child feet first. To Dr. J. H. Murphy is due the credit of its resuscitation. The placenta was removed at the same time as the child. My hands were instantly cleaned in bichloride solution and rinsed in sterile water, and both Dr. Pool and myself removed all clots and membranes from inside of the uterus—hot salt solution being poured inside and contraction favored in every way, and not more than a pint and a half of blood could have been lost. Collapse took place on the uterus being opened, but was almost instantly rallied from. Strychnia was given hypodermically at this moment. The uterine wall was sutured with kangaroo and catgut tendons, and the peritoneum of the abdominal wall united by a running catgut suture. Deep sutures of silk worm gut for the muscular and skin sutures brought the walls in good apposition. About nineteen superficial skin sutures of silk were needed to make the closure complete. A quart of normal salt solution was thrown into the bowel, and ergot given hypodermically, and as soon as the surgical dressing had been applied and plaster straps secured, the patient was removed from the table. The child, a male, weighed nine and one-half pounds. The recovery of the patient was uneventful, some difficulty being experienced for a couple of days after the operation from an irritable stomach.

No nutriment was given at first by the mouth, the patient being fed by a nutrient rectal enema of egg, whisky and peptonized milk. The bowels were opened by small doses of a saturated solution of magnesia sulphate, given every hour. This seemed to aggravate the retching, so a rectal enema of glycerine, water and turpentine was used with success. More or less retching, however, continued, the character of the vomitus being mucous and biliary. Champagne was now used, and this entirely ceased and the stomach retained nourishment from that time on.

I will not burden you with any more details of convalescence. The temperature never reached 100° until some ten or twelve days after the operation, when it went to 100.4° from some digestive disturbances, accompanied by constipation. This was quickly relieved, and no temperatures at that point were again reached. The pulse record was uniformly good. The patient was discharged from the hospital on June 12, in good condition.

The advisability of a Cæsarean section for an obstructing fibroid or other tumor must necessarily depend on its size and location. Those situated within the pelvis proper, that is, below the brim, always give rise to the most serious obstructive complications. Those attached to the uterus above the brim do not obstruct the passage of the child, but should pregnancy exist

in a uterus with a fairly large fundal fibroid it is a grave doubt whether or not severe hemorrhage, sepsis or some other complications do not occur. The danger of hemorrhage is greatest in submucous fibroids, next in mural and least in subperitoneal. Septicæmia in some of its forms is very liable to follow these fibroid labors, the risks being in about the same order as those for hemorrhage. Tumors complicating pregnancy are worthy of a careful study from a clinical standpoint, for one may be called on suddenly to decide what is best to do in this class of cases.

The essentials for success in Cæsarean sections are:

First. Proper preparation of the patient before operation, and election of suitable time for its performance.

Second. An aseptic technique.

Third. The greatest care to prevent exposure and handling of the other abdominal organs, and their contamination with uterine fluids.

Fourth. Accurate and firm suture of the uterine wall.

Under the first heading I will say that a few hours before operation the abdominal wall should be shaved, scrubbed with soap and water and dressed with a bichloride moist gauze; the vagina soaped and douched with bichloride solution; the bowels thoroughly emptied by an enema. Labor should have begun. When the patient is prepared, strychnia should be given hypodermically and digitalis given by the mouth. This I consider extremely important in all operations, and it goes a long way towards preventing shock.

Now coming to the second essential. The abdominal wall is again prepared with the utmost care as though it had not been done before, while the patient is on the table. The same care is taken of the instruments, boiling them thoroughly and avoiding handling them before use. Sutures receive the same care. You cannot be too careful. And now comes the most important of all—your hands and those of your assistants. They must be sterile. Ten minutes nail brush and soap and nail cleaner, no long nails allowed, rinse again and again in water. Next permanganate solution, covering the whole forearm; decolorize in an oxalic acid solution and rinse off. Then alcohol and a thorough scrubbing with bichoride and washing off in sterile water. Twenty minutes is none too long for your toilet, and having done so you may feel reasonably certain your hands are sterile as you can make them. It is hard on the hands, but it is a long way on the road to recovery.

Now the operation having begun and the uterus having been brought outside the abdominal wall, sterilized towels are packed on all sides tightly about the uterus and the intestines guarded from escape. Don't hurry here; be sure it is packed so that no fluids or blood can get into the abdominal cavity. Plenty of hot, normal salt solution should keep these towels moist and warm, and the fundus of the uterus should be douched, and protected by a gauze pad wet in the same solution. This same solution is absorbed and goes a good way towards replacing the blood loss.

Now for our third essential. Open your uterus from the fundus at a point on a line with the cornua, going down to the junction of the lower and middle third of the uterus; avoid going lower, if possible, and you will avoid hemorrhage. Use fingers and scissors wherever possible. This is the quick part of your work. If you meet with the placenta tear through it, extract the child and placenta together, and hand to an assistant and he is responsible for its life. Now rinse your hands in bichloride and sterile water and quickly remove clots and membranes from inside the uterus The assistant has controlled hemorrhage as much as possible by pressure on the lower part of the uterus with his hands. Now as soon as contraction has begun, the fourth and last essential comes on, and don't leave the uterus until it is securely sewed, being careful to put your deep sutures through the muscular wall only—tie them and cut short and place your superficial sutures so they will bury these in out of sight, bringing the peritoneal surface of the uterus out in apposition; if this is done well the peritoneal cavity is safe in twenty-four hours. Now replace your uterus after douching it well with salt solution. Remove your towels about the sides of the uterus, and if they have been packed well you have no sponging to do. Replace your uterus and spread out the omentum in its proper place and complete the abdominal wall suture in the usual way.

Pardon me if I have tired you with an old story, but you will not find all the minutiæ gone over in the books as fully as they might be and one cannot expect good results unless he masters these, and a freshening of our memory by these facts is not time thrown away in any operation. A quart of normal salt solution should be thrown into the rectum before the patient leaves the table. Ergot and strychnia should be given hypodermically. Plaster straps should hold your dressing in place. Do not disturb that dressing for ten days of possible, then remove your superficial skin wall sutures. The deep sutures are removed some days later.

This care is rewarded by a low fever curve, nearly normal if all goes well. A well prepared dry wound is a sourse of satisfaction and a preventive of stitch abscess. The best advice I can give to a surgeon is to practise these details in your minor work and you won't neglect them in your major.

There is one thing I have neglected to men-

tion, and that is the operator and assistants should all wear gauze about their heads to keep the hair in place and prevent any infection from this source. I often see this neglected in abdominal work, and wish to enter a protest against it.

Since 1881 to the present time all the Cæsarean operations, including Porro's, that have been reported in this state in the Northwestern Lancet, as far as I can ascertain, are eleven cases, viz:

OPERATOR'S NAME.	RESIDENCE.	YEAR.	OPERATION.	RESULT.
C. A. Wheaton	St. Paul,	1880,	Cæsarean Sec.	Mother died, child lived.
C. A. Wheaton	"	1885,	"	Both lived.
C. A. Wheaton	"	1894,	"	Both lived a few hours.
J. Ohage	"	1887,	"	Mother lived 4 days, child lived.
V. J. Hawkins	"	1889,	"	Both lived.
D. Pool	"	1889,	"	Both lived.
J. H. Dunn	Minneapolis,	1892,	Porro,	Mother lived 2 years, child died.
J. H. Dunn	"	1894,	Porro,	Twins—Mother and 1 child lived.
J. E. Moore	"	1895,	Cæsarean Sec.	Child lived, mother died.
R. E. Cutts	"	——	"	Both died.
W. J. Mayo	Rochester,	1895,	"	Both lived.
C. F. Denny	St. Paul,	1898,	"	Both lived.

This makes, counting my own case, twelve operations, six completely successful cases, i. e., mother and child saved, one case both lived a short time, one case mother lived (died of malignant disease two years after), two cases both died.

Two Porro's only were successful.

There may have been other cases which have not been reported, but they are probably not numerous, and I should be glad to learn of them.

A Porro seems to me an additional risk to the mother from the increased time taken in its performance, and unless malignant disease exists I do not think it should ever be performed. Where we wish to prevent further conception an oöphorectomy adds little or no additional risk, and is easy of performance, and I would gladly have done this in the case reported but for refusal on the part of the patient, she preferring a future attempt at removal of the growth.

In conclusion I will state that the statistics for the world of late have robbed both operations of much of their former mortality, and show in careful hands a marked improvement which is largely due to modern aseptic technique.

485 Endicott Arcade.

ADENOIDS AND THEIR RELATION TO GENERAL DISEASE.*

By Albert C. Heath, M. D.,

St. Paul.

In the beginning I wish to depart from the topic of my paper and describe in general the condition commonly known as adenoid hypertrophy of the naso-pharynx.

An adenoid growth is a true hypertrophy of the normal lymphoid mass which is always found to a greater or less extent in the vault of the pharynx. Histologically, according to Meyer: "This mass is composed of a network of connective tissue supporting countless lymph corpuscles or lymphoid cells with here and there the outlet ducts of acinous glands."

The condition is one which occurs during the age of great glandular activity, that is, during child-life, and accordingly after puberty like other glandular hypertrophies, these masses are wont to atrophy and diminish in size. The cause of these growths is the tendency to hypertrophy, plus exciting causes which produce repeated colds, etc., as shown by the inflammatory changes which characterize the nasal and naso-pharyngeal mucous membrane. Heredity also undoubtedly has some influence. The symptoms are local and general.

The local symptoms are those which are catarrhal and affect the adjoining structures, the adenoid acting simply as a foreign body in the naso-pharynx. The general symptoms are those which are consequent upon the interference with the functionating power of the naso-pharynx.

*Read in the Section of General Medicine of the Minnesota State Medical Society, June 14, 1898.

The local symptoms are: discharge from the nose, nosebleed, impaired hearing and sensation of ringing or pressure in the ears, impaired senses of taste and smell, increased amount of pharyngeal mucus.

The general symptoms are symptoms due to nasal stenosis, either complete or partial, mouth breathing, flattened nostrils, imperfect vocal resonance, characteristic facial expression, which is a dull, stupid and drawn countenance, history of repeated attacks of bronchitis and laryngitis, simple anæmia, mental and nervous symptoms, as headache, listlessness and seeming stupidity, choreiform movements, enuresis, indigestion, anorexia, and at night restlessness, snoring and dyspnœa. In general where children are in poor health, anæmic, with impaired digestion and lack of development with peevish disposition, if these causes are not due to some palpable constitutional condition, it is quite certain that there is some trouble in the naso-pharnyx, causing interference with respiration.

The more prominent symptoms of facial expression, nasal obstruction, ear trouble, history of repeated colds and attacks of bronchitis and laryngitis, together with palpation by the finger will effect a correct diagnosis.

The prognosis is always favorable, depending for a complete cure upon the extent of injury already produced by the past existence of the adenoid growth. When we consider that the removal of the growth is practically devoid of danger, and a neglect to do so may result in a chronic inflammation of the neighboring tissues and a consequent loss of their functions, we are never justified in allowing the adenoid to remain, provided there are no constitutional conditions preventing its safe removal.

The following cases which I wish to cite, you will readily classify according to their most pronounced symptoms:

Case I. R. S. Age 12. Complained of pain in the ear, dullness of hearing and discharge from the left ear on and off for the past year Otherwise he is an unusually healthy boy. On examination, small granular masses were found hanging from the vault of the naso-pharynx but adherent to the posterior wall of the pharynx; there was no nasal obstruction. These growths were removed and in a week's time the discharge from the ear stopped, also the pain and the dullness of hearing, and now, three months from the operation, the boy is well and has no symptoms.

Case II. Miss C. Age 16. July 16, 1896, complained chiefly of difficulty in hearing and discharge from the ear with a history of repeated earaches. She also had a great tendency to catch cold and during these colds had an incessant cough. She was a confirmed mouth-breather, very anæmic, and had an undoubted tubercular family history. Examination revealed a large mass attached to the vault of the pharynx. July 19, I removed the adenoid. August 2, discharge and earache stopped. Oct. 6, she had no symptoms except a slight dullness of hearing; her anæmia had disappeared, the red cells increasing from 3,800,000 to over 5,000,000, and hæmoglobin from forty per cent. to seventy-five. I did not use for this anæmia any of the so-called "wonderful blood-builders," so it would be reasonable to credit the improvement to the change in the naso-pharynx. I have seen this patient recently and find her improvement permanent.

Case III. W. F. Age 6. Chief symptom was cough and night attacks of laryngismus stridulus. Several times during the past two years he had awakened at night with coughing attacks which ended in a sort of spasm, in which he would get livid and "lose his breath," as his mother expressed it. These attacks he would have often during the winter months. Examination showed a large adenoid mass which did not completely obstruct nasal respiration as he seemingly breathed through his nose most of the time. The growth was removed, and in a month's time his symptoms disappeared. From that day to this, which is over two years, he has had none of his former attacks.

Case IV. Miss H., age 16. Complained of tendency to get cold, attacks of bronchitis and general debility. She showed the symptoms of chlorosis; was a confirmed mouth-breather, very anæmic, red cells 3,000,000 and hæmoglobin forty per cent. Examination showed a large adenoid mass. August 18, 1897, removed the mass and sent her to her home in the country. Dec. 11, 1897, breathed almost entirely through her nose. The tendency to colds and bronchitis had disappeared together with her other symptoms. Her blood showed about 5,000,000 red cells and eighty per cent hæmoglobin. No blood tonic used.

Case V. S. L., age 20, complained only of tendency to catch cold and frequent attacks of bronchitis during the winter months. She was not apparently a mouth-breather. Examination, Nov. 19,, 1897, showed quite a mass in the naso-pharynx. This was removed at once, and during this last winter she has been free from her attacks of bronchitis.

Case VI., H. C. B., age 5. His noticeable symptoms were, frequent attacks of bronchitis, restlessness at night, loss of appetite, choreiform movements, enuresis and gradual emaciation. He was a partial mouth breather and appeared anæmic, although I neglected to examine his blood. Dec. 3, 1896, I removed a large adenoid mass. March 1, 1897, none of his old symptoms were present; he had gained eleven pounds in weight.

Case VII. Agnes K., age 6. Complained

of continuous cold and cough for past two winters. Was confined to the house because, as the mother said, "she seemed to have croup all winter." She had a typical adenoid face, was a confirmed mouth breather, emaciated and evidently very anæmic. Dec. 9, 1897, I found the vault filled with adenoid vegetations. Dec. 11, 1897, I removed the adenoids. March 8, 1898, child was a perfect nasal breather, croupy condition had entirely disappeared. She had gained markedly in weight and seemed like a full blooded, healthy child in every particular.

Case VIII. Miss S., age 8. Only symptom was coughing attacks at night and bronchitis during entire winter. She was not a mouth breather. Dec. 4, examined and found an adenoid which was removed on Dec. 11. Feb. 1. coughing and bronchitis were absent and the child was able to go about as a healthy one.

Case IX. W. T., age 5. Complained mostly of cough and tendency to attacks of bronchitis. She was a mouth breather and very anæmic. June 1, 1897, I examined and found a large adenoid mass filling the naso-pharynx, which was removed. August 13, she had perfect nasal respiration and was free from her troubles. During the past winter she has been almost entirely free from her former cough.

Case X. Mrs. G., age 38. Complained of chronic nasal pharyngitis and a cough which bothered her almost continually during the winter. She was almost entirely a mouth breather. Oct. 4, I removed an adenoid mass and in a month's time her cough disappeared. She passed last winter almost free from cough.

Case XI. W. G., age 10. Was a mouth breather and had all the characteristic symptoms of adenoids. Oct. 4, removed the growth and today he has free nasal respiration and no symptoms.

Case XII. E. G., age 12. His only symptom was night cough during the winter. Oct. 4, I removed a small adenoid. After ten days his cough gradually disappeared, and during the past winter he has had no symptoms. These three cases are interesting from the fact that they are a mother and her two sons.

Case XIII. Syrian baby, age 7 months. Baby very much emaciated with a cough most of the time; could not nurse because nasal respiration was impossible. Baby was slowly starving to death. Sonorous breathing was present, and when the baby was laid on its back it would almost suffocate. An adenoid was removed and the baby at once commenced to respire more easily, and in twenty-four hours was able to nurse. One week from the operation the baby seemed to be well.

Case XIV. Baby I., age 3 months. was very emaciated, could not nurse, coughed and seemed about to suffocate. Removed the adenoid and the relief seemed immediate.

Case XV. Baby F., age 1. Complained of attacks of bronchitis with cough; a continuous croupy condition during the winter. Was a confirmed mouth breather, very anæmic and fretful. Removed a large mass filling the naso-pharynx. Three months after the operation he was a nasal breather and his bronchial and laryngeal troubles, together with his anæmia had disappeared.

Case XVI. Baby girl F., age 3. Sister to the preceding case, symptoms and conditions almost identical, with a similar result after the removal of adenoid.

I have a rather indefinite record of fourteen other cases in children between the ages of six months and eight years, where I found symptoms of acute bronchitis and laryngitis. These cases I was called to generally at night, and almost invaribly the parents thought simple croup was present. Being deeply interested in adenoids at that time I examined with my finger every one of the fourteen, and in twelve I found undoubted adenoid hypertrophy present. These were in cases where there was an undoubted history of a great tendency to bronchitis and laryngitis, and in my opinion the adenoid was the predisposing cause. Had I been allowed to remove these growths I believe that these winter ailments which these children will continue to have would have been cured.

These cases are cited as illustrating different types of the disease as shown by characteristic symptoms. They are all within the field of the general practitioner, if he but use his forefinger and believe when he finds an adenoid that a pathological condition is present which can and must be removed at once. I believe the general practitioner underestimates the value to a child of an anatomically and physiologically perfect naso-pharynx. In woman he attributes all sorts of general and vague symptoms to the pelvis and does not hesitate to advise even severe operative measures; catarrhal conditions, flexions and growths in that region are all important and must be attended to at once, yet in a child whose greatest motive in existence is growth and physical development, he will allow the respiratory power (which is most important during the growing period) to be reduced, and comfort himself by thinking that when the child has reached its growth then the power of proper respiration may be established. This seems like the most negligent form of the expectant treatment.

The cases which are most interesting from the standpoint of general medicine are those which show the conditions of bronchitis, laryngitis and anæmia, which are so commonly present in young children. When we stop and think

of the commonness of such conditions as seen by every general practitioner during the winter months, it becomes one of great importance. I feel firmly convinced that in those children who have a history of repeated coughs and attacks of bronchitis during the winter, the chief predisposing cause is an adenoid thickening which tends to become more predisposing with each attack.

It is surprising how many cases of true adenoid hypertrophy there are which do not show themselves by the symptom of nasal obstruction and mouth breathing. These are the cases which I think the general practitioner overlooks and I believe are the cause of the majority of the bronchial and laryngeal troubles that so many children are prone to.

These statements are in accordance with our best authorities, and yet in the face of all this is the general practitioner right when he says to the parents: "Do not do anything for this. When the child gets older this growth will shrink up." This is about the same as it would be to allow a foreign body to hang suspended in the naso-pharynx from childhood to puberty with the possibility that in the course of ten or fifteen years it might pass away.

Medical literature and the experience of general practitioners and rhinologists brings us to the following conclusions:

That adenoids are very commonly found in children between the ages of three and fifteen.

That this adenoid hypertrophy when it destroys the continuity of the vault of the pharynx is a pathological condition.

That this adenoid does produce and will produce acute and chronic post-nasal catarrh, acute and chronic otitis media, acute and chronic bronchitis and laryngitis, nasal obstruction, anæmia, various mental and nervous symptoms, as enuresis, choreiform movements, restlessness at night, etc., and finally,

That it is possible to safely and easily remove this growth and cure all these conditions.

Iron for Children. It is somewhat surprising that the U. S. Pharmacopœa contains no preparation of iron that is entirely satisfactory for administration to children. Of fluid preparations, the one upon which practitioners rely chiefly for general use, the tincture of the chloride, is sour, astringent, altogether a nasty dose. The syrup of the iodide answers well, but is more particularly suited to strumous cases than to simple anæmia. The wine of iron, the solution of the citrate and the other agreeable liquid preparations are feeble chalybeates. There are several solid preparations of iron that are efficacious, but they should be administered in the form of pill or capsule to cover the taste, and there are few little children who can swallow pills.

A tonic for children, in order to be successful, must not be disagreeable to the taste. Otherwise there will come thrice daily a fight to get the medicine down, and it is often the mother who first gives up the struggle. By far the most satisfactory preparation of iron that has yet been devised is the albuminate, highly recommended by Holt, Sachs and other writers upon the diseases of children. There is no better form of the albuminate than what is commonly known as Gude's Pepto-Mangan, the Liquor Mangano-Ferri Peptonatus. That it is an agreeable preparation, pleasant to take, may be told by a trial; that it is an effective chalybeate where iron is indicated has been demonstrated time and time again, not alone in this country, but particularly in Germany where this preparation is much used and highly extolled.

Holscher has used guaiacol carbonate with good results in 100 cases of phthisis in addition to the 60 cases reported some time ago. He first draws attention to the advantages of this preparation over creasote or even pure guaiacol. The digestive functions are not disturbed. The amount absorbed into the blood is small and the action therefore mild. The author thinks that the poisons circulating in the blood of the phthisical are in this way made inert. He mostly gives 2 to 3 g. in the day in two doses; in cases where no result is apparent he proceeds slowly to 6 g. He has seen striking improvement in some advanced cases of phthisis. The appetite is increased, and the assimilation of food promoted. Details are given of six cases, some of which were advanced when they first came under observation two to four years ago. Guaiacol carbonate is practically useless in acute miliary tuberculosis.

Bidder finds that primiparæ over 40 are common in Dorpat, and from his own observations he notes no special anomalies in pregnancy. It seems, however, that kidney complications and eclampsia are relatively frequent. Abnormal presentations are not more common than in younger mothers. The duration of labour is distinctly longer, but only in the first stage. Operative interference, especially forceps, is frequently needed. Ruptured perineum is not more frequent than in primiparæ; the same applies to complications in childbed. Severe puerperal diseases and mortality from the same are not more common, nor is the mortality amongst the children of old primiparæ specially high. In fact, the old theory that old primiparæ run great risks is a mere piece of a priori reasoning.—*Brit. Med. Journal.*

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FREE TREATMENT FOR CRIPPLED AND DEFORMED CHILDREN.

The last legislature that met in this state appropriated the sum of $10,000 for the hospital treatment of such crippled and deformed children as are too poor to receive proper medical care. There have been so few applicants for the benefit of this appropriation that its existence is probably not generally known, and as the physicians of the state are of all people most likely to know of the existence of cases deserving free treatment, it will not be amiss to give some statement of the object of the law and how the benefits arising from it may be attained.

The statute, which forms chapter 289 of the laws of 1897, provides that the Board of Regents of the University of Minnesota shall make provision for the care and treatment of indigent children who have resided in the State of Minnesota not less than one year, and who are crippled and deformed or who are suffering from a disease through which they are likely to become crippled or deformed. Accordingly the Board has made arrangements for the accomodation of the children in the City and County Hospital, St. Paul, where ample provision has been made for all cases that may apply.

Applications for the admission of patients and all inquiries should be addressed to the chairman of the board of managers of the hospital, Stephen Mahoney, Guaranty Loan Building, Minneapolis.

The rules for admission are

"Any parent, guardian, relative, next friend or other person desiring to obtain care and treatment for any crippled or deformed child under the provisions of chapter 289, laws of 1897, shall proceed as follows:

"First. Such parent, guardian, relative, next friend or other person shall make affidavit stating:

"(a) The full name and age of such child and the full names and postoffice address of the parents, if living. If neither of the parents are living, then the full name and address of the guardian, relative or other person with whom such child lives.

"(b) How long such child has been a resident of the State of Minnesota.

"(c) Whether the parents of such child, if living, or the guardian or other person, chargeable with its care and nurture have sufficient means to provide proper medical care and treatment for such child.

"(d) The occupation of the parents of such child, if living, and in a general way what property they or either of them own in this State or elsewhere. If such child owns any property in its own right, the amount and character of the same.

"Second. Such parent, guardian, relative, next friend or other person shall cause a thorough examination of such child to be made by some reputable physician who is a resident of and engaged in the practice of medicine in the State of Minnesota. After such examination the physician making the same shall make a certificate in which he shall set forth in detail what, if any, deformity or crippled condition he discovered about such child, or what, if any, disease the child was suffering from through which it was likely to become crippled or deformed, and shall give a full diagnosis of the case, and shall also state whether in his judgment the condition of such child can be substantially and permanently improved by medical care and treatment. He shall also state, if he shall be informed on the subject, whether the natural or legal guardians of such child are able to provide it with proper medical care and treatment. Such parent, guardian, relative, next friends or other person shall procure from the clergyman of whose church or congregation he is a member, or upon whose administrations he attends, if there be such, a certificate stating whether in his opinion the person or persons whose duty it is to charge themselves with the care and nurture of the child have sufficient means to provide it with proper medical care and treatment.

"Third. Such parent, guardian, relative, next friend or other person shall thereupon forward his application, accompanied by the affidavits and certificates aforesaid, to the Board of Regents of the University of Minnesota. The Board shall institute such further inquiry as they shall deem requisite or fitting, and if

upon the information before them, and upon consultation with the physicians and surgeons charged with the medical care and treatment of such children under the said law and these Rules, it shall be considered that such child is a proper subject for care and treatment under the provisions of said law, and the state of the appropriation is such as to justify it, they shall admit it to the hospital for that purpose and notify such to the hospital.

"Fourth. The parent, guardian, relative or other person making application for the admission of any child shall, in case such child is received, bring it to the said hospital and shall furnish it sufficient clothing to last at least six months, and when such child is discharged shall come to said hospital and receive it. No child will be received into the hospital whose age is less than two years, nor any whose age is more than twelve years; nor any child who is afflicted with any contagious or infectious disease.

"No child shall be admitted to the hospital who shall be under treatment at any other hospital at the time when application for its admission shall be made."

It is further provided that the Board of Regents shall designate from the professor, in the Medical Department of the State University a physician and surgeon to have the care of the children thus provided for, who shall have such assistants as may be necessary, all from the medical staff of the University and all to serve without pay. Braces and other mechanical appliances are to be furnished when necessary and are to remain the property of the state.

NOTES.

True Americanism.

Physicians and pharmacists, like the masses of the people, have tired of the arrogation of superiority implied by the announcements of foreign manufacture, and are revolting against them. This spirit is especially commendable at the present time, when a vast wave of patriotism is rolling over the land, making the North and the South, the East and the West as one band of brothers by its magic influence. The Antikamnia Chemical Company, of St. Louis, in all of its advertising matter, whether through the journals or by circular, takes particular pains to impress upon physicians and pharmacists that its goods are made in America, by Americans, and for American use. This enterprising Company realizes that the words "made in Germany," or "made in France" no longer possess the influence and meaning they once had. The people of this country no longer scorn or underrate the products of their own native laboratories and work shops. —The National Druggist.

The Classification and Treatment of Burns.

Dr. A. F. Beddo, M. D., physician to Buckner Orphans' Home, Dallas, Texas. (An essay read before the Dallas Medical and Surgical Association, March 27th, 1897.)

There are times in the history of the doctor when he is woefully at his wit's end, knows not which way to turn nor what is best to do; but nowhere is this more strikingly true than when brought face to face with a human being severely burned.

As the seriousness of a burn is not measured so much by its depth as by the extent of surface involved, it is a matter of importance to know at once the amount of integument burned. For, as Ashurst aptly says of extensive burns: "Myriads of fibres as conveyers, myriads of cells as receivers are involved. There is so much wrong at the surface that it would be a marvel if wrong did not follow at the center." So address should be made to offset any accident that might arise from internal derangements along with such efforts as are made to restore the surface to its normal condition.

And, in order to act intelligently in the premises, it is well to keep in mind the pathological changes that are likely to follow burns of different degrees and extent, and on different parts of the body.

The classification of the local effects of burns by Dupeytren into six degrees, although not a "purely pathological arrangement," is convenient and of practical importance in treatment and results. These six degrees are:

1. Simple erythema. Generally followed by slight desquamation, but no destruction of tissue.
2. Vesication. Where only the superficial layers of the cuticle are involved.
3. Total destruction of the cuticle and the cutis vera, except a portion of the papillary layer and the epithelium about the hair follicles and sebaceous glands.
4. Destruction of both epidermis and true skin and the subcutaneous tissues.
5. Destruction of skin, deep fascia and muscles involved.
6. Entire destruction of parts.

Taken in connection with this arrangement, the constitutional effects of burns are appropriately arranged into three stages:

1. Shock and internal congestion. Always found in extensive burns of the head and trunk.
3. Suppuration and exhaustion. This last stage, on account of long continuance, is the one that tries the patience of the attendant; and doubly so where the trouble is complicated by preëxisting constitutional derangements.

In the prognosis of serious burns it is usually considered bad or even fatal where one-third of the surface is involved. And it might well be

qualified by the age and health of the patient; the young and the aged the more easily succumb to shock.

The constitutional treatment in these cases is of great importance. Shock is best treated by the external application of heat, excluding air from wounds; internally and by hypodermic injections of brandy or whisky, strychnia, aromatic spirits of ammonia, morphia, milk and other nutritious liquid foods given at regular intervals.

In the secondary stage, saline cathartics. A watch should be kept on the kidneys, and if congested, or should there be suppression of urine, hot fomentations should be applied, or the bladder emptied by catheter. Traumatic delirium, which is most sure to rise if there be much burnt surface on the head, face and neck, or body, is best controlled by the bromides and chloral hydrate in appropriate doses. Diarrhœa, which is often a distressing feature is best controlled by a combination of subnitrate of bismuth, mistura cretæ, deodorized tincture of opium, aromatic spirits of ammonia and ergot.

Other complications that arise may be treated on general principles.

The local treatment in most cases is of far greater importance than is sometimes conceded. Our aim should be to rapidly restore the impaired tissues to their normal condition; to give as little pain as possible in treatment, and come out with good results. The most generally accepted mode of treatment, locally, is to use some antiseptic wash, such as warm carbolized water, or, if not much surface is involved, a corrosive sublimate solution 1.2000 to 1.5000, cover with strips of protective 1.5000, if extensive, boric acid solution to mop off surface, covered with iodoform, bichloride cotton and bichloride bandage, etc., or linseed oil and lime water. But my experience with burns has led me to pursue a different method, and the results have been invariably good. The carron oil treatment leaves too many scars.

The objection to the antiseptic wash is that it is attended with a great deal of pain, which if avoided, will add materially to the chances of recovery, not to speak of the humane aspect. To remedy this defect the antiseptic washes should be used only in cleansing the healthy skin near the burnt surface after the removal of the debris of charred tissues and other accumulated substances. The suppuration, which is very great, can be easily removed by pieces of surgical cotton, either dipped or gently rubbed over the affected surface. In the application of remedies to the wound three points must be taken into account, viz: There must be a lubricant, an antiseptic and a healer.

These may be supplied from vaseline and other ordinary remedies, but they are either very expensive, as in the case of iodoform, or slow to prepare, and not always attended with good results. These objections led me to try a preparation, now on the market, made of petrolata, ichthyol, carbolic acid, and alum, known as Unguentine. The effects were so charming that I was encouraged to use it in other cases, and within the last three years I have had the opportunity of treating with this preparation some twenty cases.

And while we disapprove of the use of nostrums, we believe that no good can come of ignoring a valuable preparation, where its contents are made known to us. Too much conservatism acts as a dead weight to progress. Our English confrere stand aghast at the bold strides Americans are making in medicine and surgery. The London Lancet recently said while commenting on an American product: "If this * * * is a fair reflex of the present position of American surgery we must admit it is of a very high merit, and that English surgeons will have to look very carefully to their laurels if they are to preserve a position in the van of surgical practice." While conservatism is the motto of the Englishman, progress is the watchword of the American. It is by the acuteness of American acumen that we have literally lighted the world (with electricity.) And now we can see through wooden walls and fleshy obstructions; and can all but read the thoughts as they emanate from the convolutions of the brain. With these facts before us it is but just that, heeding a divine injunction, we "prove all things, and hold fast that which is good." I will now present some of the cases that have come under my care that may be of peculiar interest:

Case 1. Mr. G. W. Brown, age 24 years, in the service of this ((Dallas) county, on December 9, 1898, while blasting in a quarry with giant powder the charge was accidentally exploded, hurling him a number of yards over an embankment; his clothes took fire and in his efforts to tear them off he sustained severe burns on the forearms, hands, the entire face, except a small strip on the forehead, protected by the hat, the ears, the front of neck, the front half of right leg from above the knee down to the foot, a deep place on the left leg under the region of Hunter's canal, and a place over the region of the right lung, covering the first five degrees as above described.

When I arrived I found those in charge, in the goodness of heart, though misguided, had placed the patient in the tent, made wide the draught of air on him by throwing back the tent cloth at both ends of the tent, and with wide sombreros four men were following him around and around, fanning him to the full limit of their muscular strength and wildly commanding

everybody to "give him air." They had already administered ¾ of a grain of sulphate of morphine and begged me to inject more at once, as everyone who saw the patient felt sure he was going to die, and they did not wish to see him suffer so in articulo mortis, but having shut out the draught of air, and with two strong men holding the raving man I proceeded to cut away the skin that had fallen down over his arms and hands to the fingers, which had something of the aspect of a rabbit with the skin removed from the body and hanging down over the legs. The wounds were cleansed around with water carbolized, and dressed with unguentine spread on strips of new domestic, from two to three inches wide, well warmed before applied, a layer of surgical cotton spread over this and held in place by roller bandages. This was repeated daily. None of the ordinary washes were ever used on the burnt surface until the skin had completely formed. The well surface was carefully sponged off every other day. Blisters were emptied when painfully full, but the cuticle was not removed until decomposition set in. The cuticle forms a good natural covering for the raw surface containing the great number of burned and suffering nerve endings. The face and hands swelled to immense proportions; sight was excluded for several days. The ordinary constitutional symptoms following a burn of this nature were present and treated as above indicated. As suppuration set in, the burnt surface was cleansed with pledgets of cotton and dusted over with subnitrate of bismuth before applying the unguentine. Recovery was complete. No scar was left on the face or hands, and a new soft growth of beard and mustache has appeared, and the small hairs usually seen on a man's hands have returned. The patient can do light manual labor, can write well with the right hand, but can use the left hand somewhat better from the fact that the muscular tissues were destroyed to considerable depth on the right forearm, and were later healing. There are no ugly bridles of scar tissue to distort or discomfort him.

Case II. Minnie M., aged 5 years. February 28, 1894, her clothes caught fire and burned about one-fourth of her body. Another physician was first called to treat the case; but the parents became dissatisfied, dismissed him and sent for me. The objection was that his treatment was too severe. He had ordered the raw surface washed with a saturated solution of bluestone. When the first application was made, the child, though in a critical condition, jumped off the bed and ran frantically around in the room, and, amid cries and screams, seized a small stick of stove wood and prepared to defend herself against this inhuman treatment. When I arrived the wounds were engorged and bloody. The blood and other secretions were gently dipped off with cotton, the surface sprinkled with bismuth subnitrate and unguentine applied; and from its soothing effects the child was at rest by the time the dressing was completed. As this was a very deep burn, with the deepest part in the right axilla, the fear was that when the wound healed over, the arm would be largely impaired; but not so, there was no scar tissue left. The hand could be placed on top of the head, or otherwise used as before.

Case III. Annie B., aged 8 years. On July 10th, 1894, while attempting to lift from the stove a vessel of hot lard, stumbled and scalded her right side from the nipple down to the feet. The feet and legs were bare and suffered more than the other parts involved. This was a severe burn, but the true skin was not destroyed entirely at any point. Same treatment as above; recovery was complete, with no scars and no accident, except where a good-natured matronly neighbor interfered and removed my dressings and applied one of her own make that had "cured dozens and dozens of worse burns than this." Her salve was made from lard, mutton suet, beef tallow, bees' wax and turpentine in large proportions. No sooner had she applied her dressings than the raving began; and I was hurriedly summoned, and with the use of morphia and proper dressings the wrong was righted.

Case IV. Annie G., aged 7 years. On November 18, 1894, while helping burn grass on a farm, the clothing caught fire, and as she was some distance from help, was burned over more than one-half of the skin surface. This was a remarkable case. I did not see her at first—not until the twelfth day. When I entered the room a scent as if spoiled meat was cooking startled me. The old dressings were removed, and without water, save on well surface, the wounds were cleansed with cotton, subnitrate of bismuth dusted over and a dressing of unguentine applied. The odor was soon changed for the better. A troublesome diarrhœa was also overcome by use of the combination of drugs above indicated. This proved to be a long continued case. Most all the surface had healed up properly when I saw her last, but the case passed out of my hands, as I moved from the neighborhood about the last of February, 1895. I heard afterwards that symptoms of meningitis developed, and after a delay of three days another doctor was called in, but of no avail. She died about the first of April, 1895.

Case 5. Infant 1 year old. On February 28, 1896, while holding to a chair near the fire place, lost its balance and fell with the right hand buried in the bed of live coals and hot ashes. The child was quickly removed, but not until the entire hand and part of the forearm was burned to the third degree. The usual method of dressing

each finger separately was not followed here as the age of the patient and the shortness of the fingers prevented. So a thick mass of unguentine was spread on a cloth and the whole hand enveloped with the dressing and held in place by bandages. In a short time the child was easy and playful. This, with the use of subnitrate of bismuth, was the daily treatment and was kept up till the integument was fully restored without a scar.

Case 6. Bessie H., aged 11 years. On May 2, 1896, the clothing caught fire and she was burned on the right side from the axilla to a level of the crest of the ilium. Treatment same as above; uneventful recovery. No scar is left to locate the injury. Parts were discolored for some time, but eventually became natural.

Case 7. Sam H., aged 11 years. On January 15th, 1897, was burned about the neck, the entire face, both hands and forearms. The epidermis was destroyed. Treatment as above outlined. Recovery complete with no trace of scar tissue or other disfigurement.

Case 8. Richard Z., aged 12 years. On January 15, 1897, was burned to the third degree on face, neck, hands, forearms and the space about six inches square over lumbar region. The patient inhaled the flame which was the source of considerable trouble. Face and head became so badly swollen that he could not see for four or five days. Delirium set in on the third day, and was a troublesome feature for about five days. Temperature 104 degrees to 105 degrees for four days. Respiration labored; voice gone; could only speak in whispers. The stench of the breath with that from putrefaction of the skin, etc., augmented by the fever, was unbearable. Aided by Dr. Baldwin, this case was pushed to a speedy recovery. With sponges tied over mouth and nose and a large display of disinfectants, we daily dressed this patient, and against the decision of three doctors, that the patient would die inevitably, after a heroic fight, his life was saved, and he is now well and has returned to school. One night while the stench of his breath was at its worst the boy quickly jumped up and crawled under the bed. When asked what made him do so he said he wanted to get away from the stench. The same line of treatment was followed in this case as in others, except that we sought to disinfect the air passages by the fumes of oil of Eucalyptus and oil of turpentine. This was brought about by adding these drugs to a bowl of boiling water placed under a tent made by spreading a sheet over patient's head. In this case, as in the others, the main remedy used was urguentine. Cases 7 and 8 were two boys among the twelve that were burned while escaping from the burning building of the boys' house of Buckner Orphans' Home, which was burned down January 15, 1897.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

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St. Paul.

(Continued from LANCET of Aug. 15.)

A prominent physician of Austria, although born at Leyden, was Baron Gerhardt Van Swieten, a pupil and intimate friend of Boerhaave. He became first celebrated as the result of his treatment of Maria Anna, Archduchess of Austria, whom he attended through a severe illness following an abortion. He was afterwards consulted by her sister, the Empress Maria Theresa, who, although desirous of becoming a mother, had hitherto been sterile. She afterwards bore sixteen children, and she attributed her ability to do so to Van Swieten's advice, a circumstance which added greatly to his reputation and resulted in his going to Vienna where he soon became famous as a practitioner and a teacher. He was the founder of the old Vienna school of medicine. He made great advances in the treatment of syphilis, a disease of which he saw much, and through his teachings the internal use of corrosive sublimate became popular. The "Elixir Van Swieten" is still used in Germany and Austria. He was the author of an extensive commentary on the aphorisms of Boerhaave, and it was chiefly through his influence that there was a marked improvement in the medical affairs at Vienna which has since become one of the great medical centres of the world. He died in 1772, at the age of 72.

Among the most prominent physicians of the old Vienna school were Anton de Haen, also a pupil of Boerhaave, who was called from the Hague to Vienna by Van Swieten; Anton Stoerk who succeeded Van Swieten as Director of the Medical Department of Austria, and Maximilian Stoll a pupil of de Haen, who was one of the early physicians of the "Allgemeines Krankenhaus," the famous hospital in Vienna where so many of the medical students of today receive clinical instruction. Stoll developed a modification of the old humoral pathology, a sort of gastric, humoral pathology, which although it contained nothing of special value, was for a time popular and obtained a considerable following. Following Stoll with still another humoral system which dealt with the "acidities," the "putridities," etc., in a rather fanciful manner, was Christopher Ludwig Hoffman, of Westphalia, who attained considerable popularity as a practitioner. Johann Kampf made a wide reputation through his "Doctrine of Infarctus," which attributed most human ailments to fæcal impaction and constipation, and of which the chief therapeutic measure consisted in a great variety of medicated enemata.

Other systems which we will mention without taking the time to describe were "vitalism," originated by Barthez of the Montpelier school and the doctrine of "vital force," elaborated by Johann Christian Reil, who practised and taught at Halle, Leipzig and Berlin, was an enthusiastic student of the anatomy and physiology of the nervous system, and first described that portion of the brain named after him the Island of Reil.

Erasmus Darwin, although also a physician, is chiefly famous for his studies in animal physiology and botany. He was a Scotchman, educated at Edinburgh and was a man of extensive learning, a poet, philosopher and scientist. His great work on the laws of organic life (zoonomia) is conspicuous among the greatest scientific publications of the century. He was the grandfather of Chas. Darwin.

One of the most remarkable and successful charlatans who ever lived, and whose name at least is a familiar word in every language must be mentioned here. Franz Anton Mesmer was born at the village of Itznang on Lake Constance in 1734. From his early youth he was of a peculiarly imaginative and mystic temperament, and during his student days at Vienna he propounded various strange and original theories concerning the influence of the stars and planets upon man, and he was also much interested in the study of the magnet and of what he called animal magnetism. He soon developed a most elaborate system, since known as mesmerism, which from its marvellous and incomprehensible nature soon attained a tremendous popularity and Mesmer accumulated great wealth through its practice. For a time Mesmer was the fashion in Vienna and his seances attracted great crowds of people, over whom he seemed to exercise what we should now call a sort of hypnotic influence. He was finally recognized to be a fraud and was driven from Vienna, and from there he went to Paris. His light, however, was extinguished as rapidly as it had been kindled, and he soon fell into obscurity and died in 1815, at a small village near the place of his birth. The fascination of magnetism or Mesmerism, and the opportunities it offered for the clever and unscrupulous to impose upon public credulity were such that

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

there arose many imitators of Mesmer in all parts of the world, and this popular delusion has not yet been dispelled.

One of the most novel and ingenious of the many systems which arose at this time, and one which contained so much that was consistent, rational and practical, that its influence continued to our own century and has perpetuated the name of its originator, was the so-called "Brunonian System." John Brown was the son of a Scotch weaver, and born in the year 1735. Although his father was poor he recognized an unusual desire for learning in his son and he gave him such advantages as were offered at the public schools. His remarkable genius and enthusiasm for acquiring knowledge was soon appreciated by his teachers and he became a tutor at the age of eighteen. He afterwards obtained a similar position at Edinburgh where he was enabled by various scholarly occupations to earn enough money to support himself while he studied medicine. For a time he fell into dissolute habits and through these into extreme poverty, but his evident genius having attracted the attention of William Cullen, he was assisted by him so that he was again enabled to maintain himself respectably. His life, however, continued to be far from respectable and he failed to obtain a position in the university which he desired and which he hoped Cullen could secure for him. Indeed a quarrel which was life long, arose between Brown and Cullen through this fact. He soon established a course of private lectures which on account of the novelty and ingenuity of his views attracted a considerable audience. His dissipated habits however, continued and he finally became a slave to opium. He practised for a time, and with some success in London, but died in abject poverty although he had every opportunity to acquire success and wealth as a practitioner. He divided diseases into sthenic and asthenic, the latter embracing most morbid conditions. Life was according to him a necessary result of constantly acting irritations, and there was a constant tendency of all living beings towards death. He divided "irritations" into external and internal, general and local. Health was an intermediate stage of excitement, disease being either a too high or too low stage. His arguments in support of his theories of disease were so ingenious and plausible that it was difficult to refute them and he found many followers. Benjamin Rush, of Philadelphia, was one of the staunchest upholders of the Brunonian system. Of Brown's therapeutics the less said the better, for it was false in theory and fatal in practice, and the promiscuous use of opium and alcohol which he advocated was undoubtedly the cause of many unnecessary deaths among his patients and those of his disciples.

Still another system remains to be mentioned that called realism, this time of French origin and created by Phillippe Pinel (1745-1826), who studied medicine at Toulouse and Montpelier. In his early life he made a study of mental diseases and became much interested in the treatment of the insane which was then in a most deplorable state, and in the face of much prejudice and opposition he accomplished many humane and important reforms. In general medicine he insisted upon the importance of the careful study of symptoms to establish an accurate diagnosis and he attempted to classify diseases according to groupings or symptoms. Pinel was an honest, earnest worker in the cause of truth and knowledge, although he gained no very lasting fame.

Perhaps the greatest anatomist of the century was a Frenchman, Francois Bichat, born in 1771. His works on general and pathological anatomy remained important text-books down to the middle of this century, and are imperishable monuments to his wonderful industry and his indefatigable labor. The importance of the detailed study of pathological anatomy, he insisted upon, and his was the first really scientific work on this subject. In normal anatomy he recognized and described many of the various tissues of the body as we now know them—cellular, osseous, fibrous, medullary and cartilaginous tissue. As a practising physician he had every prospect of the most brilliant success, and indeed had already achieved considerable prominence, but he died of consumption at the age of thirty-one. It seems almost incredible that in such a short life he should have accomplished so much that was valuable.

An Austrian physician invented during this century one of the most valuable of all our methods of diagnosis, although its importance was not understood or appreciated until after his death. I refer to Leopold Auenbrugger, born at Graz in 1722, who invented, developed and described the art of percussion as applied to the diagnosis of internal disease. He was educated in medicine at Vienna, and after he graduated was placed in charge of the Spanish Military Hospital where he spent many years studying patiently and modestly, until finally convinced of the value of this new principle of diagnosis, he published in 1761 a small pamphlet describing his method of percussion. The value of this publication was not appreciated, indeed the pamphlet was but little known, until in 1808, a year before his death, it was translated into French by Corvisart, and the value and importance of this, the most essential of our present methods of physical diagnosis, was first recognized by the French. How often it has happened that great men are only appreciated after their death and that the most important inventions and dis-

coveries have remained unrecognized during the life time of their discoverers.

We have, as yet, considered only the physicians of the eighteenth century and those whose labors were especially directed to the study of internal medicine. We have a still more interesting chapter of our history before us in the study of the achievements of surgery, and of its final emergence from the hands of the ignorant and uneducated practitioners. During this century surgery and medicine joined hands never again to be parted, and as an exact science surgery assumed a position which it has since maintained on a higher plain than internal medicine. France continued to maintain her supremacy as the most important seat of surgical knowledge and teaching and by far the most valuable surgical advances emanated from her schools.

Francois Gigot de la Peyronie, (1678-1747) was one of the earliest French surgeons of the century, whose influence and ability were conspicuous. He was one of the founders of the Academie de Chirurgie, and being a man of considerable wealth he was able in many ways to advance the interests of the science which he loved so well. He founded several professorships of surgery at Montpelier and at Paris and in many ways by his personal activity he encouraged the scientific study of practical surgery. He was chiefly instrumental in the final separation of the practice of surgery from the barbers, in whose hands it had continued up to the beginning of the century. At his death he left most of his property to the advancement of surgical education in France.

Perhaps the most prominent and distinguished of the French surgeons of the first half of the century was Jean Louis Petit, born in Paris in 1674. He was a director of the Academie de Chirurgie and an active and popular teacher. He attained such a wide reputation that he was sent for to attend the sovereigns of several foreign countries, among others Augustus the Strong and Frederick the Great. Petit was a skillful ophthalmologist as well as an accomplished general surgeon and he will be especially remembered as the inventor of the screw-tourinquet.

Garengeot, professor in the College de St. Côme, added considerable to the knowledge of the pathology and treatment of hernia, and performed tracheotomy with a canula. Other notable surgeons whose names have lived were Morand, Le Cat, Astruc, Ravaton, La Faye, Goulard and Sabatier.

Deserving of more special mention was Pierre Joseph Desault (1744-1795), the son of a poor farmer, whose earlier education was meagre, and only such as could be obtained in the small village where he lived. He subsequently managed to find occupation in Paris, where he at first taught mathematics and gradually became attached to the Hotel Dieu, where his zeal and industry in the pursuit of surgical knowledge brough him into prominence. He subsequently became its chief surgeon and a professor of the practice of surgery. He was especially skillful in the treatment of fractures, and the "Desault" splints for fractures of the leg are still used. He was a popular teacher and in his teaching emphasized the importance of studying surgical anatomy. He was also one of the first surgeons to advocate the healing of wounds by the first intention. Desault, his friend Chopart, another eminent surgeon (originator of Chopart's amputation) and Doublet all died suddenly and within a few days of each other, and it is supposed that they were poisoned by the Revolutionists on account of their knowledge (professionally gained) of the circumstances of the death of Louis XVII., Dauphin of France.

Ophthalmology made great advances at the hands of the French surgeons of the first half of the eighteenth century. St. Ives described capsular and lenticular cataract, glaucoma (which he named) and is said to have been the first to wash out the anterior chamber of the eye. Petit, Dairel and Tenon, were all distinguished oculists. Tenon's capsule perpetuates the name of the latter.

Italy produced a few great surgeons and anatomists, among whom we may mention Benevoli, the first Italian to understand the nature of cataract; Molinelli and Palucei, both oculists of ability, and especially Antonio Scarpa, of Matta, an important general surgeon and anatomist, after whom Scarpa's triangle is named. Gimbernat of Barcelona was the chief Spanish surgeon and was the first to recognize the ligament, named after him, and to appreciate its importance in relation to hernia.

Germany, which in the present century is so famous for its surgeons, accomplished but little in this direction during the eighteenth century and such surgeons as she produced were but imitators of the French.

Next to France in importance came England, and although the number of really scientific surgeons was small, and the methods of surgical teaching vastly inferior to those of the French schools, England produced a few great surgeons in this century whose names can never be effaced from the history of surgery and who were superior in skill, knowledge and scholarly attainments to any of their time in any country.

William Cheselden, born in Leicestershire, in 1688, was famous as an anatomist at a very early age, and in 1713 published his anatomy of the human body, a work which had not been approached for completeness and accuracy in the English language before his time, and which is still a classic. In 1733 he published and dedi-

cated to Queen Caroline, whose private surgeon he had become, his superb work on osteology. As an operator he possessed a wonderful dexterity, and what was of so much importance in those pre-anæsthetic days, he operated with great rapidity. He was renowned as a lithotomist and it is said that he frequently completed a perineal lithotomy in less than a minute! He also practised and wrote a treatise on suprapubic lithotomy, an operation not much in favor at that time. He also operated with great success on the eye and introduced the method of forming an artificial pupil by incising the iris. He was a surgeon of Guy's hospital, a prominent member of the Acadamie de Chirurgie and his reputation extended all over Europe. He died in 1752.

One of Cheselden's pupils, Samuel Sharp, was an operator of great boldness and skill; he was one of the first Englishmen to recognize the value of the work being done by the French surgeons, and to introduce their methods into his own country. Like his famous teacher he was a scientific student of the surgery of the eye.

Edinburgh produced during the first half of the century Alexander Monro (1697-1767), and his work in anatomy and surgery made her university famous. He was the author of several important works on osteology and comparative anatomy. His two sons and his grandson became distinguished surgeons, the latter, Alexander Monro 3d, continued to be in great repute as an operator until the middle of this century (d. 1859).

Charles White, a surgeon of Manchester is reputed to have been the first to recognize the bone producing power of the periosteum, and for the first time he made a resection of the humerus, leaving the periosteum, and saw a complete regeneration of the bone follow. Baas calls this the first instance of conservative surgery. White made elaborate and extensive studies of the diseases of bones and joints and it largely resulted from his work that later English surgery accomplished so much in this direction. Percival Pott also write extensively on bone and joint disease, and was the first to describe that form of spinal caries which we still call Pott's disease. His surgical writings are remarkable for their clearness, accuracy and elegance of diction.

The most familiar names in the English medicine of this country are those of the two Hunters. William Hunter, the elder, was born in Scotland in 1718. He studied medicine under Cullen and as I previously stated, it was through his association and partnership with Cullen that he was enabled to obtain the means to graduate in medicine. At the age of 23 he went to London to practise, and at the age of 28 he began to lecture on anatomy and surgery. He soon became famous as a teacher and practitioner, and in his practice after a few years he began to pay special attention to obstetrics. He was much opposed to the general use of the forceps and to what he called "meddlesome midwifery." He started in life a poor boy, but acquired very great wealth from his practice. In 1764 he became physician to Queen Charlotte, wife of George III. In 1774 William Hunter published his great work on the anatomy of the gravid uterus, the result of labor which had occupied a large part of his life. Many of the beautifully engraved plates of this work have never since been surpassed. He accumulated a very large collection of normal and pathological specimens which formed the nucleus of the Hunterian Museum of the University of Glasgow. William Hunter died in 1783. John Hunter, his younger brother, was born in 1728, and in most respects was the greater of the two.

John Hunter being the youngest of five children and born during his father's old age, was petted and indulged during his youth and his early education was neglected. When he was ten years old his father died leaving but a small estate and very little provision for his young son. His sister had married a carpenter of Glasgow and to him John was apprenticed, but after a few years owing to his brother-in-law's failure in business John was thrown upon his own resources. His elder brother William was at this time a successful and prosperous surgeon and lecturer in London, and he invited John to come to London and assist him in his anatomical work. In September 1748 he arrived in London, which was to be the scene of his future triumphs, on horseback. He was kindly received by Dr. Hunter and was immediately set to work making anatomical preparations, and his first attempt at the dissection of an arm to demonstrate the muscles so pleased his brother that he was kept constantly busy at an occupation which proved most fascinating to him. His work attracted the attention of the great surgeon Cheselden, and he was encouraged to study medicine and he began to study lectures at the Chelsea Hospital, at the same time continuing to assist his brother in his anatomical lectures.

After two or three years, during which time he eagerly pursued the study of anatomy and surgery at the universtiy and hospitals, he was made demonstrator of anatomy, and later assistant professor, and he shared with his brother in the regular course of anatomical lectures. His most congenial occupation continued to be the preparation of both human and comparative anatomical specimens, and at this work in spite of his increasing labors in teaching and study, he spent several hours every day. The great Hunterian museum in London remains a monument to his industry and ability. After twelve years of these unceasing labors there arose an

unfortunate and bitter quarrel between the Hunter brothers, prompted by mutual jealousy and by the fact that the elder fearing that his younger brother would surpass him professionally, took advantage of his position and appropriated as his own many of John's anatomical demonstrations and discoveries. In various ways the brothers became estranged, until in 1761 John abruptly quitted London and obtained an appointment as surgeon in the army, serving for several years abroad, in the expeditions against France and Spain. During these years he acquired much additional knowledge of surgery, and his experiences in gun shot wounds he afterwards made the basis of an elaborate treatise. In 1764 we find him again in London and again on good terms with his brother, with whom he resumed his anatomical work, both as a teacher and investigator, and as before he devoted all his spare time to the work of preparing anatomical specimens. It is said that he allowed himself but five or six hours for sleep and that he was never idle for a moment during his waking hours. In 1767 he was elected a Fellow of the Royal Society and in the following year he became a member of the Royal College of Surgeons. The next honor which he received and a very great one, was his selection as surgeon to St. George's Hospital, where he soon became as successful as a teacher of surgery as he had been before as a lecturer on anatomy. He began at this time as was then the custom among hospital surgeons to receive house pupils, and among these was one who remained for life his intimate friend, the illustrious Edward Jenner, to whom the world is indebted for his introduction of vaccination. In 1771 John Hunter published his first important work "On the Natural History of the Teeth." During his entire life he continued to work at his collection of preparations, and his museum contained 10,000 specimens of his own when he died. He also took great interest in the study of the habits of live animals, and he kept at his home in Earl's Court a great variety of wild animals, which he attempted, often successfully, to domesticate. For instance, he trained a pair of buffalos to harness and drove them through the streets of London. Although he earned a very large professional income, at one time it amounted to £6,000 ($30,000) in a single year, his habits were extravagant, and as he was habitually careless in money matters he was usually in debt. In 1776 he was appointed surgeon extraordinary to King George III., and ten years later he was made Surgeon-General of the British Army, and about this time also his fame as an anatomist having spread abroad he began to be honored by degrees and honorary memberships from various continental universities and scientific societies. During his later life there occurred another bitter quarrel with his brother, the wounds of which were never healed. So that during their old age these two eminent men remained the bitterest of enemies. William Hunter died a rich man, and although fully aware of the pecuniary embarrassment of his brother, he left his entire fortune to a distant relative.

During the latter part of his life John Hunter suffered from some disease of the heart which produced frequent severe attacks of pain, most alarming while they lasted, but apparently not affecting his general health sufficiently to interfere with his very arduous labors.

He died in 1793, at the age of 65, the same age at which his brother William had died. He died in the very height of his fame engaged to the last moment of his life in the most active professional work, and it may be truly said of him that "he died in harness," as he would have wished, for he expired suddenly during a visit at St. George's Hospital, being apparently in his usual health up to a few moments before the end.

The collection of specimens made by William Hunter were by him bequeathed to the University of Glasgow, while John Hunter's collection was purchased from his executors by the government for the enormous sum of £30,000 ($150,000) and entrusted to the care of the Royal College of Surgeons of London, who still celebrate his birthday by annual ceremonies at which some distinguished member is selected to deliver the "Hunterian Oration."

A most deplorable and disgraceful circumstance must be stated (as it seems to have been proved) concerning the destruction of a large number of Hunter's unpublished manuscripts. They were left in charge of his brother-in-law, Sir Everard Home, one of the executors of his estate, himself an ardent student of comparative anatomy and long a pupil and intimate associate of Hunter's. It seems from the most reliable evidence that he concealed these for years, and published under his own name what he considered the most valuable facts they contained, including copies of many of Hunter's drawings. and that he ultimately burned the entire collection of manuscripts, hoping that the fraud would not be discovered. He was exposed by Mr. Clift, the curator of the Hunterian Museum, who testified that for years he had been employed by Home in copying Hunter's manuscripts and drawings which Sir Everard afterwards published under his own name. These facts are stated on the authority of a memoir of John Hunter in the National Library, edited by Sir William Jardine. A more dastardly instance of vandalism and plagiarism it would be difficult to imagine. There is a beautiful portrait of John Hunter, by Sir Joshua Reynolds, of which a superb engraving was made by Sharp. In a tribute to his memory by William Lawrence

it is said of him: "He found surgery a mere mechanical art, hardly emancipated from its connection with the barbers; he left it a beautiful science, inferior to none in rank and interest, or in capability of alleviating human suffierings. We could well spare the writings of any surgeon except Hunter; they would hardly be missed, but if his researches and writings were obliterated and their influence withdrawn, the very heart's blood of surgery would be lost."

Hunter's two most elaborate works in medicine were his "Treatise on Surgery," and his treatise on venereal disease. Most of his valuable works on comparative anatomy and natural history were presented in the form of communications to various scientific and philosophical societies and published in their transactions. Personally, although quick to anger, John Hunter was of a generous, charitable and noble character and universally loved by all who knew him. His diligence and extraordinary capacity for work have never been surpassed. He represents one of those remarkable instances of brilliancy achieved by an entirely self made man, and it shows how the deficiency of early educational advantages may be overcome by industry, determination and perseverance.

The three most important contributions which Hunter made to surgery were his theory of inflammation; his recognition and description of phlebitis, a disease hitherto unrecognized, and the greatest of all, his method of treating aneurism, by tying the vessel at a distance from the disease, his first operation having been ligation of the femoral artery in a case of popliteal aneurism. This latter principle was one of the greatest of surgical discoveries, and has since been the means of saving many lives.

Buckle in his great work on the "History of Civilization" speaks of John Hunter as "far above any other philosopher Scotland has ever produced."

(To be continued.)

IMPROVEMENTS IN MODERN METHODS OF MEDICAL TEACHING.

An Address Delivered at the Meeting of the Minnesota Medical Society, June 15, 1898.

By J. F. Fulton, M. D.

President of the Society.

If there is any subject in which the general profession should take a deeper interest than all other medical subjects, it should be in acquiring the best possible system of medical education. In viewing this subject you will see a picture of the modern progress of medicine. Medical education, being distinctly a progressive science, presents to us many suggestive problems, it being a branch of physical science which is always advancing, requiring reformation as general medical knowledge advances. The antique method of teaching, by means of delivering a course of lectures on each medical subject, the same course being delivered every term, has become a thing of the past. Exact practical demonstration has taken the place of that which is visionary and theoretical. So it is not only with great pleasure, but with enthusiasm, that I congratulate the members of our State Medical Society upon being members of a profession which is overcrowded with interest and occupies the foremost rank in every thing that pertains to scientific knowledge, the function of which profession is to investigate the forces and phenomena in the realms of nature, and bring them to bear upon the improvement and development of nature's greatest product, the human body.

We can, indeed, congratulate ourselves with great joy upon the progress made in medical science during the past decade. The advance has been such as to practically wipe out all schools of medicine, leaving but one school, namely, medical science. The most educated, the most intelligent representative schools other than those which we represent, admit this, and the time is soon coming, if not alreay present, when so-called schools of medicine will not be heard of.

In considering the advanced stage of medical science at the present day, we cannot but realize and appreciate the recognition in our science of all that is practical in natural science; for as you progress in your studies, you will congratulate yourselves more and more upon the fact that all science ends in one common center, that of medical science.

And yet we would fall short of perfect knowledge if we did not familiarize ourselves with the teachings of all the past ages; and it is interesting for us here to remember that no nation gave greater heed to education than the Greeks of old, as can be easily proven by their interesting philosophical productions, their unrivalled dramas, their charming works of art. Their ideal seems to have been and unquestionably was, that a man should be a speaker of words and a doer of deeds, which is the same thing as saying he should be a thinker of thoughts, for good thoughts lie at the root of good speaking and good doing. The Romans also seem to have held the same ideal; as they expressed it, "all the powers develop in due proportion by such mental and physical training as best leads to the goodness of soul and strength of body." This ideal is a high one, but one well suited to the life of the physician and surgeon, as to no man is the crowning addition of goodness of heart more important, as it is his chief function to bring hidden things to light, to step cautiously,

but bravely, from the old to the new, and to apply all knowledge brought forth from modern science to the relief of humanity. So it must be apparent to every one present, teachers as well as students, laity as well as the profession, that upon no class of men is there greater demand for varied qualities of the human mind. To attain them all, perhaps, is impossible, but you must not, by this thought, be discouraged, for happily, there is no line of life in which good qualities of any kind are more keenly appreciated. Energy, boldness, application, patience and perseverance, each and all, have influence in the work of acquiring professional knowledge, and, if faithfully applied, will eventually lead you to the consummation of your ambition.

It is indeed no small thing to belong to a profession of such vast interests and far reaching beneficence, and we are laboring at a time when the whole educated world is beginning to recognize that the practical extension of this profession and its proportionate beneficence, seem to be unlimited. You are doing your life work in an age in which the wheels of progress have traveled over more ground that has been measured in previous centuries, and they are carrying us through new facts, theories and discoveries at a rate that is almost overpowering. The grand object of our present method of teaching, therefore, is to make everything of a practical nature, to teach nothing that cannot be demonstrated in the laboratory or elsewhere. In making this statement I do not propose by any means to condemn absolutely theoretical teaching. Theories come and go. As they do so they give a stimulus and zest to our thoughts, sharpen our observation for facts and originate impulses for fresh investigation.

The fullness and perfection of medical education consist in the preservation of the proper balance between the theoretical and the practical, making the former the servant of the latter. The great lesson which we have learned in all our teachings is how to observe, and to train all our senses to accurately record the objects placed before us. After you have done this, which, as you know, comes only from prolonged training, after having acquired the power of perceiving, appreciating facts, signs and symptoms, you are placed in a position where you can make that which is most important of all your career, namely, a diagnosis. After this has been accomplished, the road to success is easy, and all modern methods of medical education have for a goal this one object, to teach students the most accurate means of investigating the troubles of the unfortunates that come before them.

Among the greatest advances that we have made in modern teaching is our increase in accuracy in making records . In this particular department of our science our own nation has been and is a foremost leader. There is no more direct demonstration of this fact than the records of the medical and surgical cases of our recent civil war. The methods therein followed out have been adopted by all the civilized nations of the world. With this great work very many of the members of our Society are already familiar. Accuracy in making records had been brought about by the very much greater refinement in chemical analysis, by the practical teaching of the use of instruments of precision, such as the microscope, the improved clinical thermometer, experimental works in the laboratories, and other means of investigating the results of disease in the body living and the body dead. It is by a love for accuracy that all good and great work has been done. Accurate work is good work; inaccurate work is bad work. He, who, therefore, becomes a successful teacher or a successful student of medicine is one whose constant rule is accuracy. It is upon this foundation that the magnificent edifice of talent and success springs up. The great antiseptic surgeons of today are those who follow out every detail. Those of you who have visited the great medical centers of the world and become acquainted with the great surgeons and great physicians of the world, will see this point demonstrated every time you meet such a representative of our science in a profession. Lister made a reputation for himself and gave to the world antiseptic surgery by careful study and application to detail, and he who impresses this upon his medical and surgical associates will be the successful man in the way of advancing the highest medical science. To be a great antiseptic surgeon requires prolonged education and practice, the same as is required to become a skillful performer upon any of the musical instruments.

Didactic work is becoming less important with each succeeding year, clinical work taking its place. Organized clinical work is essential, of equal importance to teacher, student and patient. It secures for the patient an amount of care that he cannot otherwise obtain. It gives the student the opportunity that he requires. It puts the teacher on his guard. Each student is so many eyes for the teacher, seeing for him a multitude of points that he would otherwise overlook, watching as they do constantly for the verification or falsification of his diagnosis, and always eager to point out the failure of his prescriptions; constantly asking questions, each severely tests his knowledge, constantly compelling him to be prepared for any assault from the multitude of students, that they may be disposed to make in the way of questioning him. So it puts the teacher upon his metal, requiring him to be constantly prepared. He can be seen at once, and this is of great advantage to the patient, he looks upon each student as a doctor, and believes that his particular case is receiving

special attention. He believes, and consequently is cheered up in the fact, that the attention of twenty physicians is better than that of one. The presence of a class of intelligent students brightens the wards, relieves the depression of sickness, suffering and exile from home.

It is a source for congratulation that our modern methods of medical education are protected by the strong arm of law. All of the best states in our great nation now require a thorough examination before any candidate can be a legal practitioner. Another step forward will be to have a national examination, the board to be established in the capitol of our nation, so that the examination in our different states and territories will be uniform. Nothing will do more to stimulate the advance of medical science and medical teaching in our great nation than to have this brought about, a step which originated in our own great commonwealth and is rapidly spreading to every state. It is with pride that I announce that the American Medical Association, to which convention we send large delegations every year, has taken a most pronounced step in this direction in passing the following resolution, which originated in the Medical College Association: Resolved. That no professor, instructor or graduate (after Jan. 1, 1899) of a medical college which falls below the minimum requirements of the College Association, or graduates men after Jan. 1, 1899, on less than a four years course, will be eligible to membership in the A. M. A." So the commercial schools will soon be wiped out of existence. It is now and will continue to be an everlasting disgrace for any medical school to send students to our examining boards simply to fail in their examination.

Another great advance in modern methods of teaching medical science is exhibited in so-called "post-graduate instruction," indicating that the student's educational career only begins when he graduates from his original school. At the present time, not only our medical schools, themselves centers of education, but every hospital becomes an educational center. In the southern part of our state, in the city of Rochester, there is a hospital which renders, probably, as exact and thorough post graduate teaching as any school in our country. We have other hospitals in our state, not connected with any medical school, which furnish similar instruction.

In the present age when instruction is so widely diffused throughout the community, and persons of cultivation are to be found in every village, it is surely more than ever undesirable that the doctor should be a man of indifferent general attainments. In the past he has advanced claims to be considered a member of a learned profession, and it would be most disastrous if in the future the medical man did not have the necessary original culture; nor should he confine all his attention to his own profession. A physician or surgeon who does not take a profound interest and active part in every thing that pertains to the welfare of humanity, would scarcely be a success in his profession.

During the time of the Roman Empire physicians yielded great influence and were the recipients of many royal favors. At the present time, alas, we do not see many Warrens or Rushes in the medical profession. I despise a man who takes no interest in any thing except that which pertains to his own welfare. The standing of our profession should be such, and is such, as to make its influence felt in all departments of human welfare.

The importance of a practical application of public health should be enforced upon the public mind. As pointed out by Spencer, teaching how to maintain public health is of prime importance to man's happiness and the preservation and success of the human family. This leads to another great question, and that is the establishment of a department of health in the cabinet of our nation, the importance of which will be perceived by every intelligent listener, a subject, however, too great and widespread to be discussed here. So let us hope that we shall see many members of our profession who are conspicuous for their erudition or attainments in subjects outside of their own art. Also let us hope the day is far distant when liberal culture and taste no longer permeate the profession, and we shall be able to point out a large number of our science whose bent in industry has enabled them to cultivate their minds in a very high degree. We have constantly before us a very high calling. The requirements are great and increasing. They necessitate ceaseless and life long labor. We cannot, therefore, abate one jot of our educational training. All that we can do and must do to ease the heavily taxed medical student is to carefully select the very best and most useful means of mental training, to thoroughly organize his course of work and duly apportion the time at his disposal in relation to the importance of his studies.

Our present method of medical instruction, therefore, is characterized more and more by the lessening of the number of fixed lectures and the increasing of the amount of bed side instruction; by passing from the amphitheatre to the sick ward; by less descriptive work and more actual demonstration. This applies to every department of our science, and brings, as it should, the teacher into closer relationship with his student. When I was a student, not many years ago either, it was almost impossible for any of the students, certainly not the freshmen, to become acquainted with the professors. These gentlemen felt it was simply their duty to come

to the amphitheatre at fixed hours, talk for an hour, on the tap of the bell to immediately leave, trusting quizzing and the examinations all to assistants. This condition of affairs, I am happy to say, is rapidly becoming a thing of the past. Examinations are no longer to be dreaded, because each hour's instruction should be a form of examination. In fact, one of the leading medical schools of the country has already abolished the lecture system of teaching. Their professors instruct altogether from text-books in the form of quizzes. The great object of the teacher is to impress upon his student the rationale of each subject that comes before him, and just here lies the difference between what is called "cram" and intelligent knowledge; the one being mere superficial acquaintance with facts, the other, an acquaintance with the real causes and principles at the bottom of law. Yet I appreciate the fact that a certain amount of "cramming" detail on the part of the medical student is necessary. This is attributable, in no small degree, to the number of subjects which it is necessary for him to master. Physiology and materia medica are vast in their details. Classification, therefore, of detail, grows as the subject grows. Both of these subjects can be taught successfully only in the laboratory. There can be but one materia medica, and that is the one which is based in its classification upon the physiological action of drugs. They are both so vast, however, that it is an easy matter for the instructor to break the spirit of the student by setting forth a multitude of facts and details.

Professional study, if properly conducted, should always be a happy work, and the period spent in it, if properly spent, must always be cheerful and delightful, and the work that is done will be accomplished without damage to body or mind, and the results crystallized in the mind so they cannot be erased. The successful teacher will never create a bar to education, resulting in distaste for study, by overworking those who are placed under his instruction, by making the work burdensome and painful, or creating a dislike, instead of love, for knowledge, which is natural, instinctive and always found in the mind of an intelligent student.

THE PRACTICE OF MEDICINE.*

By J. C. Adams, M. D.

Lake City, Minn.

Brethren of the Wabasha Medical Society:—Looking into your faces I am forcibly reminded that "man is as the flower of the field, today flourishing in youthful vigor and beauty; tomorrow with the unseen hosts who have realized immortality." I see only two persons who were members twenty-five years ago.

We profess to have learned to a greater extent than the laity how to eradicate and mitigate disease and its consequent suffering and disability. And men, women and children in their time of greatest need appeal to us as saviors of the body. Humanity bids us do them all the good and the least harm we can.

On the very threshold of our mental determination to be thus faithful we are embarrassed by the magnitude of the task. The diseases that we meet with are so many, their characteristics so variable, their symptoms so obscure. The written description of their pathology, diagnosis, symptoms and treatment comprises such a voluminous literature that no man can compass it.

Again, there are such varient views on every abstruse disease, whether medical or surgical, that we are often tempted to ask with Pilate, "What is truth?" Finally, after having mastered the pathology and symptoms of a disease we may be unable to adopt the best treatment because of the unfavorable environment of the patient, or because from having comparatively few cases we lack skill, or because our other work either denies us the time or unfits us for the work needed. As an illustration, the village practitioner does not see enough cases of cataract to justify him in operating. Exceptionally, suppose he did. He has an appointment to operate at 9 o'clock, Sunday morning. He has a difficult obstetrical case in the country not terminated at the appointed time, or he reaches the patient in time, but in a state of nervous tremor from fatigue and loss of sleep. Can he operate with justice to the patient or himself?

What course shall the conscientious, faithful, general practitioner take amid such embarrassments and limitations? He must determine upon what principles he shall treat disease. He must mentally define the class of cases he will refer to the specialist.

The first suggestions as to treatment should come from pathology. These suggestions should be modified, corrected and supplemented by experience. For instance, in pulmonary consumption, we have a bacillus that excites tissue proliferation, taking the form of nodules. These nodules through the accession of pus microbes become inflamed, suppurate and break down, with loss of lung tissue, ulceration. The pathological suggestion is to find a remedy that will kill the bacilli and cocci without injury to the patient. Koch and his imitators have worked on this line, but thus far unsuccessfully.

Observation teaches us that it is not the ruddy and the vigorous who spend much of their time in sunlight and fresh air who are the victims of this disease, but the pale and sedentary, the dwellers in dark, ill ventilated, damp apartments.

*An address delivered before the Wabasha County Medical Society.

Experience teaches that whatever means improves nutrition and increases vitality best stays the progress of the disease. That the lung can be disinfected through the blood without detriment to the patient is so contrary to the knowledge we gain in the treatment of infected wounds, that the presumption is strong against any methods that propose to do this, and until the success of such a method is demonstrated it is better for the physician to direct his efforts to the improvement of the nutrition of the patient and thus supplement or increase the benign action of the phagocytes.

What class of cases shall the general practitioner refer to the specialist? When the pecuniary interest of the general practitioner seems to conflict with the vital interest of the patient it is evident that the former should yield. To state the matter concretely: If in any difficult case, medical or surgical, we are convinced that it would be advantageous to the patient to be treated by a specialist and the patient is pecuniarily able, we should advise accordingly. To advise intelligently and wisely presupposes not only a knowledge of our own possibilities and limitations, but also a comprehensive knowledge of specialism. We must assume that the physician is a student. As such he can profitably study the best works of the specialists, one at a time, devoting, perhaps, several months to the study of a single class of diseases. After having studied a good text-book on a given subject it is well to read every article in his medical journals treating of diseases of this class. By pursuing such systematic courses of study the general practitioner will find that he has greatly enlarged his own field and limited and more clearly defined that of the specialist.

ORIGINAL ARTICLES.

TWO CASES OF UNDOUBTED APPENDICITIS TREATED ONE BY CALOMEL AND ONE BY HIGH INJECTIONS.*

P. A. Walling, M. D.,

Park Rapids, Minn.

Case 1. J. C. R., male, age about 53, was taken sick September 15, 1895, with severe pain in the stomach gradually locating in the right iliac region. On the morning of the sixteenth he had a chill at about three a. m., lasting about an hour, followed by intense headache and as he expressed it "pain all over." Saw him at five a. m. Temperature 101°. Great tenderness in right iliac region, I could detect no tumor, though the tenderness precluded a very searching examination. I gave him three drops each of tincture of aconite and fluid extract of gelsemium every two hours, and ten grains of calomel and one grain of quinine each alternate hour. At five p. m. the headache was gone and the pain and soreness in the iliac region much diminished. The bowels, however, had not moved, and gave him one more powder, making eight in all, and left directions for him to follow it with enough castor oil to move the bowels thoroughly.

In the night he had several very copious evacuations, during which he nearly fainted, but afterward felt much better, with a good pulse and a normal temperature.

This man continued to improve steadily, but it was about three or four weeks before he had recovered sufficient strength to work.

Case II. C. C. Male, age about 8 years. Saw him first Oct. 5, 1894. Had had diarrhœa for about two or three days, and complained of pain in the right iliac region. He had vomited once and had frequent desire to defecate, without result. Temperature 103°, pulse 104°. Tumor in right iliac region which was excessively tender.

It being late, and having a little doubt as to the diagnosis, I applied hot applications, gave him a Dover's powder, gelsemium and bromide of potash, and left him until morning.

Next day the tenderness had increased over a spot as large as a silver dollar and was one-half an inch from the anterior superior spinous process, on a line with the navel. He could not bear the hot applications and I discontinued them and in place of the Dover's powder I gave him a little morphia and advised an immediate operation. Diagnosis: Appendicitis, caused by fæcal obstruction at the ileo-cœcal valve.

Oct. 7 he was apparently better, though I soon saw this was due to the morphia he had taken. The tenderness had shifted to a point opposite its first location and above the iliac crest. Pressure in either locality increased the pain very much. He wanted to lie very still, had no desire to eat, and anything taken in the stomach greatly increased the pain.

Gained consent to send for aid and make an operation, if still thought best.

Next day the pain and soreness had advanced along the colon a little, he was a little hungry and had rested fairly. Dr. Nye, in consultation, and myself, agreed under the circumstances to try and remove the obstruction by flooding.

*Read in the Section of Practice of Medicine of the Minnesota State Medical Society, June 15, 1898.

Under æther we introduced a rectal tube above the left superior flexure and flooded with about three pints of water. After the anæsthesia had passed off the water nearly all returned, and he could handle himself much easier. The tumor and soreness were however very prominent. Temperature before flooding, 101.2°; after, 101°.

Oct. 9 he had rested well, bowels had moved once, passing three or four hard lumps. Had less pain, but considerable tenderness. Temperature 99°. Flooded the colon twice with a quart of warm water each time, and with the last return found a dozen chunks of hard fæcal matter. Gave him magnesia sulphate, about twenty grains every four hours, and left him quiet. On the 10th he was sitting up. Normal temperature. Not much appetite. Tumor nearly gone. Bowels had not moved since the previous day. Flushed the bowel with but little result. There was yet considerable soreness, though it was disappearing. I advised them to continue the salts as long as necessary and discharged the patient. His recovery from this time was uneventful, but it was a number of months before he regained his usual vigor. There has been no return of the disease in either case.

I leave these cases with you with this remark: That abdominal operations in back country places, where the surroundings are so unfavorable, should be approached with caution, and if we are charged with an unfavorable termination by using too much caution, we should remember that opening the abdomen under such circumstances is also an extremely risky thing, and exhaust all other means before resorting to this.

THE TREATMENT OF APPENDICITIS FROM THE STANDPOINT OF THE GENERAL PRACTITIONER.*

By Theo. L. Hatch, M. D.,

Owatonna, Minn.

It is not the intention of the writer to discuss to any great extent the pathology or etiology of this disease but rather to dwell upon its treatment. Much has been said at different times about controversies between the surgeon and the physician regarding the treatment, but I must confess that I can see no rational ground for such controversy nor for even any great variation of opinion, any further than might be present in connection with any other disease.

It is conceded that it is very difficult at times to decide as to just what is the proper treatment, and more particularly when we take into consideration the matter of doubtful diagnosis; but as I go on year after year and see more of these cases, I am more fully confirmed in the idea that in a vastly large majority of cases a rational and successful treatment can be evolved This conclusion has been arrived at not hastily, nor from the experience of a brief time, but from a period of nearly thirty years observation.

Given an undoubted case of appendicitis, and taking into consideration the tendency to recurrence, I think there will be but one outcome to a large percentage of these cases, viz: the knife. The writer wishes it distinctly understood that he does not advocate the indiscriminate or universal use of the knife, but with the tendency to recurrence of the disease and with the tendency to a fatal termination sooner or later, I think that operative treatment is the only justifiable agent in a large majority of cases.

About three months ago a prominent surgeon of this state expressed to the writer the estimation that fifty per cent. of all cases of primary appendicitis recurred. I have no statistics bearing upon this point, but my observation would lead me to pronounce this estimate much too low. In fact, I now recall but two cases occurring in my own practice that did not recur. In one of these cases the primary attack was only three months ago, so that there is plenty of opportunity for a recurrence in that case. The other occurred seven years ago.

In making the above statement as to frequency of recurrence I wish to state that in a large majority of the cases that I have had since operative treatment has been a remedial measure, the diagnosis has been confirmed either by operation or autopsy.

Right here I wish to say a word regarding the diagnosis of these cases. During the last nine months I have had at least three operative cases in which I was decidedly skeptical as to the correctness of my diagnosis, and of course watched the outcome with a great deal of interest. I wish I might contribute something in this paper to the diagnosis of the disease, but can only say that I do not believe that any stereotyped rule of diagnosis can be laid down. Each case must be studied by itself, not only as to the present symptoms and condition of the patient, but as to his past history. No one factor must be depended upon in the diagnosis of the case, but every factor, however remote, that is likely to have a bearing upon the case must be taken into consideration. Of course an early diagnosis is desirable, but it is often impossible for the reason that the medical attendant is not called in time.

*Read in the Section of Practice of Medicine of the Minnesota State Medical Society, June 15, 1898.

Before referring to the medical treatment of the disease I wish to refer to one particular element which is a factor in its etiology. Undoubtedly quite a large percentage of the cases originate in a gastric catarrh, or a gastro-enteritis, and my observation, covering the last three or four years has led me to think that the disease oftener originates in this manner than is generally attributed to it by the profession.

Now as to medical or therapeutic measures. Of course these will depend somewhat upon the environment of the case. The treatment of a case in a well equipped hospital, including intelligent and trained attendants, may obviously he different from that which will obtain in the average farm house, and much to the advantage of the former.

I have seen all plans of treatment carried out, including local applications of heat and cold, poultices, turpentine stupes and so forth, with all of the variations of internal treatment, including cathartics, opium and other analgesics, arterial sedatives and temperature depressants, with success in some cases but with failure in many others. At one time I had great faith in calcium sulphide in light doses, combined with two grain doses of acetanilide every three to four hours, and I have more confidence in this treatment today than in anything else I know of, but I have seen it result in hopeless failure. I have made it a point to watch symptoms very carefully and treat conditions as they have presented themselves, avoiding opiates as far as possible. However when obliged to give an opiate I have given codeine phosphate almost exclusively, giving it either hypodermically or per rectum. I have had several cases having a catarrhal origin in which I have seemingly prevented a return of the attack for quite a long period of time by treating the catarrhal trouble with a careful regulation of the quantity and quality of the diet, combined with some slight medicinal treatment; but people will gormandize, more or less, and I have found that these cases will recur sooner or later. In the treatment of acute cases I have made it a practice to withhold all food unless it be per rectum until all acute symptoms have subsided, and have even enjoined the use of much cold water.

Summarizing the treatment, if called to a case early, I would ordinarily clear out and disinfect the bowels as far as possible with a full dose of calomel. I would relieve pain with phenacetine, codeine or gelsemium. I have found the latter remedy one of the best analgesics in the materia medica for these cases, giving it in from one to three drop doses every hour for three or four hours according to the requirements. I have reason to think that it often also aids in controlling inflammatory action. In the cases with a small and sharp pulse, and particularly if associated with a good deal of restlessness and anxiety on the part of the patient, aconite in small and frequently repeated doses is a favorite remedy with me.

There are certain cases having a red stripe lengthwise through the center of the tongue in which I have obtained good results from veratrum viride. In other cases, with the tongue having a slight fur but with a bluish or lead colored appearance of its body, the effervescing phosphate of soda has proved efficient. I have no idea as to how it produces a salutary effect unless it is by keeping the bowels in a measure disinfected, thereby diminishing irritation. I have also used the combination referred to of calcium sulphide one one-hundredth of a grain and acetanelide two grains every three to four hours. If one has the facilities for carrying out the plan, hot applications as hot as can possibly be borne by the patient are of great service, but unless this feature of treatment is radically executed, it is worse than useless.

If a patient can be safely carried through an acute attack of course an operation had best be deferred till the subsidence of the attack, but it is often a difficult matter to determine when an operation is required. A recent case illustrates this: A girl sixteen years of age had been subject to attacks of appendicitis for the last two and a half years, but they were becoming more frequent and more severe. I saw her for the first time about three days after the supervention of this last attack. Though some very alarming symptoms presented themselves, the case progressed to what seemed would be a favorable termination and I had discontinued my visits, though they would have been continued a day or two longer had not the patient's mother been desirous of curtailing expense. About thirty hours after my last visit the patient developed a sudden and severe chill, and an operation twenty hours later revealed fully a pint of pus. No symptoms, either local or general, prior to the chill gave any discernible evidence of suppuration. However I should have had an operation in this case at least four or five days earlier had not circumstances over which I had no control prevented.

This case illustrates two things: First, the uncertainty of any ordinary treatment. Second, the utter futility of deferring an operation after the disease manifests a tendency to recur, as it had in this case for over two years. However, the trouble in this particular case was that a diagnosis had never previously been made.

As to the proper time for an operation, each individual case must be decided upon by itself. Usually I would advocate an early operation

provided one is in order during the attack, but as previously stated, it is often difficult to decide on this point.

In closing I wish to insist upon the positive criminality of allowing cases that are manifestly recurring to go without operation at as early a period as is practical.

In a recent medical journal article a leading surgeon of Minneapolis stated it as his experience that the more he learned of these cases the oftener the surgeon is called upon to operate. I think that with a reasonable limitation to this proposition this will eventually be the conclusion of us all.

A STAGGERING COINCIDENCE.*

By F. W. Epley, M. D.,

New Richmond, Wis.

On the twenty-seventh of April a young man was run over by a freight train, his head cut in two, both arms cut off and the body cut in two across the breast. His uncle, who had been a father to the boy, received the news of the accident in the morning. He telephoned the authorities where the boy was killed, requesting that they prepare the remains for shipment, it being forty miles from his home, and have them ready for him on his arrival, as he would have to drive a distance of twenty miles across the country in order to catch a train or else drive twenty-five miles further. This they agreed to do.

On the uncle's arrival at the place of the accident he found that absolutely nothing had been done. He immediately threw off his coat and set about gathering up the bloody remains, washed them as well as he could, placed them in a box which he prepared and set out on his return trip. It was not a cold day, but the wind blew furiously. On his arrival at the railway station he found the train gone. He changed horses and hurried on the balance of the distance of twenty-five miles, making in all forty-five miles by wagon road. He was very tired when he reached home, but made no complaint, and at once set about preparations for the funeral of his nephew. He abstained from food absolutely, and almost entirely from drink, claiming that he could not swallow it. The thought of meat would turn his stomach.

On the twenty-ninth the funeral services were held at the residence. When they were about half over he was seized with faintness, which by the time he could be helped to a room became clonic convulsions attended by chills and stertorous sighing, but not unconsciousness. He could talk perfectly well between the convulsions, which occurred at intervals of a moment or two. He finally became quiet, took some stimulants, and a little malted milk. He was placed in bed, walking down stairs unaided. During the night he was extremely restless, and the deep sighing continued, with constant moving of the limbs. He lay upon his back.

From the first he complained of pain all over. If any attempt was made to move any limb he would cry out with pain, but if the effort was persevered in he would cease to notice. If it was laid down and picked up again in a few moments he would cry out bitterly with pain. Up to noon of April 30 there was no symptom of paralysis. Then it was noticed that the limbs of the right side were not moved as much as the left, finally not at all. Then the left leg became still, while the left arm was kept constantly in motion, making circular motions about the head. There was retention of the urine. On passing a catheter the urine passed freely both through the instrument and around it. After this there was incontenance of urine. His bowels were moved by cathartics and enemas. There was no temperature up to this time. On the night of the thirtieth he obtained no rest, and none could be obtained by anodynes. He had slept none since the accident. Now his speech became affected. When asked a question he would seem to understand it and immediately attempt to reply but would not be able to say more than two or three words. But if a limb was moved he would cry out and complain bitterly, finding no difficulty in finding words to express himself.

On the first of May when placed upon the floor he was able to stand erect, but by noon he ceased to recognize those about him, calling every one by the name of the man who had nursed him up to that time. Restlessness continued through the night of the first. On the second he could only be made to speak by moving a limb, when he would say, "Oh, don't." The temperature now was 102°. Through the night he became more quiet, by midnight was moribund, and he expired at 8 o'clock on the morning of May third.

His brother-in-law came on the first and took care of him from that time until he died. After the funeral services he worked hard about the house setting things to rights, until the night of the seventh of May, when he went home, riding across the country twenty-two miles. On the eighth he was well. On the morning of May ninth he went into the field and worked through the forenoon. At noon he ate a hearty dinner. Shortly after he was seized with vomiting then with convulsions, with symptoms very closely resembling those of his brother-in-law, who had

*Read in the Section of the Practice of Medicine of the Minnesota State Medical Society, June 14, 1898.

just died. On the tenth these continued, and on the morning of the eleventh of May he was a corpse.

Did these three sudden deaths have any relation to each other, and if so what? I confess I do not know.

TWO CASES OF FUNCTIONAL TREMOR.

By C. E. Riggs, M. D.,

St. Paul.

It is with pleasure that I bring before the society this evening two cases of tremor which present features of no little interest. Although the patients are greatly improved as compared with their condition when they first came under my care, yet the tremor, as you will observe, is still very pronounced.

Hattie Y., the first patient, a native of Germany, nineteen years of age, is, as the most casual glance indicates, feeble minded. She experienced an attack of rheumatism in childhood. When thirteen years of age she fell down two flights of steps striking on her head, suffering from a fracture of the skull, still present near the left parieto-occipital fissure. She attributes her defective articulation to this injury. She complains of having suffered a great deal from headache and occasionally from fainting spells, probably petit mal. Her menses, which were established in her fifteenth year, have been irregular and attended with pain. One year ago she first noticed tremor in her hands which gradually spread over the upper extremities, subsequently involving the neck, face and lower limbs. The thorax and abdominal muscles, aside from the scapulo-humeral group, have entirely escaped, as have also the intrinsic muscles of the hands. The tremor, as you observe, is exceedingly coarse in character, involving physiological groups of muscles; it is bilateral and in this case rhythmical and symmetrical; it subsides during sleep; voluntary effort greatly increases it. There has been no difficulty in locomotion. For some time she was unable to feed herself, and even now you see that in her attempt to drink water from the glass which I hand her she invariably fails, the incoördinate muscular movement causing her to spill it in a most indiscriminate manner, and any attempt at purposive movement seems to occasion the choreiform character of the muscular action which you have just observed. The tremor at first simulated very closely that of paralysis agitans, only being much coarser in kind. There has been no involvement of motion or sensation or of the special sense; no hysterical stigmata; no evidence of organic nervous disease.

The second patient, Helen B., is, as you see, a bright, intelligent young woman, sixteen years of age, American; parents, one sister and two brothers living and well; five brothers and one sister dead, causes of death unknown. Aside from scarlet fever in infancy there have been no previous illness. Seven years ago she had a similar attack following fright, which lasted some four months. Two months since the present trouble began. The immediate cause seems to date from the death of one of her companions with whom she had had some difficulty, and the shock of seeing her in the coffin, coupled with her previous attitude toward her, resulted in tremor of the muscles of the face, neck, upper and lower extremities, the trunk and intrinsic muscles of the hands escaping as in the former case. The tremor was coarse, rhythmical, symmetrical and bilateral, and was so pronounced that for weeks she was unable to feed herself or even to sit down. There was absolute cessation during sleep. The muscular contractions were not so rhythmical as in the first patient, and greatly resembled when excited the irregular, incoördinate movements of Sydenham's chorea. I have noticed also that the rhythm of the movements varies during observation. When not excited, the tremor is confined almost entirely to the upper extremities, and you will note that the muscular contractions are bilateral, rhythmical and symmetrical. As in the former patient there are no evidences of organic disease, neither are there present any stigmata of hysteria; no limitation of the visual field.

In the first case there is no assignable cause for the tremor, it being evidently independent of the weak mindedness and the injury; in the second instance, it is directly traceable to emotional causes. A patient may be hysterical without presenting the stigmata described by the French school, but the diagnosis under these circumstances is a matter of great difficulty and can be reached only by a process of exclusion, extending through the whole realm of nervous disease. Personally, I prefer calling this class of cases "functional tremor" rather than "hysterical;" the latter term implies too much, there being an entire absence of all physical expression of the hysterical state. Cortical instability is probably the basic element in both diseases, and in the cases before you, it seems to me to be essentially limited to the sensorimotor area. This area is less affected than is usual in hysteria, the psychical centers entirely escaping; the centers implicated manifesting their irritability by disruptive discharge. The theory advanced by Gowers as to the pathology of tremor in paralysis agitans is most interesting and would cover all varieties of this affection, viz: That it is due to some obscure molecular disturbance occurring in the end arborizations of the protoplasmic processes of the neuron.

CASE OF INDUCED ABORTION—SEPSIS —ANURIA LASTING ELEVEN DAYS—DEATH.*

By Andrew Henderson, M. D.

Merriam Park, St. Paul.

On March 7, I was called to Mrs. B. She stated that on the twenty-seventh day of January, believing herself to be pregnant, she inserted a catheter, which was followed by loss of blood for three days, slight in amount and without pain. Failing to "come around" at her next menstrual period in the latter part of February, and concluding that she was again pregnant, she again inserted the catheter, which was an ordinary No. 8 gum elastic catheter, with a wire stilet. This was followed by hemorrhage, off and on, for about a week, when she began to have pain, fever and chilly sensations. Her temperature was 104.6°. Pulse, 140. Respirations 42. She complained of severe pain and tenderness in the hypogastric region and was flowing freely with a discharge which was moderately offensive. An intrauterine irrigation of two quarts of warm sublimate solution, 1-6000, was employed, followed by the same amount of plain boiled water, and the vagina was packed with iodoform gauze. The following evening and the next morning her temperature was normal and the pulse 80, and she was free from pain and tenderness. The gauze was removed and the vagina irrigated with sublimate solution, 1-6000. The next afternoon she had a distinct rigor, temperature 105°, pulse 140, more pain and offensive discharge. In the interval she had passed twin embryos of about eight weeks growth. Under an anæsthetic the uterus was curetted by means of the index finger and considerable decomposing placental tissue removed, the uterus was again washed out with sublimate solution, 1-6000, followed by boiled water, as before, and an intrauterine tampon of iodoform gauze inserted for drainage. This was removed the following morning, and as there was absence of fever and pain and there was no offensive discharge, an irrigation of boiled water only was employed. I was informed at this time that she had not passed urine since the morning of the day before, and on inquiry learned that for some time her urine had been scanty and high colored. A catheter was inserted and the bladder found empty. one quarter grain doses of calomel were ordered to be given every hour and infusion of triticum repens in regular doses. The condition of the patient for the next five days remained practically unchanged; she was free from fever, pain or any discomfort, her pulse at no time ranged above 80 and was of only slightly increased tension; she slept well and took her nourishment well; there was no abdominal tenderness or uterine discharge. On the sixth day of her illness she expelled a small mass of placental tissue, but I was not told of this till the following day, as she did not wish to be subjected to the irrigation which she knew would be employed.

The use of the calomel was soon dispensed with, as during this time, and in fact throughout her whole illness, she had a persistent diarrhœa, there being from twelve to sixteen medium sized stools every day.

On the seventh day she developed an herpetic eruption on the upper lip and a patch of the same character on the front of the chest, and for the first time palpation of the abdomen elicited slight tenderness over the left kidney.

Dr. Ohage saw the patient with me on the ninth day of her illness, when she began to show signs of uræmic poisoning, drowsiness, headache and sluggishness in recognizing her friends; there was increased arterial tension and pronounced accentuation of the second sound. From this time on she failed steadily and died comatose on the thirteenth day of her illness, after eleven days of total urinary suppression. There was at no time any appreciable effusion into the serous cavities nor any anasarca. The catheter was introduced daily, but at no time was any urine found in the bladder.

It is to be regretted that an autopsy was not obtainable; in consequence of this we are left in the dark as to the existing pathological condition. I am however inclined to regard it as a case of acute diffuse nephritis of microbic origin. Bampton in the British Medical Journal, December 15, 1894, relates a case of complete anuria in a man at 64, lasting ten days without convulsions. The post mortem showed granular kidney only. Bampton presents three theories for the suppression: (1) choked filter from accumulation of excrementitious matter; (2) paralysis of renal epithelium from an alkaloid poisoning; (3) Stop cock action of the renal artery from irritation produced by retained urinary constituents. Cases of persistent and complete anuria lasting from eight to ten days and even longer have been reported by several observers, in which the suppression has been found due to calculi blocking up the ureters, and Sir Dyce Duckworth in the London Clinical Journal of August 16, 1894 relates a case of anuria without known cause in a woman of 38; suspecting calculus, laparotomy was performed without result and the patient died. The autopsy revealed only a slight chronic nephritis.

1946 Marshall Ave.

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DO THE SALICYLATES CURE RHEUMATISM?

"Medicines have little or no control over the duration or course of the disease, which, like other self-limited affections, practically takes its own time to disappear. Salicyl compounds, which were regarded so long as specific in the disease, are now known to act chiefly by relieving pain."—Osler.

"The course of acute rheumatism is very uncertain. Some quite severe cases recover in a week, others, less severe or subacute, last for four, six or eight weeks" * * *.—American System of Practical Medicine.

"The average duration of the disease under this treatment (salicylate of soda) is five days."—Whittaker.

The quotations given above show a wide difference of opinion upon a question which many, if not most, medical practitioners consider a settled matter, that is the specific action of salicylic compounds in acute articular rheumatism. Specifics in medicine are few, but for twenty years at least medical teachers have been telling their classes that for acute rheumatism salicylic acid was a specific remedy, not perhaps to be classed with quinine in the treatment of malaria, but certainly more specific than colchicum in gout or iron in anæmia. Nearly a whole generation of doctors have gone into practice with this doctrine firmly instilled into their minds, and many will remain to the last with their faith unshaken.

Experience teaches that the apparent influence of medicines upon self-limited diseases must be looked upon with great distrust, and that claims of great curative powers must be submitted to most rigorous tests. Nothing illustrates this better than the history of acute articular rheumatism itself. Before the day of salicylic acid several methods of treatment had been hailed with great enthusiasm. About the middle of the century Garrod reported fifty cases treated with large doses of alkalies with an average duration of six or seven days and no heart complications in any case that had been under treatment for forty-eight hours. Other observers claimed great success with lemon juice, with free blistering and with other methods of treatment not necessary to enumerate. Then came the reports of Gull and Sutton in England, and Austin Flint in this country, who treated a considerable number of cases expectantly, with results that completely took the wind out of the sails of those who claimed great benefit from medicine. In the reaction that followed, the treatment of rheumatism was looked upon as hopeless, and it became a class room joke that the only good thing for the disease was "six weeks."

It is a question if there is not today some inclination on the part of the profession to abandon the belief in the power of the salicylates to cure acute rheumatism. That these salts have a controlling power over the pain and the fever is universally admitted, but does their use shorten the disease? Certainly there are many men who no longer follow the routine treatment of filling the rheumatic patient with some salicylic compound as fast as it can be crowded into him; instead there is much use of phenacetine, antipyrin and their congeners, and it is sometimes asserted, even now-a-days, that six weeks is the only cure. It must be that many failures with the salicylates have been met with, and that in consequence confidence in their efficiency has diminished.

On the other hand the advocates of the salicylates make a strong plea in their favor. They

say that the reason for failure is oftenest a faulty use of the drug, particularly through the giving of too small doses. One writer lays down as rules for success that only pure vegetable salicylic acid shall be used; that the treatment shall be begun with a brisk purgation, and that the diet shall be strictly limited to milk. The daily dose for an adult must be at least ninety grains of the salicylate of soda, the medicine to be given at three hour intervals day and night. After forty-eight hours the daily quantity may be reduced to a drachm, but this must be continued for several days after a complete disappearance of the pyrexia. All lay stress upon the size of the dose and the necessity for its continuance, and it is generally admitted that there is considerable danger in using the drug upon pregnant women.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

Haldor Snévé, M. D., Secretary.

Regular meeting, June 27, 1898. The president, J. A. Quinn, M. D., in the chair.

Dr. C. F. Denny presented a paper entitled

CÆSAREAN SECTION—RECOVERY.

See page 313.

Dr. Ohage said that he had had a case of Cæsarean section which he thinks was infected by a case of diphtheria in the next bed. He thought that Dr. Denny's good result was in part due to his careful antisepsis.

Dr. Renz wished to speak of one point which the essayist had made in his paper, viz: The apposition of peritoneum to peritoneum. Experiments and clinical experience have shown that union is stronger and better if the peritoneum is united to some other structure, e. g., muscle or fascia.

Dr. Rothrock spoke of the scarcity of cases of contracted pelvis in this part of the country, principally because rachitis is so rare out here. The world's percentage of mortality in these cases is about five per cent or less. Gonorrhœa is a very bad thing for Cæsarean section, experience having shown that an infection nearly always follows an operation upon this kind of a patient. The absolute indication of this operation seems to be a conjugate of six c. m., otherwise symphysiotomy is preferred. Dr. Leopold, of Dresden, had a mortality of ten per cent in his last report, while Dr. Reynolds, of Boston, has had a series of twenty-seven cases without a maternal death.

Dr. Denny closed the discussion. The class of immigrants to the Northwest is not of the rachitic variety. He preferred kangaroo tendon in the uterus because it lasts longer than catgut.

SOUTHWESTERN MINNESOTA MEDICAL SOCIETY.

H. D. Jenckes, M. D., Secretary.

The tenth annual meeting was held at Sibley, Iowa, July 14, 1898. The President, C. C. May, M. D., in the chair.

The following papers were read and discussed:

President's address, by Dr. C. C. May, of Adrian, Minn.

Some of the Convulsive Disorders of Childhood, by Dr. Emil King, of Fulda, Minn.

Therapeutic Value of Bathing in Fevers, by Dr. G. R. Curran, of Worthington, Minn.

Some Cases from an Obstetrical Record, by Dr. W. S. Pickard, of Burlingame, Kan.

Abdominal Section, by Dr. F. Hough, of Sibley, Iowa.

The Nervous Element in General Disease, by Dr. H. A. Tomlinson, of St. Peter, Minn.

Report of Two Ovariotomies with Unusual Complications, by Dr. A. E. Spalding, of Luverne, Minn.

Treatment of Typhoid Fever, by Dr. H. D. Jenckes, of Jasper, Minn.

The following officers were elected for the ensuing year:

President: Dr. Wm. McGillivany, Pipestone.

Vice President: Dr. Emil King, Fulda.

Secretary: Dr. H. D. Jenckes, Jasper.

Treasurer: Dr. H. Morrell, Slayton.

The next meeting will be held at Pipestone, in January, 1899.

BOOK NOTICES.

Modery Gynæcology. By Charles H. Bushong, M. D., Assistant Gynæcologist to the Demilt Dispensary, New York, etc. Illustrated. Second editon, enlarged. New York: E. B. Treat. 1898.

This work does not claim to be a complete treatise or manual upon gynæcology, but to contain a description of this branch of medical science as it is met with in practice today. The present edition was demanded by the call for the first issue of the work, and advantage has been taken of the opportunity to remodel several of the chapters and to write a new one upon Hygiene and Exercise.

Atlas of Legal Medicine. By Dr. E. Von Hoffmann, Professor of Legal Medicine and Director of the Medico-Legal Institute of Vienna. Edited by Frederick Peterson, M. D., Clinical Professor of Mental Diseases in the Woman's Medical College, New York; etc., and Aloysius O. J. Kelly, M. D., Instructor in Physical Diagnosis, University of Pennsylvania, etc. Illustrated. Phila: W. B. Saunders. 1898. [Price $3.50, net].

The illustrations with which this atlas is richly supplied, picture death from almost every conceivable form of violence and are so realistic as to be almost startling to the medical man supposed to be hardened to all that is ghastly. The coloring is particularly good and the plates have much artistic merit. Each illustration is furnished with a short and clear explanation.

The International Medical Annual. By Many Contributors. 1898. Sixteenth year. New York: E. B. Treat. 1898. [Price $3.00].

The sixteenth annual issue of this well known work is even an advance upon its predecessors. Particular attention is called to an article appearing this year upon bacteria pathogenic to man, illustrated by a number of excellent colored plates.

A System of Medicine. By Many Writers. Edited by Thomas Clifford Allbutt, M. A., M. D., etc. Volume VI. New York: The MacMillan Company. 1898. [Price $5.00. For sale by the St. Paul Book and Stationery Co.]

This volume, whose publication has been unavoidably delayed, treats of diseases of the respiratory and circulatory organs, many of its articles being contributed by the editor, others by such well-known Englishmen as Dr. Michael Foster and Dr. Dickinson.

There is just enough difference between the British and the American points of view to give a work written on the other side of the water a particular relish for readers in this country. Then, too, the British writer is less precise and stilted in his style of expression than his American compeer, and many of the medical papers in this System will be found to be written in a style that combines at once ease with simplicity.

Atlas of Syphilis and the Venereal Diseases. By Prof. Dr. Franz Wracek, of Vienna. Edited by L. Bolton Bangs, M. D., Consulting Surgeon to St. Luke's and the City Hospital, New York; etc. Philadelphia: W. B. Saunders. 1898. [Price, $3.50, net].

This book is made up of a handsome collection of well colored plates, illustrating a great variety of eruptions, primary, secondary and tertiary in subjects of syphilis, both congenital and acquired. The plates are all taken from actual cases, and the history, including treatment, accompanies each case. There are also a number of plates devoted to the illustration of the various complications of gonorrhœa, and at the end a hundred pages of text upon the subject of the various skin diseases.

Conservative Gynæcology and Electro-Therapeutics. By G. Betton Massey, M. D., Physician to the Gynæcological Department of Howard Hospital and Late Electro-Therapeutist to the Infirmary for Nervous Diseases; etc. Third Edition. Illustrated. Philadelphia: The F. A. Davis Company. 1898. [Price, $3.50, net].

The surgeon will hardly aprove of the author's use of electricity in place of the knife in the treatment of fibroid of the uterus, cancer of the breast, ectopic gestation and other grave conditions, where loss of time may mean loss of life. Indeed, it is hard to believe that anything less radical than a surgical operation can be properly advocated in these conditions. But it is only fair to give a hearing to Dr. Massey's arguments, and electricity is allowable at least in cases that refuse operation.

A System of Practical Medicine. By American Authors. Edited by Alfred Lee Loomis, M. D., LL. D., Late Professor of Pathology and Practical Medicine in New York University; etc., and William Gilman Thompson, Professor of Medicine in the Cornell University Medical College; etc. Volume IV. Illustrated. Philadelphia: Lee Brothers & Co. 1898. [Price, $5.00. Sold by Subscription].

The fourth and final volume of the "System" is devoted to diseases of the nervous system, vaso-motor and trophic disorders, diseases of the muscles, osteomalacia, rachitis, rheumatism, arthritis, gout, lithæmia, scurvy and Addison's disease.

Since Pepper's work of a like nature was published there has been no book so thoroughly representative of American medicine, and the physician will find it in itself a complete library, telling all that is to be told about practical medicine and telling it thoroughly.

Atlas and Epitome of Operative Surgery. By Dr. Otto Zuckerkandl, Privat-Docent in the University of Vienna, Edited by J. Chalmers Da Costa, M. D., Clinical Professor of Surgery in Jefferson Medical College, Philadelphia, etc. Phila: W. B. Saund , 1898. (Price, $3.00, net).

In addition to the numerous colored plates there are many illustrations in black and white showing lines for incision, methods of suture and

other points that do not need to be illustrated in color. Some of the most striking and valuable of the plates are those giving sections of the limbs at various levels showing the arrangement of vessels, nerves, bones, tendons, muscles and other important parts. A special feature of the book is its illustration and description of a large number of plastic operations.

A Manual of Modern Surgery, General and Operative. By John Chalmers Da Costa, M. D., Clinical Professor of Surgery, Jefferson Medical College, Philadelphia. Illustrated. Phila: W. B. Saunders, 1898. (Price, $4.00 net).

A manual is supposed to occupy an intermediate position between a text-book and a compend, that is to be neither diffuse nor brief. It makes little difference to the value of a work, however, whether it be in one form or the other as long as it contains something of the individuality of the writer, and Dr. Da Costa's book is not lacking in this essential point.

The various specialties such as ophthalmology and otology are not taken up in this volume, as the author believes that they should be left to be written of by those specially skilled in these branches. Orthopædics, however, receives attention, as the general practitioner is called upon to treat many of the diseases that come under this head.

Gasquet justly says: "We who live in that security from the horrible and universal plague of small pox, for which we are indebted to Jenner's immortal discovery, cannot realize the blessing that he conferred on mankind. The death-rate from this disease in England in the last half of the last century was such that, if applied to the present population, it would give 70.000 deaths per annum. In London the deaths before 1804 had averaged 2.018 in a population of 1.000.000. In 1890, in a population of 4.000.000, there was just one death from small pox. A modern miracle! for communities left in a state of unassisted nature are just as pervious to its attacks as ever—witness the complete destruction of the Mandan Indians, and the following instance in South America. In 1879 Mr. Ashley, M. P. for Brighton, made a yachting tour to Brazil. He stopped at Ceará, which had recently been visited by an epidemic of small-pox. On inquiring into the facts, he learned that in ten months following August, 1878, no less than 27.064 burials had taken place in one cemetery, and 13.000 in another—40.000 out of 70.000 had died: and yet there are anti-vaccination 'cranks' extant who ask us to neglect the only effectual preventive!"

NOTES.

Blennostasine in Hay Fever.

The drying effect of Blennostasine is most remarkable, and renders it of great value in the treatment of hay fever. Many remedies may benefit this affection, but the most uniform and decided results are obtained from the use of Blennostasine. Its influence on the vaso-motor system is in many cases remarkable. It produces a dryness of the naso-pharyngeal membrane almost equal to the effect of belladonna, and has the additional advantage of being non-toxic. When possible, treatment should be commenced ten days before the usual date of attack, with five grain doses of Blennostasine three times a day. On the day preceding the usual date of attack, twenty grains should be administered, and the dose increased ten grains daily until the symptoms are controlled. If the attack does not appear or is controlled, the dose should be gradually diminished. If the patient is not seen until the attack has begun, full doses (five grains) of Blennostasine should be given and increased as required.

Cholera Infantum.

Physicians coincide in their views regarding the treatment of the summer diarrhœa of infants and children to a degree that enables it to be thus briefly summarized: Diet, emptying the alimentary tract, antisepsis. For the antiseptic treatment, listerine alone, or listerine, aqua cinnamon and glycerine, or listerine, bismuth and mistura creta, will meet many requirements of the practitioner during the summer months.

The following well tested formulæ are submitted:

R Listerine ..... ℥ i-ii
Simple Syrup ..... ℥ vij-vi
M. Sig.—Teaspooniul every one, two or three hours.

R Listerine.
Glycerine (c. p.)
Syr. simpl.
Aqua Cinnamon, aa ℥i.
M. Sig.—Teaspooniul every two or three hours

R Bismuth Sub. Nit. ..... ℥ ss
Tr. Opii ..... gtt. xx.
Syr. Ipecac. Syr Rhei. Arom—aa ℥ ij.
Listerine ..... ℥ ss.
Mist. Creta ..... ℥ j.
M. Sig.—Teaspooniul as often as necessary, but not more frequently than every three or four hours. This for children, about ten or twelve months old.

Intestinal Antisepsis in Fevers.

Though the Typhoid, Malarial and Yellow Fever epidemics in Cuba have not yet reached this country, it is well to guard against them by taking precautionary measures. If it be true, that the materies morbi of these diseases belong to the bacillus group, the remedies manifestly are an antiseptic and an antipyretic. As an intestinal

antiseptic we have nothing better than salol. The consensus of opinion is in this direction. When we add the antipyretic and anodyne effects of antikamnia, we have a happy blending of two valuable remedies, and these cannot be given in a better or more convenient form than is offered in "Antikamnia and Salol Tablets," each tablet containing 2½ grains antikamnia and 2½ grains salol. The average adult dose is two tablets. Always crush tablets before administering, as it assures more rapid assimilation. It is not our desire to go into the study of bacteriology here; our aim is simply to call attention to the necessity of intestinal antisepsis in the treatment of this class of diseases. If in the treatment of these diseases, an intestinal antiseptic is indicated, would not the scientific treatment of the conditions preceding them be the administration of the same remedies? Fortifying the system against attacks is the best preventive of them.

The Best and the Cheapest.

In prescribing either medicine or nutriment, a physician must often consider the question of what is the most economical as well as what is the best for the patient. And it is only occasionally that he is made happy by the knowledge that THE CHEAPEST IS THE BEST. He always knows that "the best is the cheapest," but this helps him very little if economy must be thought of.

John Carle & Sons point with pride to the fact that their prepared food, IMPERIAL GRANUM, is the most economical as well as the best food on the market, and in proof of this, they ask physicians to carefully note the weight of their handsome "Small" and "Large" size air-tight tins, and also to kindly notice the length of time either one will last, bearing in mind that their sterilized tins form the lightest, as well as the safest retainer that can be used.

Assists Nature.

J. A. Stoutenburgh, M. D., late Resident Physician Columbia Hospital, Washington, D. C., says, "We need a remedy or combination of them that will increase the oxygen-carrying power of the blood, increase the appetite and stimulate the stomach and intestines to renewed activity. Many so-called blood-makers attempt to do too much for us by supplying predigested and artificial food. It is better to give nature a chance, by coaxing her to resume her work, and then furnishing a nutritious and easily digestible diet. 'Gray's Glycerine Tonic Comp.' is a preparation which has done me excellent service in many cases. I am well satisfied that we have in this tonic a most valuable medium, one sure to grow in favor as its merits become better known."

Sanmetto in Cystitis, Prostatitis and Irritable Bladder.

I have been using Sanmetto in my practice for two or three years. I have used it in a good manys cases of cystitis, prostatitis and in all cases of irritable bladder, with the most gratifying results.

Arlington, Ky. R. D.HOCKER, M. D.
Ex. Pres't So. Western Ky. Med. Assoc.

Thymoline in Hemorrhoids, Etc.

Kress & Owen Company, New York City,

Gentlemen: I have employed Glyco Thymoline in cases of Hemorrhoids, as well as in Gynæcological cases, and always with desired effect.

Yours truly,
Emily Pardee, M. D.

Prof. of diseases of children in Woman's Homœopathic Medical College, and resident physician of Home Rest.

South Norwalk, Conn., June 9, 1898.

A Useful Chart.

Write to The Imperial Granum Food Company, New Haven, Conn., for sample copies of their new "Nursing World Fever Chart" for recording the vital signs and other information relating to the BATHS given in the treatment of fever cases. It is very complete and will be found especially useful in typhoid fever.

Sanmetto, Listerine and Chloroform.

Three great blessings to suffering humanity. Sanmetto and Listerine being as great as Chloroform.

Verdery, S. C.

H. Drennan, M. D.

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A Minneapolis physician who is about to retire from general practice to take up a specialty, offers for sale his household and office furniture and his horse and carriages. All articles in good condition and are of good quality.

To the purchaser he will turn over his practice without charge, giving him a proper introduction, and doing whatever he can to install such successor in his practice, which has been established eleven years.

The publisher of the L a n c e t believes this to be an excellent and an unusual opportunity for any one wishing to begin practice in Minneapolis.

For full particulars address "Doctor," care of N. W. L a n c e t, 734 and 735 Lumber Exchange, Minneapolis.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology and Lecturer on the History of Medicine in the University of Minnesota.

St. Paul.

(Continued from LANCET of Sept. 1.)

Benjamin Bell, of Edinburgh, another brilliant surgeon, made marked advances in our knowledge of chronic diseases of the bones and joints. He was the first to establish the principle of wound drainage, using metal tubes for this purpose. He published an extensive work in six volumes on general surgery in 1783, and ten years later a treatise on venereal disease. John Bell, also a successful surgeon, was the elder brother of Sir Charles Bell, who become so famous in the early part of the present century. He lectured on anatomy, surgery and obstetrics, enjoyed a large general practice and wrote several important books on anatomy and surgery. His more famous brother belongs more properly to the nineteenth century and will be considered later. John Abernethy (1764-1831) was for many years a surgeon of St. Bartholomew and also a professor in the Royal College of Surgeons, and was a man very conspicuous among the English physicians of his day. He was of a rough and eccentric character, which gave him the reputation of being brutal, although he was actually one of the kindest and most charitable of men, and he was a very popular teacher. Indeed, it was largely through his poularity as a lecturer and through his personal activity and enthusiasm that the medical school of St. Bartholomew became so flourishing.

In England as well as in France the eighteenth century witnessed most important advances in the science of obstetrics, which was practised by both physicians and surgeons. The anatomy of the pelvis in its special relations to parturition was carefully studied, as were also the various positions of the fœtus in utero.

The most important English obstetrician was William Smellie (1680-1763). He was one of the first to accurately determine the normal measurements of the pelvis and to describe the varieties of deformed pelves, and he devised various instruments for facilitating difficult labor, as well as various methods for correcting faulty positions of the fœtus. Thomas Denman (1733-1815) was the author of an important and eminently scientific book entitled "Introduction to the Practice of Midwifery" published in 1787. Denman like William Hunter was opposed to the use of instruments in delivery except in cases of great emergency, and he is also to be remembered as one of the first to appreciate the contagious nature of puerperal fever.

Sir Fielding Ould was a famous Dublin obstetrician and one of the founders of the Dublin School of Midwifery, which was the forerunner of the great Rotunda Lying-in Hospital which is today one of the most popular schools of obstetrics in the world. Shortly after Sir Fielding received the honor of knighthood, a wit of his time perpetrated the following amusing verse:

> "Sir Fielding Ould is made a knight
> He should have been a Lord by right
> For then each lady's prayer would be
> O Lord, good Lord deliver me!"

The Germans during the eighteenth century were not conspicuous for their progress in the practical departments of medicine; but Germany, or more properly Switzerland, can point with pride to the life and work of one of the greatest scientists of the age, whose labors were directly valuable to our profession, Albert von Haller, born at Berne in 1708. His father was a lawyer, but died when Haller was twelve years old. From his early boyhood he showed great aptitude for knowledge and a fondness for writing poetry. He went to the University of Tubigen where he remained for ten years and where he gained his first knowledge of anatomy, chemistry and botany. In 1725 he went to Leyden, where he studied with great enthusiasm and industry under Boerhaave and Albinus, and at the age of nineteen he took his degree as doctor of medicine. He then made a trip to England where he studied anatomy for a time under James Douglass, and from here he went to Paris where he continued his studies under LeDran and Winslow. In 1728 he was studying and for a time lecturing on botany and mathematics at Basel. He continued to write poetry in the intervals of his severer labors, and in 1732 he published his first collections of poems. In 1735 he was called to Göttingen as professor of anatomy, surgery, chemistry and botany. Here he founded an anatomical theatre and a botanical garden, and a scientific society of which he was the first president. He was also active and prominent in public affairs and occupied important positions of public trust. His writings on anatomy, physiology and kindred subjects were very numerous and of great value, especially those concerning the physiology of the nervous system.

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

The development of the doctrine of nervous irritability was due to his influence, and Haller first proved that all sensation was from the nerves. His views became very widely known and attracted at once a great host of opponents as well as of supporters. Although possessed of great surgical knowledge he never practised, and in spite of the fact that he was thoroughly familiar with surgical technique and expert as a dissector, he shrank from the responsibility of practical surgery, and could never persuade himself to operate on a patient; and it is a curious fact that he never performed a surgical operation. Few men have exercised a greater influence over the scientific thought of their age, and like Hippocrates he was called even during his life time, "Haller the Great." His influence on medicine although powerful, was rather indirect and theoretical than practical. Haller died in 1777.

Other anatomists worthy of mention in this century were Valsalva and Santorini of Italy, Winslow and Portal of France, the name of the former being preserved by the foramen of Winslow.

Portal was a surgeon of great reputation, was ordinary physician to Louis XVIII., and wrote an elaborate history of anatomy and surgery. Portal also studied attentively and scientifically diseases of the lungs and especially pulmonary phthisis, of the nature of which he evidently had a very correct understanding, although its etiology as we now understand it was not at that time comprehended.

Up to the eighteenth century pathological anatomy which we now know to be so important to medicine had not been appreciated, and such knowledge as existed of the morbid changes produced by disease was confined to the few accidental observations which had been recorded by those who had occasionally examined diseased organs after death. John Hunter was perhaps the first great pathological anatomist, as shown by the many pathological specimens in his famous collection, but he did not, apparently, appreciate the value of the study of pathological anatomy as much as some of his pupils. The real founder of the science of pathological anatomy was an Italian, Morgani, a pupil of Valsalva and a professor in the University of Padua. He spent the most active years of his life in the study of the changes produced by disease in the various organs of the body, appreciating the importance of the knowledge thus obtained to the subjects of diagnosis and treatment. His great work, which will forever remain a classic, on pathological anatomy "De Sedibus et Causis Morborum per Anatomen Indagatis Libri Quinque" was not published until he was nearly 80, although it had occupied a great part of his life (Venice 1761). England also produced a patholigist of great ability, Matthew Baillie 1761-1823) a nephew of John Hunter. Baillie appreciated the importance of many of the pathological specimens in Hunter's collection, more than did Hunter himself, and was a most enthusiastic advocate of the study of pathology in its relation especially to diagnosis. Baillie's work on pathological anatomy illustrated by copper plates designed by Clift, was translated into most of the continental languages and was very highly esteemed. He was the first to describe the lesions of miliary tuberculosis of the lungs.

It is difficult, indeed it is impossible, to absolutely affirm that any one discovery in medicine is the greatest and most important or that any one man is the greatest man in our history, but the introduction of vaccination, or the inoculation of cow pox, as a preventitive of small pox, has probably been the means of saving humanity from more suffering than any other discovery in the world's history, and inseparably connected with this subject is the name of Edward Jenner, a name which always must be conspicuous among the benefactors of mankind. The interest and importance of this epoch in the history of medicine demands more than a passing notice.

From the very earliest period of history, and probably from prehistoric times, small pox has been one of the most dreaded scourges of the human race. It is described unmistakeably in the most ancient medical writings of all nations, and among the most remarkable evidences of the attention to the study of diseases among people of the earliest civilization, is the recorded fact, that one attack of small pox protected the individual from contracting the disease again. From this knowledge, arose the practice, although we know not when or among what people, of inoculating healthy individuals with the actual small pox, so that taking the disease under favorable circumstances and with careful attention, it might run a light course and the individual thus be protected from a future attack. This custom is described in the ancient Veddas of the nations of India, in the Chinese records of 1,000 years before Christ, and it continued to be practised by the Egyptians, the Greeks and the Arabians, and it is constantly mentioned in the medical and other writings of all the nations of Europe during the middle ages. The first knowledge of the inoculation of small pox was introduced into England about 1721 by Lady Mary Wortley Montagu, wife of the English ambassador at Constantinople, whose son had been inoculated a few years previously during her residence in the East. Small pox at this time was very prevalent and very fatal all over Europe and in England, and a large proportion of the

people who had recovered from the disease were horribly disfigured by the scars on their faces. so that any proposition which offered a protection from the dangers of this horrible disease was eagerly listened to. Dr. Maitland, who had been Lady Mary's physician in Constantinople and had accompanied her back to England was enthusiastic on the subject of inoculation and soon succeeded in making the practice popular, especially as through Lady Mary's influence and example the Prince and Princess of Wales subjected themselves to it. In a few years the practice of innoculation became very general, not only in England, but in France and in Germany and in America, and as the mortality was small as compared with the small pox otherwise acquired, and as experience showed that those who had been inoculated, except in the very rarest instances, never acquired the disease again, the method became more and more popular.

In 1749, Edward Jenner, the son of a clergyman, was born in Gloucestershire, and as the history of medicine records few greater achievements than that which has made his name immortal, it will, I think, not be out of place to consider in some detail his life and the circumstances connected with the introduction of vaccination.

Jenner's father was Vicar of Berkeley, possessed of considerable landed property and descended from an ancient and most respectable family. Edward from his earliest youth displayed great fondness for the study of natural history and for investigating the habits of animals, and while at school he spent most of his spare time collecting and studying fossils which were very numerous in that part of England. At he age of seventeen he was apprenticed to a surgeon of Sudbury, near Ludlow, a man of considerable ability. In 1770 he went to London and was received as a pupil in the house of John Hunter, who was then at the height of his fame as a surgeon and a naturalist. A warm friendship arose between Hunter and his pupil which was maintained during their lives. Under Hunter's guidance and teaching Jenner pursued with much enthusiasm the study of comparative as well as human anatomy and became very skillful as a dissector, and especially in the preparation of delicate and complicated specimens. While he was with Hunter, Captain Cook's first voyage of discovery was made and the very extensive collection of specimens brought back by Sir Joseph Banks was arranged, classified and prepared by Jenner, and he displayed such science and ability in the execution of this task that he was offered the position of naturalist on the next expedition, an honor, however, which he declined. Having completed his medical studies in London he returned to Berkeley where he at once began practice and soon gained a wide reputation. His surgical skill and his attractive personal qualities soon gained for him the respect and confidence of the community in which he lived, and his patients were very numerous and from among all classes of people. He continued to employ his spare time in his favorite studies of natural history and comparative anatomy and accumulated a large museum of specimens. He is described by those who knew him as having been possessed of great personal charms; as having been a delightful conversationalist, uniting with a keen sense of humor, a deep and human sympathy, so that he was always ready to take an interest in and to appreciate both the joys and sorrows of his friends and patients.

Jenner's attention had been drawn to the subject which has attached such fame to his name during the days of his apprenticeship at Sudbury. A young milkmaid remarked in his presence that she could not take the small pox, because she had had the cow pox; on further inquiry he found that it was a popular belief among the country people of that district that those who had been afflicted with a pustular eruption on the hand, from milking cows whose udders had a similar eruption, a disease known as cow pox, were in most cases secure from small pox. To Jenner's mind this curious fact which had hitherto received little attention possessed a great significance. He had frequently witnessed the horrors of small pox, and he had a lively recollection of his own unpleasant experience when in his childhood he had been inoculated. He made many inquiries and observations on the subject and afterwards, while living with Hunter, he discussed it with him. Hunter gave him encouragement to follow up the matter, accompanied by this sage advise: "Don't think, but try, be patient, be accurate." It was after many years of patient, accurate observation that he finally demonstrated to the world the great principle of vaccination. His first accurate and complete experiment was made on the fourteenth of May, 1796. Matter was taken from the hand of a milkmaid (Sarah Nelmes), who had been infected by her master's cows, and inserted by two incisions into the arm of a healthy boy (James Phipps) eight years of age. The inoculation was successful and the boy went through a mild attack of cow-pox. The crucial experiment was yet to come. After waiting a sufficient time, variolous matter was taken from a virulent case of small-pox and carefully inserted into the boy's arm by several incisions. Jenner watched the case with intense interest, and as he had confidently predicted there was no result from the second inoculation.

For the next two years he pursued with great interest and enthusiasm his experiment and his first publication on the subject appeared in June, 1798. His statements were at first received with incredulity and ridicule. It was not long, however, before his experiments were repeated by others, and the demonstration being so simple and the importance of the subject so enormous, the truth could not but prevail. Within a year of his first public announcement inoculation was superseded by vaccination in England, and from thence it was rapidly adopted throughout the civilized world. Jenner made no attempt to advance his private interests through his discovery, but at great expense to himself he continued to develope the methods of vaccination, and the fruits of his labors were freely given to the world. His enthusiasm was such that he neglected his private practice and at one time he found himself in somewhat embarrassed circumstances. Through the influence of his friends his claims to some expression of national gratitude were presented to the House of Commons, and he was granted the sum of £10,000 and a few years later Parliament voted him the further sum of £20,000. It is not necessary for me to dwell upon the results of vaccination. It is sufficient to state that its nearly universal adoption by the nations of the civilized world has almost obliterated a disease which 100 years ago was one of the most fearful, fatal and loathsome of human maladies.

Edward Jenner died in February, 1823, in the 74th year of his age.

Vaccination was for a long time practised with human virus, that is with matter taken from the pustule of a previously vaccinated person, but it having been demonstrated by numerous most unfortunate occurrences that other diseases (especially syphilis) were in this way communicated, human virus was finally abandoned, and the present method of using only animal virus was adopted and is now universal. Vaccination was introduced into this country by Dr. Benjamin Waterhouse, of Harvard University, in 1800, he having first performed it upon his own children.

The treatment and management of the insane during the eighteenth century was everywhere in a most deplorable condition. There had been scarcely any attempts to study the causes, or to classify the different kinds of insanity, and the miserable victims of mental disease were huddled together in cages or vile cells, attended by brutal keepers, by whom they were flogged and abused in the most horrible way until, happily for them, death put an end to their suffering. The more harmless imbeciles (Tom O'Bedlams as they were called in England) were allowed to wander about at will, to be fed or housed by whosoever might pity them, and were known by a ring worn on their left arms and a large ox horn fastened about their necks.

The first organized attempt at any humane treatment of the insane was made in England in 1751, when the insane hospital of St. Luke's was built in London. The horrible institution known as "Bedlam" which was originally a monastery founded in 1246, and in the middle of the sixteenth century converted into the Hospital of St. Mary of Bethlehem had been little more than a sink of brutality and filthiness, where maniacs were accumulated together and kept in captivity. It was little better than a den of wild beasts, and its very name was long synonomous with everything loathsome and vile. The Hospital of St. Luke's was a humane effort to better the condition of insane persons, and they were at least decently fed and clothed and kept clean, although there was no attempt even then at rational treatment, and that insanity could ever be cured was hardly imagined. A person who on account of some temporary aberration of mind, was once adjudged to be insane, was doomed for life to a most horrible captivity from which there could be little possibility of escape.

Although as we have seen the knowledge of internal medicine and surgery, and the treatment of disease in general, had made such tremendous advances, the management and sanitary condition of hospitals was still in a shocking state. Public provisions for hospital support was entirely inadequate and it was often impossible to obtain even sufficient food for the patients, who were crowded together, not infrequently several in one bed and many lying on the floor. The buildings were usually old, dirty and infested with vermin, and the air foul and indescribably offensive. The importance of cleanliness in surgery was unknown, and, where as at the present time we consider the hospital as the only safe place for major surgical operations, a hundred years ago the only successful surgery was practised outside of the hospitals. Indeed successful hospital surgery has grown up during our own memory and was born of our knowledge of the microörganisms of disease. Among the great general hospitals established in England during the eighteenth century and utilized for medical teaching were Westminster Hospital, Guy's Hospital, St. George's Hospital, The London Hospital, and the Middlesex Hospital in London, the Edinburgh Hospital, and in Dublin, the Jervis Street, Stevens, Mercer's, and the Meath Hospital.

Medical education reached a very high standard during the last century, especially in France and England, although it was rather didactic and theoretical than practical. Anatomy,

chemistry, botany and all the natural sciences were taught with great thoroughness and a very considerable preliminary education was demanded before entering the medical schools. Clinical teaching which had been but slightly cultivated hitherto, was revived, we might almost say created, by Van Swieten of Vienna in the middle of the century, and the clinical teaching of Vienna has continued to be the most famous of the world. The great English surgeons of whom we have spoken were also eminently clinical in their surgical teaching as were many of the French, but clinical medicine in England and France has practically grown up during the present century. The condition of the hospitals was hardly such as to facilitate bedside instruction, although there was ample opportunity for students to witness surgical operations. Surgery was taught as a purely mechanical science, and as such had reached a high degree of perfection. The operators were bold, brilliant and rapid, and possessed of very accurate anatomical knowledge.

(To be continued.)

ORIGINAL ARTICLES.

SOME OF THE THERAPEUTIC USES OF ELECTRICITY.*

By T. L. Hatch, M. D.,

Owatonna, Minn.

Looking backward over the history of medicine, we find that very many of our best curative measures, either in the line of therapeutic remedies or surgical procedures, have at some time or other been abused, and the result has been that the remedy, whatever it may have been, has for a time fallen into disuse or has at least not been used for a time to the extent to which it was entitled. Not only this, but it has very frequently been condemned as being a harmful measure. This proposition is true not only in the line referred to above, but in all directions of progressive thought that go to benefit mankind, whether it be in the direction of science, politics or religion. Particularly does this apply to the remedy under consideration in this paper.

One can readily see why this should be so when he takes into consideration the fact that electricity is not a tangible quantity, and that until comparatively recently its physics have been so little understood. What wonder then that its use has been largely empirical, and that so many have been deluded as to its legitimate effects? Even today a large percentage of the physicians who are using it are entirely unfamiliar with its physical laws. Then when we take into consideration the fact that it has been "farmed out" as it were by the profession to the laity, after having undergone all of these vicissitudes we wonder that it has the foothold it has. In a brief paper for this Society it will be impossible to even review all of the different conditions to which the remedy is applicable.

The object of the writer is more to touch upon certain benefits which he has obtained from its use, many of which have received but little if any attention in the books. In this review I shall confine myself largely to the purely physiological effect of the remedy, touching but little upon its mechanical effects which would include its cauterizing and electrolytic action. We have as the principal forms in which we use electricity the static, the galvanic, the faradic and the sinusoidal. Besides this we have various combinations of these forms. Recently the electric light, both in the form of the incandescent and arc lights has come into use as a therapeutic agent. In using the galvanic current we have a current of comparatively high amperage, but with a low voltage. In the faradic current we have a low amperage, but high voltage. Static electricity also has very high voltage, but small amperage.

The sinusoidal current is a very rapidly alternating one, with high electro-motive force.

It would seem as though electricity were both a tonic and stimulant, depending upon how it is used. One desirable feature of its stimulating properties seems to be that if used judiciously there is no subsequent reactive depression as is the case with many stimulants.

I think it is generally conceded that the results that we get from electricity, like those that we get from most all therapeutic measures, depend largely upon the size of the dose, the length of time and the form and manner of administration. The frequency of administration, also doubtless has much to do in giving us results. I believe that in the application of all therapeutic measures our failures depend more upon our failure to properly apply them than from a failure to select the right remedy or from any defect in the remedy itself.

I think this is also a source of the failure of two prescribers to get the same effect from the same remedy.

My observation has been that the remedy under consideration is usually given in too powerful doses, though I think it may be properly applied over a longer period of time at each sitting than has been customary.

I have said that the results obtained would depend upon the manner of administration.

*Read before the Southern Minnesota Medical Association, August 4, 1898.

Here is where the size and nature of the electrode, the resistance of the patient, the electromotive power of the battery, the points of application of the electrodes, with the condition of the parts to which the electrodes are applied, all will act as factors in giving us results.

The limits of this paper preclude the discussion here of batteries.

Taking up the subject under consideration, there are many cases of insomnia in which I have obtained the best of results from this agent. The majority of these cases result from nervousness, which may be the outcome of a variety of causes, such as overwork, anxiety, abuse of stimulants, or there may be some definite pathological lesion active in the system that is producing it. The following case will illustrate many of these cases.

Rev. Blank, a preacher, during the delivery of his sermon expends a great deal of force with its resulting physical excitement and subsequent depression. When the trouble first made its appearance he was only troubled at such times as when he had undergone the experience just described, but for the last two weeks prior to presenting himself for treatment he was its victim nearly every night and for the last six nights had practically been without sleep. At 9 p. m. I gave him a seance with the galvanic current, passing a large, felt, McIntosh electrode connected with the positive pole up and down the whole length of the spine, and also placing it part of the time over the stomach. The negative pole was attached to a small electrode and placed with the feet in a bowl of salt solution.

A current of thirty-five milliamperemeters was gradually turned on for fifteen minutes and then as gradually turned off. Then the faradic brush was attached to the positive pole, the foot resting in the salt solution with the negative pole as before. Three cells were turned on and the current sent at first through 500 feet of No. 18 wire, finally increasing to from 1,000 to 1,500 feet of wire. The brush was used for five minutes and was passed all over the body from shoulders to hips and including the arms. No medicine was given. The patient went immediately home and retired and slept ten hours without waking. A repetition of this treatment every other night for a short time permanently removed the trouble.

We have many cases of debility resulting from a variety of causes in which the very best of results are obtainable from electricity. People who are convalescing from some exhausting or depressing disease, as la grippe, old persons who have got nearly through the winter but who are suffering from its tax upon their vital powers, also people who suffer from the debilitating effect of the damp atmosphere of early spring, all of these cases are susceptible of marked benefit from this remedy.

Either the static breeze or the galvanic current are indicated in these cases. In using the former a seance of fifteen minutes, perhaps in some cases not more than five or ten minutes, will be of great service. In using the galvanic current a large felt electrode is attached to the positive pole and passed over the body while the foot is placed with a small sponge electrode in a saline solution. From fifteen to fifty milliamperemeters are used for from fifteen to twenty minutes. I always like to terminate these cases with a brief use of the faradic brush or roller as was given in the case of insomnia. In addition to a light dose of faradism the patient gets a counter-irritating and stimulating effect upon the skin which strengthens the circulation. People who take cold easily derive great benefit from this treatment.

In many of these cases of debility and exhaustion there is a marked failure of nutrition as a result of a deficient metabolism. In these cases the sinusoidal current used with a comparatively low tension for fifteen minutes at a time will do the greatest good. In fact it is wonderful how this current will resuscitate some of those cases of malnutrition that seem to be about terminating in a permanent breakdown.

Where the sinusoidal current is not available the faradic current may be used with good results. In this case sending a current of mederate strength through 1,500 to 3,000 feet of fine wire will give the best results, the seance to be continued for from ten to twenty minutes. The faradic brush also benefits these cases, but in using any form of the remedy care should be taken not to overstimulate.

I know of no better remedy for many of the sequlæ of la grippe than electricity. The different forms in which these sequelæ manifest themselves is legion. For that condition of extreme prostration of the muscular and nervous forces manifesting itself in inability for the least exertion either static or galvanic electricity is very efficient.

I have already indicated how persons who are suffering from a defective circulation are benefitted by it and this applies to those cases resulting from la grippe. For stimulating the partially suspended functions of the body, whether it be of the muscular, nervous or glandular systems, and for restoring tone to the entire organism nothing excels electricity. I have used food, tonics and stimulants in these cases, including strychnia, iron and the preparations of coca and kola, and while I have succeeded with them sometimes, I have at others failed, only to have electricity successfully supplement them.

Among the most distressing conditions which the physician is called upon to treat is what is commonly known as nervous dyspepsia or in-

testinal indigestion. Of course no treatment will help these cases unless it is accompanied by a proper dietetic treatment, but as an adjuvant to this there is no better remedy than electricity, either in the form of the galvanic current or what is usually preferable, the combined galvanic and faradic currents. My usual treatment for this trouble is about like this: With a sponge electrode about four by six inches in size attached to the positive pole and applied to the spine, and passed slowly up and down over the upper seven dorsal vertebræ, the other electrode being a small one and applied over the stomach, in fact passed from point to point over the entire stomach and bowels, the combined galvanic and faradic current is carefully turned on in this process to be continued for fifteen minutes I then put the negative electrode with the feet into a saline solution and apply a small sponge electrode attached to the positive pole over the stomach. Then the faradic current with a slow interruption is turned on and continued for from five to ten minutes. This feature is particularly applicable in cases of dilated stomach, with atony or weakening of the muscular walls. In those cases where there is a decided malnutrition from an imperfect digestion, either the sinusoidal or the faradic current is very beneficial. In a few cases of gastralgia I have obtained good results from the faradic current applied in the following manner:

A stomach electrode is introduced into the stomach to which is attached the anode, the cathode being a small sponge electrode applied to almost any part of the body. A current is sent from one cell of a faradic battery through 500 feet of wire, gradually increased to two cells with 1,500 feet of wire. Before the treatment the patient is required to drink from half a pint to a pint of water. This can be withdrawn through a stomach tube subsequently if desired. In using a current of this tension in these cases, care must be exercised not to use too great a voltage. Besides the local treatment most of these cases will be materially benefited by a general treatment with either galvanism or static electricity. In fact, there are but few diseases in which electricity is indicated but what more or less of a general application of the remedy is required.

Spermatorrhœa is subject to marked benefit from this agent, but I know of no class of cases that requires a closer discrimination in treatment that this. Old standing cases that have gone on to a condition of extreme debility and erethism and often with marked lesions of the lower segment of the cord, must necessarily require a different treatment from those of a briefer period with intense excitement. To the former must be applied the tonic features of the galvanic current accompanied by the similar sedative effect found in the slowly interrupted faradic current. Here also a general and local treatment must be employed. To the latter class of cases must be applied the sedative features of the two currents, but not combined. Faradism of high tension is most beneficial to these cases. In most any of these cases of spermatorrhœa quite long and frequently repeated seances are indicated. The static machine very often benefits these cases when nothing else will. Rheumatism and neuralgia are diseases that we have always with us and the great latitude in the character and manifestations of these cases will barely allow a reference to them. There are but few of these cases that are not amenable to this remedy, but it is often difficult to decide as to just what is the best form in which to apply it.

Quite recently I saw an article in the Electro-Therapeutic Gazette on the treatment of rheumatism by electricity in which the writer made the statement that there positively was not a case of inflammatory rheumatism where it was proper to use electricity. Experience would compel me to dissent from this statement. Only recently I succeeded in subduing an ugly attack of inflammatory rheumatism at the wrist joint by the application of galvanism twice a day for six days. Galvanism will undoubtedly relieve more cases of rheumatism than any other one form of the remedy, and yet faradism often gives good results. In case of very extensive organic changes, either in the way of deposits or of atrophy, most good may be expected from the sinusoidal current.

Like rheumatism, neuralgia is also subservient to the remedial influence of electricity. In the large mapority of neuralgias, either galvanism or static electricity is most efficient.

Constipation in people of sedentary habits will often yield to this remedy. I have used it for this trouble in the same manner that I have used it for nervous dyspepsia. Again I have used either the galvanic or faradic currents alone, usually introducing the cathode into the rectum and applying the anode over the abdomen or on the perineum. When using the galvanic current I never use more than two milliamperemeters, and use the frequently interrupted current. Such a variety of causes contributes to the production of constipation that these cases require very close discrimination in order to apply a successful treatment.

In the treatment of sprains and bruises when the part is located so that it can be done, I saturate several thicknesses of cotton cloth with equal parts of peroxide of hydrogen and water, and wrap the parts in it. I then send a galvanic current of about twenty milliamperemeters through the parts, occasionally turning off the

current and reversing the pole-changer. This treatment is used twenty minutes at a time twice a day.

I have treated two cases of incontinence of urine in children with this agent with good results. Galvanism with the anode passed the whole length of the spine, the cathode resting on the pubes, with twenty milliamperemeters for three minutes, followed by a very light dose of faradism for the same length of time, with the anode applied to the spine and the cathode just inside of the urethra. In this latter method the cathode consists of a small, insulated sound.

That very vague and indefinite condition known as neurasthenia is usually susceptible to relief from electricity in some form. No routine rule for treatment can be laid down for these cases. The course to pursue is to search for the offending cause or organ and apply the remedy in the proper manner. Of course an auxiliary treatment is often required, but when electricity is properly applied there is no remedy that will give better results. I succeeded in relieving one case of torpid liver by a thorough application of the faradic roller repeated daily for two weeks. Presumably it relieved in this case by its counter-irritating effect, thereby relieving congestion.

Hysteria is another vague condition where much good is obtainable from electricity. Here, too, we have a variety of factors that may be productive of the trouble. In debilitated women suffering from prolonged lactation or from too frequent child-bearing, the tonic effect of either galvanism or the static machine will be very salutary. In other cases where there is extreme hyperæsthesia this treatment supplemented by light and short applications of faradism will work very beneficially. If there is a condition of malnutrition present, as is often the case, the sinusoidal current or faradism should be used. Study and tact will do much for our hysterical subjects, many of which cases have often brought a stigma upon our therapeutics from our utter failure to render them aid.

I fancy that there are but few physicians who have been very long engaged in active professional work, who have not had at some time in their lives patients with but very little the trouble with them so far as any evidence of real disease is concerned, but who require a moral treatment more than a medicinal one. This applies to the mental faculties as well, though there may not be the least evidence of insanity. Very often electricity will contribute to the recovery of these patients when all other measures fail. Many of these cases are imaginative persons some of whom have been imposed upon by some medical fakir who has led them to think themselves afflicted with every pathological condition to which man is subject. Others are people who are all nerves and who are extremely sensitive to their environment. Many times electricity may be given as a placebo to these persons and they will think you have performed miracles upon them. It makes but little difference how you administer the placebo, though I have a preference for the static breeze or for galvanism in some form. Occasionally a good sharp application of the faradic brush or roller will be preferable.

As stated at the beginning of this paper, electricity has been very much misused. It has been prescribed in a hit or miss manner, both by the professsion and the laity for every disease under the heavens, and for many diseases that never had an existence except in the fertile brain of some quack or in the sensitive nerves of his prurient dupe. I venture the assertion that no one would prescribe as potent a remedy as strychnia or veratrum or atropine without some knowledge of the properties of the remedy, and govern his prescription accordingly. And yet this remedy has been fired indiscriminately at the poor patient with the exercise of as little knowledge or skill as that of a Spanish gunner, but often with a more detrimental effect. Yet when carefully studied and properly used, it is one of the most useful measures in our entire therapeutic category.

A prominent writer upon the subject of electro-therapeutics has recently said this: "The day of the routine application of electricity from a cheap battery has gone by. Every seance should be conducted with a definite purpose in view and the methods employed such as are most likely to accomplish it.

"Electricity is not a remedy to be delegated to the nurse, however well trained she may be. Much less is the patient or family friend to be intrusted with its use. The physician who does so must expect little or no good results. He will do much harm, and will undoubtedly bring the science of electro-therapetuics to disrepute."

Nothing can be truer than the sentences just quoted, and when the profession gives them proper heed, the initiative will have been taken to remove an unmerited stigma from the remedy and place it upon its legitimate footing.

Waugh, in the Canadian Journal of Medicine and Surgery, relates the following case:

A prominent citizen was seized with gallstone colic in an eastern city. The doctors gave a hypodermic injection of morphine—no effect; another—no effect; doubled the dose—no effect; again doubled it—and just then the calculus shot out of the mouth of the gall duct into the duodenum, the antagonistic effect of the pain was suddenly removed, the whole force of the morphine was at once manifested, and the patient died, narcotized.

MEDICAL EDUCATION.*

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The first gray streaks of dawn began to dimly illumine the eastern horizon of medical education in this country, when the University of Pennsylvania was established in 1765, and when Dr. John Warren, in 1782, founded the Harvard Medical School. The light broke but slowly on the coming day, and for a full century and more was shrouded in a hazy twilight. It is not however, the purpose of this paper to consider in any extended way the early history of medical study in this country, except so far as may be necessary to a more comprehensive understanding of the present rapidly changing and unsettled condition, and the chief needs for progress and outlook for the future.

Up to twenty years ago, almost no progress had been made over the standard established by the founders of the original schools, and unfit men were turned out everywhere on the completion of two sessions of four or five months each. Harvard then extended the time to three years, and the movement toward better things had begun. By a very rapid succession of advances the requirements for completing the course and granting the degree have been increased, by lengthened sessions, by graded system, by addition of subjects and by great improvement in methods and means of instruction, and at present every high grade school in the country requires a full four years' course of study. Probably the chief reason why progress was so long delayed, and the standard kept so lamentably low was the fact that while all other institutions have been often and richly endowed, the professional schools of the country have been almost entirely overlooked by wealthy benefactors. The schools, depending entirely on students' fees for maintenance, did not dare to risk the loss of enrollment apprehended, if requirements were advanced. But a singularly different result has followed every elevation of grade. Many causes have contributed to the remarkable progress of the past few years, and many specious arguments have been interposed in opposition. Probably the most potent factor was that of compulsion, brought about through state legislation; and it is a matter of common knowledge that Minnesota was the great pioneer, being the first state to pass a state examining law. The bitter opposition of many schools throughout the country and their determined effort to break down the law failed. Other states, particularly of the northwest, adopted similar legislation, modelled on the Minnesota law. This compelled the schools of the country to elevate their standards or have their graduates excluded from the fairest fields of practice, and they elevated their standards.

Each step in advance has been with hesitation, and every school has very carefully considered the problematical effect on the enrollment of each proposed move. One of the most powerful arguments advanced against elevation of grade has been that it would cut down attendance; that students were looking for the shortest and easist route to the degree. And it is extremely gratifying that every advance made by a school has been followed by a maked increase in attendance and that of men of much higher qualifications. The entering class at Harvard, following the advance to the four year requirement, was fifty per cent. larger than any previous class. And the medical department of Hamline University has quadrupled its attendance in the past five years, although it has in that time extended the session from six to eight and one-half months, the course from three to four years, and materially advanced the entrance requirements. Schools here and there that have persisted in lagging in the advance, and have made their low requirements a bid for increased attendance, may have temporarily accomplished their end, but only by attracting unfit men, and have suffered a loss of reputation and standing from which they can never escape.

The advance to a four years course is now fully established and required by all schools of high grade, and it is safe to say that no further material increase in the length of time required for graduation will be made in the immediate future, although a farther extension to five years is not unlikely, and perhaps not so very far ahead. The problem of qualifications for entrance has up to the present received little attention, and although previous to the adoption of the four years course a few schools had a very large proportion of college bred men, about forty per cent. at Columbia, and fifty at Harvard, this proportion rapidly dropped on the extension of the time required for medical study. This opened a new question, to which much careful attention is now being given and one not easy of the best solution, but when it is satisfactorily settled, the full structure of medical education in this country will be reared. Harvard and Johns Hopkins have taken a bold and most

* Read in the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 15, 1898.

praiseworthy stand in declaring a college degree requisite for admission. The Board of Regents of the state of New York have adopted a fairly high standard. Chicago Medical College requires a high school diploma, and the schools of Minnesota have declared for the same standard. With a few other exceptions, the schools of the country still admit men of the most meagre attainments.

The bearing of professional study on preliminary education is much broader and more far reaching than is at first evident, and what shall finally constitute the best basis of requirement will necessitate much adaptation and remodelling of the present methods in secondary education. The question has been asked: "If our doctors are not to be college graduates, who shall be?" and the fullest preparation demands that they shall be. But the average collegiate finishes his course at about twenty-three. Add to this a four years course of medical study, and then, if attainable, that invaluable complement of a medical education, a hospital appointment, and as President Eliot says, "the young man who should have been married at twenty-five, is scarcely established in lucrative practice at thirty." Moreover the age of graduation from college is found to be steadily advancing, not because the young men of later generations are less precocious, but because the course both in the common schools and the colleges has been continually extended and increased in amount. And the public school system is very inelastic, making it practically impossible for the student to abridge the rigidly fixed limit of time, while the old fitting schools that used to prepare men for college by a shorter route, are practically extinct.

The advisability of curtailing the time of academic study is beginning to receive serious attention, and while any action that may seem retrogressive in matters of education must be approached with deliberation, it is manifest that a halt must be called somewhere in the length of time that a young man is to spend in getting ready for active life. Although it is true that the best of training possible is the best of professional capital, and that no one has a moral right to enter on the practice of medicine without the best possible fitting, it must terminate at such a time as to leave a fair number of years of usefulness. The end to be attained is such proportionate division of time between training and the application of that training as shall give the best and highest attainable results in each. The President of Columbia believes the college course has been carried too far in this country, and should be so reduced as to graduate men at twenty, which is about the age at which they enter on professional training in England and on the continent. President Eliot of Harvard has long advocated abbreviating the curriculum leading to academic degrees to three years. The public school system can also easily, and with gain rather than loss, shorten the time required by at least one year. If a college degree is to be made the gateway of entrance to medical study, as it by all means ought to be, this is the ideal solution, as an abbreviation of time must be effected somewhere, and not from the years in the medical school. The present compromise of admitting men holding academic degrees to advanced standing, practically reduces the medical course to three years, cutting down the time given to the great primary subjects, and should be repudiated by all medical schools. Although it is granted that a college graduate will be a better man at the end of three years than one with deficient preparation can be with four years of medical training, this does not alter the fact that four years is none too much time for the best equipped man to devote to the study of medical science, and I care not how excellent the training may have been in academic study, though the course include somewhat of plant and animal histology, physiology and chemistry, they are studied from an utterly different standpoint and taught by men of an entirely different horizon of view, and as a result men so admitted must skim over the first two years' work on these fundamental subjects, the absolute foundation for all advanced study, in the time of one session, and they are always weak. Only dental or veterinary graduates should be admitted to advanced standing in the study of medicine, and it is to be hoped that the present requirement of the Minnesota law on this point, which makes no provision for students being granted advanced standing, but requires four full years of medical study in a medical school, may be preserved as it stands. The state law of Iowa expressly refuses to recognize such advanced standing in its requirements for entering practice in that state.

Whatever may be the final outcome as to the elevation of requirements for entering on medical study, for the present at least, a high school diploma, or its equivalent, must be the minimum requisite, and the control of all entrance requirements should be vested entirely outside the teaching faculty of the schools, to remove as far as possible the action of all ulterior influences.

Details of curriculum, the natural sequence and grouping of subjects, and the proportional distribution of time, while extremely important in obtaining the best results, would be tedious and unnecessary to the present purpose with the exception of a few important subjects. General chemistry should not be taught at all in a medical school, but should be a requirement for entrance, and medical chemistry should be taught the first year. If the satisfaction of mak-

ing a perfect and brilliant diagnosis, and the possession of a delightfully clear conception of the pathological basis and bacteriological coloring is the sole aim of the physician, the present meagre attention given to materia medica and therapeutics in most schools may be sufficient. But I take it that the patient's interest, at least, may go beyond this, and it is not strange that remedial measures be deemed by him of even more paramount concern, and since the alleviation of human suffering and the cure of disease are at least an incidental part of a physician's calling, these subjects should have much more extended consideration and study. The medical department of Hamline University gives more than three years work to these subjects, which is none too much. In connection with the study of anatomy, the student should be required to dissect all parts of the cadaver twice, but should not be permitted to begin dissection before the middle of the first session, to obtain the best results. Very little laboratory work with the microscope should be given the first year. The student has not yet arrived at a position to properly grasp it. Possibly some work in embryology may be done during this session. Laboratory work in histology ought not to come till the second year; in pathology the third, and bacteriology the fourth, if they are to occupy the best position in relation to the student's knowledge and to the other subjects of his study. In the first two years the foundation is laid and should mark definitely the full completion of all the primary subjects, the last two years being devoted to the subjects of medicine and surgery in all their ramifications, the third year to the theoretical, and the fourth to the practical or clinical aspects of the subjects.

As to methods of instruction, that procedure is best which succeeds in settling in the student's mind the largest amount of well assorted and available knowledge on the subjects in hand in a given time. To this end the best results will certainly be attained first, by didactic presentation, followed by assigned text-book work and concluded by thorough quiz and recitation; and this quizzing will keep the student to his best continuous effort if employed for a portion of each lecture hour. Full and exact note taking on all subjects should be required, and is a most valuable form of mental training. The necessity of following the lecturer closely, while at the same time condensing the lecture and reducing it to his own thought and allowing no points to escape him, develops the powers of concentration and rapidity and accuracy of thought and brevity of expression in a high degree. Final written and oral examinations of a most severe quality should be required without exception. The student that is compelled to prepare for a searching final test on a whole eight months' session of study, is bound to devote a period of about two months of concentration and application to his work that will settle more knowledge on the subjects studied, firmly and lastingly in his mind, than any other means can possibly accomplish.

Arrangement of the subjects for the two last years of study in such sequence as to be most natural and most advantageous is difficult of altogether satisfactory attainment. The studies commonly called the specialties should manifestly find place in the fourth year, for only after the student has gained a fair knowledge of the more general branches is he in a position to get the best value and to fully appreciate and grasp the more intricate special subjects. The third year should be largely devoted to lecture and text-book work in general medicine, surgery, obstetrics, gynæcology and therapeutics. Work on all these subjects should extend throughout the final two years. No students should be admitted to clinics until the third year, and in this year should attend only the general clinics, with possibly section work in physical diagnosis. The time of the fourth year student should be chiefly devoted to purely clinical study in all departments, in small sections with ample corps of instructors for the fullest direct demonstration.

We at times lose sight of the fact that all things are relative, and a smaller object when held too closely before the eye may so loom up before the vision as to more or less distort normal proportions and give an exaggerated importance to a particular object to the neglect of more important things. Is it not possible, granting fully the value of the subject, that there is present danger of devoting too large a percentage of time to some of the microscope subjects, especially bacteriology, and encroaching on the time fairly due to clinical and didactic study in the important subjects of practice, and to their detriment. For although the student must today be thoroughly trained in laboratory technique, still he is going out to cope primarily with the exigencies and emergencies of medical practice, and not to sit in a private laboratory handling media and cultures and microscopes. The finesse of these laboratory subjects belongs properly to graduate and not to undergraduate study. The student is to be fitted for active practice, not to be an expert microscopist, in his undergraduate course.

In the gaining of a medical education other things than those pertaining directly to technical instruction should have a place. It would be conducive to greater popular respect, save the profession from much error and result in a much more steady advance of knowledge, if the profession could learn more balanced conservatism, and not rush headlong and rashly after every newly vaunted discovery that is heralded to rev-

olutionize medicine, crowding the pages of all periodical medical literature, carried to one extreme and then the other. How much better to be content to follow careful observation, experiment and test until exact value is determined and established. If the profession can not free itself from pursuing fads, the public can only be expected to follow fakes. Some of the more recent vagaries savor too strongly of alchemy and the middle ages, especially the so-called animal extracts, which remind one of the witches' brew from Macbeth.

"Eye of newt and toe of frog,
Wool of bat and tongue of dog,
Adder's fork and blind worm's sting,
Lizard's leg and owlet's wing,
For a charm of powerful trouble."

Suggestive therapeutics was evidently understood in Shakspeare's time as well as now.

Character building, too, should be a part of all medical training, the development of self-control; the preservation and solidifying of moral rectitude are qualities as essential in the physician as technical knowledge. This should be given more attention, both in precept and example by medical faculties. The influence of the language and conduct of an instructor is profound and his responsibility heavy.

The teaching in every school should also include very definite and positive instruction in medical ethics. The student should be clearly taught what constitutes honorable and professional practice. It would help him to avoid many errors and misconceptions, to counteract the present tendency to commercialism, and might correct the present equanimity with which one practitioner appropriates another's patients without even saying "by your leave."

For the best results there should be the fullest freedom and cordial fellowship between students and instructors. Only under such relations can the student get the best value from his work. Only as he comes in close, cordial, personal contact with his teacher will he get his best inspiration, encouragement to his best effort, the correcting of his mistakes and the clearing up of the hazy places. What matters it if the instructor did study a decade or two back in the cycles of time. He is only a little in advance of the learner of today; both are still students together and should stand on the same footing, working in unison. There is no reason for the barrier of artificial dignity that is so often interposed.

The past twenty years has carried the standard of medical study forward with great strides. The chief compelling element in this progess has been state legislation. The Association of American Medical Colleges is also now exerting a powerful influence. But many schools still occupy a very low plane, and the laws of the various states vary widely and are incongruous. Twenty-three states and territories require examination. Fourteen states and territories require registration of a diploma from a reputable school; ten states accept any diploma. In nine of the states there is no board for enforcing the requirements, and the law is practically a dead letter. If a man fully qualified to practise in one state desires to enter another, he must submit to the requirements there imposed, an unnecessary burden and inconvenience. State laws as they are at present have largely served their purpose, and some means of unifying medical legislation must be devised. Moreover these boards are usually appointed by the governor, and political considerations rather than professional fitness too often determine the appointments, resulting at times in the presence on the boards of men incapable of framing suitable examinations, and it is not a far step to the subverting of the activity of the board to political ends, to corrupt connivance, and to lax administration; so that at times the man who is the greatest adept at cheating may pass the board the most easily, and thus no barrier is interposed to the entrance of entirely unfit men to the right of practice.

Those who have observed closely the work of the Minnesota State Board for the past few years must conclude either that the state that deserves and receives the credit for having done more than any other toward the elevation of standards of medical education in the United States has become recreant to her duty, or else present state legislation no longer fits prevailing conditions. At present, or in the recent past, a graduate of a reputable school entering the state to practise, is shortly served with notice to appear before the board for examination and pay ten dollars for the privilege or stop, while unblushing quackery, heralded from the house tops, by columns and half pages in the daily press of the cities and on glaring bill boards, is allowed to flourish entirely unrestrained. This is positive discrimination against reputable men, and it is no wonder that the charlatan, appreciating the fact, is multiplying very rapidly. Better no restriction than the present one. Some radical change in the control of medical practice is imperative in the near future.

If independent state laws are still to obtain, they should be so unified and harmonized that any applicant having qualified in one state and been granted license to practise may be free to enter practice in any other state on filing such credentials with the proper official; but this is practically an impossibility. Federal legislation should control medical education and practice throughout the country, on a uniform basis.

All state laws regulating the matter should be annulled and a national board or commission created. Possibly it might well be vested under the direction of the proposed national board of health. Let congress enact legislation giving them, or a special board, full supervision of all medical colleges in the country, establishing a given standard of requirements, both for matriculation, for curriculum and for graduation. Sufficient notice should first be given all schools to enable them to come up to all requirements of course and equipment. Have the work of every college closely inspected, requiring regular, sworn statements covering the work carried on in full. Give them power to enforce the established grade, any school falling below the standard to be given warning, with fair time in which to remedy the deficiencies, but failing in this, to have its charter revoked. The graduates of all schools then to be eligible to practise in any state, on suitable registration. Graduates of foreign schools should be required to present satisfactory credentials or take a required amount of work in such college as they might select. And finally, any one practising any form of the healing art contrary to the regulations of such board, whether he be a graduate or not, should be effectually prohibited from all practice and subject to penalty.

The great final aim of medical education is to do away more and more with the need of the existence of the medical profession. In this it stands unique among callings. Its two great objects are to cure disease when it occurs and particularly to prevent its occurrence at all. Great advance has been made in the field of preventive medicine. Many diseases that once claimed a high mortality are now practically done away with. The great advance in medical knowledge for the future is to be in the realm of prevention. But medicine has not yet reached the point where it can control, by scientific means, that group of well known preventable diseases, from which forty per cent. of all people are now destined to perish from the earth. Until it has, Hogden's words will still be true: "Should voices from the dead come to us the cry would be more light, more knowledge for our profession."

W. L. Estes, of South Bethlehem, Pa., writing in the International Journal of Surgery of fractures of the olecranon, says that a practical point in adjusting the position of the forearm while putting on the plaster-of-Paris splint is to see that the hand shall be in supination. This position brings the olecranon more truly in the axis of the olecranon fossa.

THE IMPORTANCE OF TRACES OF ALBUMEN AND CASTS IN URINALYSIS ON THE EXPECTANCY OF LIFE FROM AN INSURANCE POINT OF VIEW.

By C. A. McCollom, M. D.

Minneapolis.

There are but few practitioners of medicine who have examined applicants for insurance, who have not found cases with slight traces of albumen or granular casts without any other subjective of objective evidence which would, in any particular, clinically disclose nephritis, and in which the would be insured was declined at the home office.

The examiner, as a rule, is unable to fully reconcile himself to the opinion of the home office, whose judgment was adverse to his expressed recommendation for this reason, that unknown to himself he has based his judgment wholly upon a clinical point of view, other constituents of the urine being normal, the reported condition considered by him as transitory or paroxysmal, while the office has viewed the case wholly from the point of view of expectancy, will the applicant survive to his normal age limit? one being clinical or sentimental and the other from a business point of view.

In the endeavor to make this plain, we attempt the following remarks upon this topic:

Nephritic disease and the early detection of the same is of vital moment in the selection of life risks, as nephritis in its various forms is an expensive factor in mortuary tables.

The differenital dignosis is not so important from our point of view as the objective evidence in the show of mere traces of albumen and isolated, epithelial, hyaline or granular casts.

All examiners recognize, where the condition is pronounced, the gravity of the prognosis, but seem to be of the impression that mere traces and transitory casts are mostly paroxysmal or intermittent.

Should a careful survey of the physical characteristics of the urine disclose the constituents named, a further investigation along certain lines to which minor subjective statements would point, will often bring the examiner face to face with an unexpected cause.

The kidney has an office to perform that is constant or varied under certain conditions. The mucous membrane of the alimentary canal is continually bathed by a stream of water, passing from its surface now rapidly, now slowly,

* Read in the Section of Medical Education, Jurisprudence and State Medicine of the Minensota State Medical Society, June 15, 1898.

to the secreting tufts of the kidney. The quality and quantity of this solution is regulated by the blood pressure and the rapidity of the blood current passing through the tufts. The product of the organ depends upon the hyperaemia, and any cause which is of sufficient intensity or duration to pervert this condition from a normal one is a prominent factor in the causation or duration of a nephritis, be the same epithelial, interstitial, arterial or cardiac.

A full, hard, tense pulse always shows increased tension, which interferes with this hyperaemia, the word being used either in its active or passive condition, while we admit there is a physiological condition in which the normal constituents of the urine move, as it were, within a certain range or circle; whenever any constituent is found, either in a diminished or excessive quantity, the change in these limits to either extreme, even if it be a normal condition, renders the urine pathological.

Clinically there may be subjective or objective evidence of an excessive or diminished quantity or uric acid and urates, chorides or phosphates, marked reactions at either extreme as the result of tissue waste, be the same result of food consumption, mental strain, excessive muscular activity or acute febrile conditions, all of which produce acknowledged conditions such that, should the case appear for examination, the examininer would by reason of the specific gravity, pulse rate, increased temperature or other objective evidence postpone the examination.

Even an excessive or diminished quantity of the aqueous portions of the urine is being recognized as a condition which would hazard the immediate acceptance of a risk, and these purely clinical, transitory and inflammatory or dietetic conditions being considered a cause for postponement of a risk, why should we claim that there was no abridgement of a normal expectancy when the urine contains abnormal constituents?

It is known that there are no hard and fast lines which connect the various changes in nephritis, and it is also known to be a fact that when a localized nephritis has taken place, in which there are no clinical evidences, that this condition is, in reality, equivalent to a dynamite cartridge ready to explode at any time with a fatal result to the patient.

Now, what is albumen? In the sense in which we use the term it is one of the proteids, distinguishable by being soluble in water and coagulated by heat or acid.

The various varieties of this substance it is not in our province to enlarge upon, but we rest with the above deflnition, simply stating that it is derived from the blood current passing through the kidney, is a normal constituent of the nutritive circulating fluid, but an abnormal constituent of the secretion of the kidney.

Muscular, paroxysmal, transitory or dietetic traces of albumen are suggestive of loss of vasomotor force and show a corresponding lessening of the tone and resistance of the individual; the transitory traces shown have no clinical subjective evidence, and the mere trace found is the only objective evidence of this lesion, which, in any particular, whether the same be a result of extremes of heat and cold, excessive muscular exercise, or due to a deficient digestion, is simply a finger on the guide board, pointing out the way toword that change which a proper train of questions would disclose; exception to this general conclusion does not, in any particular, undermine the opinion, from the insurance point of view, that the mere trace of albumen in the urine requires additional examination, and is a selction against the individual, and in these cases a microscopical examination will disclose frequently isolated casts, a condition which is conclusive of an injury to this extent that albumen has coagulated in the uriniferous tubules, and the action of the part has been diminished sufficiently long for this mold to be formed; although pathologists differ as to this explanation, it seems to me sufficient, and can be accepted from any point of view as indicating a circumscribed nephritis.

The test for this consituent, as ordinarily used, is deceptive in its results. The technique is simple, but very seldom acquired. I make this statement hesitatingly, but nevertheless, it is true.

A proper examination of the urine for the purpose of disclosing albumen requires a conical glass, test tubes, pipette, red and blue litmus paper, nitric acid, acetic acid, solution of potassium ferrocyanide, alcohol lamp and technique.

The nitric acid test, as commonly used, is very unsatisfactory. The method which I use and recommend is, to take a conical glass, pouring into it an ounce of fresh urine which has cooled slightly, drawing up into the pipette a couple of cubic centimetres of nitric acid. Now thrust the pipette through the urine to the bottom of the conical glass. There has been sufficient nitric acid released in the transmission through the urine to have rendered it acid, so that the phosphates are now dissolved; force the acid out of the pipette gradually by pressing upon the rubber ball. The acid now lifts the urine upward, and the line of demarcation between the two fluids is pronounced. If there is albumen, a white ring will be seen to form directly at the junction of the two fluids but above the coloring matter. Standing for a little while, this gradually gathers, and midway in the upper fluid will be seen another white band which gives you a good estimate of the urates.

The ferrocyanic test has this advantage, that it is acted upon only by the albumen. A solution of 1 to 20 is used as follows:

To two drachms of the solution in a test tube add 10 or 15 drops of acetic acid, mixing the same thoroughly. Now add the same quantity of urine. In a few minutes the fluid will have been clouded in the same proportion as the quantity of the albumen, which will be precipitated to the bottom of the tube upon standing.

One caution is necessary in the well known heat test. Be sure the tube is clean and the urine slightly acid. Determine this by litmus paper of which you are positive, and should the specimen be alkaline, add only sufficient acid to render it faintly acid. Apply heat to the upper third of the specimen and boil. Examine for its opacity, remembering the phosphates will be rendered visible by heat, but the introduction of a glass rod, which is moistened in nitric acid, will cause this consituent to disappear, but should the opacity be due to albumen it wll remain the same.

The fallacy of this test is the adding of several drops of nitric acid at once, as the albumen is coagluated in small flakes by this agent. Should there be traces only, the opacity would disappear and you would suspect phosphates.

If you should place the test tube in the rack and examine later you would see that the albumen has been precipitated to the bottom, and as the test is usually thrown out the moment the acid is added and the reaction noted, if the specimen clears the operator at once concludes it is negative, overlooking the conclusion he is searching for, as the albumen has been coagulated in small flakes which would settle later. Add the acid slowly and then watch it carefully, and you will be surprised how many more traces of albumen you will find with this test than you did previously.

Now, in conclusion, we wish to fix in your mind one of the cardinal principals in the selection of life risks, and this rule is applied to all conditions where there are either objective or subjective evidences.

Any deviation beyond a circumscribed limit always has a tendency to lessen the expectancy of the applicant, while transitory deviations from a normal standard are often explained, a pathological condition is not susceptible of any explanation that would prove an exception to the rule, hence you can readily see that the application of the rule where a constituent is abnormal, would naturally result in a postponement or a rejection, for the reason that the expectancy of the individual has been lessened either by loss of tone or of resistance.

408 Masonic Temple.

LEAD POISONING FROM AN UNCOMMON SOURCE.*

By Franklin A. Dodge, M. D.,

Le Sueur, Minn.

March 13, 1898, I was consulted by Ed. S., aged twenty-one years, cigar maker by trade, on account of the following symptoms as described by himself: "For the last two or three weeks I have been growing weak, have no ambition to work; have some pain in my bowels, diarrhœa and occasionally feel like vomiting; no severe headache, but a dull, heavy feeling and some dizziness; appetite not as good as usual, except for something sour; have a general soreness of all the muscles, especially those of the back."

On examination, I noted the pale, ashen color of the face, pale tongue and slight tenderness over the stomach and bowels; pulse 86, temperature 99°. Examined the urine and found it acid, Sp. Gr. 1024, high colored, no albumen. The patient's appearnce at first suggested typhoid fever, but I was unable to find symptoms to verify such a diagnosis. However, I prescribed Woodbridge's tablets, formula number one, one tablet every hour, as I had an idea that intestinal antisepsis would not be amiss.

The following morning I was called to see him and found him suffering intensely from pain in the bowels; the abdomen was retracted and the abdominal and right lumbar muscles tender on pressure; bowels had not moved since the previous day. While the pain was severe the pulse remained low, 58 to 60. Temperature normal.

I administered one-quarter grain morphia hypodermatically and relief soon followed. While still casting about for a suitable diagnosis, a sister of the patient came to the rescue by asking me if I did not think his sickness might be caused by taking shot, telling me that he had been taking a dozen number seven shot before each meal for about a month for the purpose of cleansing his blood.

After examining the gums and finding the characteristic "blue line" caused by a deposit of sulphide of lead, I did not hesitate to answer the question concerning the cause of his illness.

I now ordered a milk diet and prescribed half ounce doses of sulphate of magnesia to be given every two hours, unless the bowels moved too freely. A second attack of colic occurred in the evening of the same day and one-half grain of morphia was required to relieve the pain.

March fifteenth I ordered five grain doses of potassium iodide to be given three times daily, and later increased the dose to ten grains, four times daily; this was continued for nearly two

*Read in the Section of Practice of Medicine of the Minnesota State Medical Society, June 15, 1898.

weeks. The bowels were kept free by the use of magnesium sulphate.

Attacks of colic occurred on the nineteenth, twentieth, twenty-third and twenty-seventh, and were so severe that hypodermics of morphia were required to give relief. From the twentieth to the twenty-fifth there was slight jaundice of the whole body; this gradually disappeared, so that by April first the skin was clear. After March twenty-seventh convalescence was gradual and by April tenth recovery complete.

During the time my patient had been taking this unique blood purifier, two of his sisters had kept him company by taking an equal number of shot, and had experienced no ill effects.

SUBCUTANEOUS EMPHYSEMA OCCURRING DURING THE ACT OF VOMITING.*

By A. W. Dunning, M. D.,

St. Paul.

Mrs. C., a married woman, age 28 years, has always been in good health, has had no severe illness and so far as is now discovered is free from tuberculosis or other pulmonary or bronchial affection. Has one child two years old, and is now four and a half months pregnant. During the early part of the present pregnancy she was troubled very much with nausea and frequent attacks of very sever retching. On May second when three months advanced she experienced one of these attacks, felt a sharp pain in the left side of the neck just external to the lower portion of the sterno-cleido-mastoid muscle, and immediately following it there appeared an enormous swelling covering the entire side of the neck. When I was called to attend her a few hours later the neck had the appearance of a very much exaggerated case of adenitis, but on palpation it was discovered that the swelling was emphysematous entirely. By the following day it had become diffused so that crepitation could be distinctly felt over the entire left side of the face to the lower border of the orbit and down over the clavicle to the anterior angle of the axilla. It also extended around the neck to the right side of the face (but in a less marked degree), and down the back nearly to the points of the scapulæ. By the third day the swelling had subsided considerably, but during another attack of severe vomiting it again returned, and was even greater than before. From this time on, however, it gradually subsided until at the end of ten days it had entirely disappeared. The only inconvenience which she suffered was a burning and uncomfortable sensation over the emphysematous area, and a feeling as though there was a large collection of gas in the stomach. She would ask her friends to strike her a smart blow between the shoulders, when she would immediately "belch wind" and be relieved for a time, when the occurrence would be repeated. For several days a distinct soreness was felt at each act of deglutition, at the point where pain was felt at the outset.

I report this case simply because of the unusual occurrence of the phenomenon, never having myself seen or heard of a parallel case. I will not attempt, however, to offer any explanation of the manner in which this phenomenon was brought about, but will leave that part of it for your consideration.

*Read in the Section of Practice of Medicine of the the Minnesota State Medical Society, June 15, 1898.

Growing Pains.—Dr. Bennie in the Archives of Pædiatries says that growing pains, defined as pains in the limbs caused by and during rapid growth, and sometimes so severe as to give rise to growing fever, have been diagnosed by him less and less frequently as the years rolled by, until the vanishing point was reached; cases which have been classed together under this name are the following:

Myalgia from Fatigue.—This is the commonest variety, usually about the knees and ankles after unusual exertion. They are probably due to auto-infection brought about by excessive production of effete materials in the blood and their inefficient elimination. Elevating the limbs and rubbing with the palm of the hand in a direction toward the heart, relieving venous stasis and facilitating a supply of healthy blood to the exhausted muscles, promptly relieves the pain.

Rheumatism.—This is second, if not first, in frequency. There is slight pain in the points, little or no swelling, and very mild fever, and hence the true cause is recognized; but rheumatic endocarditis frequently develops in these cases.

Diseases of Joints and Bones of the Lower Extremities.—Cases of hip-joint disease and suppurative epiphysitis of the upper end of the fibula, diagnosed by the laity and allowed to go on untreated, are related under this heading.

Fevers, accompanied by pains in the limbs, in one instance proving to be inception of typhoid fever, constitute this class.

Adenitis.—Here, again, the mother still supposes that the lad of sixteen years suffered from "growing pains," but he was treated for gonorrhœa and a sympathetic bubo.

The malady, "growing pains," with its frequent concomitant growing fever, like its congener disorders of dentition, as a separate morbid entity exists principally as an article of faith. The complaint still maintains, however, a strong hold on the lay mind, and forms an extremely common lay diagnosis which is often the cause of much suffering, and even death.

Northwestern Lancet.

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BAD MANAGEMENT.

The nation is justly congratulating itself upon the successful ending of its war with Spain, a war that lasted but four months, one of the shortest wars on record, and one whose object, to drive the Spaniards out of Cuba, was accomplished with a surprisingly small amount of bloodshed. Success upon land and sea has been so marked that the military prestige of the United has been greatly enhanced, and there need be no fear that in the future any power will be in a hurry to pick a quarrel with this country under the mistaken apprehension which seems to have prevailed that this nation could not fight.

Upon this bright page of history there is unfortunately a very considerable blot, and that too in a place where no one would have looked for it. With almost unlimited resources, plenty of money, an inexhaustible credit and the greatest abundance of supplies of every kind on hand, it would surely have been predicted at the beginning of the war that the sick and wounded would receive every comfort and luxury that money could buy. As the fighting was to be done on an island it was easy to picture a fleet of perfectly appointed hospital ships, upon which the sick and wounded would be immediately transported to the salubrious air of the north where they would quickly recover. Of course field hospitals would be necessary for temporary accommodation and for cases too bad to be removed, but these hospitals would naturally be supplied not only with everything in the way of clothing, bedding, drugs and other indispensables, but also with the luxuries of the sick room such as ice, concentrated forms of nourishment and delicacies to tempt the appetite.

Instead of this picture what was the reality? When the first fighting occurred and a number of men were wounded there were not even ambulances to carry them off the battlefield; those who were carried at all were carried in ammunition wagons and other conveyances for merchandise, while those who could by any means get over the ground themselves, no matter how badly wounded, crawled painfully back to the hospital tents. Here the accommodations proved entirely insufficient; cots gave out and finally it was barely possible to provide even shelter for the patients. So far from an abundance of luxuries there was not even a decent supply of necessaries, even of the commonest drugs, many of those that were in hand being worthless. And the hospital ships! The accounts of them read like the descriptions of vessels that used to be engaged in the slave trade; they did not even have a sufficient supply of food and water for the passage, nor ordinary accommodations, to say nothing of the total lack of medical supplies and appliances.

While the worst state of affairs has been found with the troops in the field, the training camps here at home have shown an amount of sickness that has surprised and discouraged those who expected that the great advance in hygiene and the knowledge of preventive medicine would reduce the sickness in camps to a minimum. With an unlimited range of territory from which to select a camp ground there was no excuse for failing to secure a water supply at once abundant and of unquestionable purity. Instead of this the water supply has in some camps been totally inadequate, while several epidemics of typhoid show that it was sometimes contaminated, and many lives have been needlessly sacrificed for lack of the commonest and most obvious precautions.

The only bright side of the surgical picture

of the war has been the low mortality among the wounded. While this is in part attributable to the modern small calibre rifle ball with high initial velocity, the great difference in results comes from the modern knowledge of asepsis and a correct understanding of the causes of gangrene, erysipelas and of septic conditions in general which used to cause so high a mortality in military hospitals. The saving in life among the wounded is not the only thing, for many a limb has been saved that in preantiseptic days must have been sacrificed.

What is the remedy that must be applied to prevent a repetition of the medical scandals of the recent war? First of all the responsibility for the proper management of affairs must be clearly and definitely imposed upon some one preson. As it is now, the secretary of war, the surgeon-general and the commander-in-chief in the field are all blamed, and each tries to shift the responsibility upon the other. No wonder drugs went wrong when there was no one whose admitted duty it was to see that they went right. Medical men will have no hesitation in saying that a medical man should have supreme direction of medical affairs in the army. Ships, supplies, money for his department should be under his absolute control so that if anything was lacking it should be impossible for him to excuse himself, unless he could show that the funds in his hands were exhausted and congress had refused an appropriation. But that supplies should give out when there are plenty to be had and plenty of money to buy them with is wholly inexcusable. There may be something too in a suggestion made by a correspondent of the Journal of the American Medical Association, that it is impossible to expect to get good men in the medical department of the army so long as the highest officer, the surgeon-general, has only the rank of brigadier. If that is all the trouble and it is necessary only to create another office of major general it will be a very simple way out of the matter.

An Army Medical Board will meet at Washington on October 10, 1898, for the examination of candidates for appointment to the Medical Corps of the United States, to fill existing vacancies.

In a paper on the relation of pulmonary tuberculosis to child bearing, Townsend says in the Boston Medical and Surgical Journal: 1. Conception may take place even in advanced pulmonary tuberculosis. 2. The disease is generally held in abeyance during pregnancy, although it may advance or even originate at this time. 3. Labor is short and easy in proportion to the severity of the disease. 4. During the puerperium a rapid advance, leading in some cases to speedy death, occurs; or the disease may originate at this time. In either case the temperature chart suggests puerperal sepsis. 5. Premature labor is more common the more advanced the disease, although pregnancy often goes on to full term even in advanced cases. 6. The average weight of full-term children, as well as their general condition at birth, is not markedly below that of children of healthy mothers, except in the rare instances of congenital tuberculosis.

MISCELLANY.

THE SEPTEMBER MAGAZINES.

Harper's for September presents an unusually interesting table of contents. The timely subject of the outcome of the war with Spain is treated in three important articles: "The Future Policy of the United States," by James Bryce; "The United States in Foreign Military Expeditions," by Professor Albert Bushnell Hart; and "The New Fiscal Policy of the United States," by Worthington C. Ford. England receives attention in Mr. Smalley's second paper on Mr. Gladstone; and in "Social Life in the British Army," illustrated by R. Caton Woodville. "The Romance of a Mad King" is a vivid sketch of the life of King Louis II. of Bavaria; Sidney Whitman, F. R. G. S., writes of "The Turk at Home;" and "Days in the Arctic" are notes from the journal of Frederick G. Jackson. Part I. of "An Angel in a Web," a novel by Julian Ralph, four short stories, including one by Frederick Remington, and the Drawer conclude the number.

Prof. Bryce's article is probably the most important contribution yet made to the subject. He takes the view, so ably championed by all of the Harper publications, that the United States should not hold any of the territory conquered. We confess that such able pleas as their publications have made almost convert us to this view; but, very singularly, the strongest plea on the other side, although it does not mention the subject, is the article, above mentioned, on

King Louis II. If a mad king can bankrupt an intelligent people by his personal extravagance, certainly the world needs an object lesson such as our war with Spain has given it.

The Atlantic is remarkably rich in that most entertaining of all departments of literature,—biography and anecdote, offering material of unsurpassed freshness and value. Especially prompt and timely is William R. Thayer's brilliant sketch of Bismarck's character and political work; while the newly discovered Carlyle family correspondence annotated by Charles F. Copeland; Prince Kropotkin's unique autobiography with Robert E. Ely's prefactory sketch; Professor Newcomb's social and astronomical reminiscences; together with the sketches and reviews, part personal, part critical, of Sir Henry Maine, Burne-Jones, and Whitcomb Riley, form a combination of rare variety and unusual attractiveness.

Lippincott's gives "The Touch of a Vanished Hand" for its complete novel. It is by the late Miss M. G. McClelland, and its scenes are laid in New York and Virginia during the French and Indian war of 1755.

Felix L. Oswald writes of "War Hysterics" (the superstitions and bigotries that attend hostilities), and Frances M. Butler of "War Songs," handling the theme historically. "Monarchies and Republics" are considered by Frederick M. Bird, with special reference to our relations with England.

"Jaques"—the melancholy Jaques of "As You Like It"—is the subject of a careful study by E. R. Larrison. The "Chronicles of an Unsuccessful Author" (naturally unsigned) record an experience far from solitary.

The poetry of the number is by Mary E. Stickney, Charles G. D. Roberts, and Edward Gilliam.

The Ladies' Home Journal has won its way into almost a million homes by its excellence, as well as by its exceedingly low price of subscription. It is preeminently a home journal, but with a table of contents that places it far above all the home journals ever before published in this or any other country. Some of the good things to appear in the October issue will make this statement plain. Among them will be "Twenty Stories about Mark Twain;" letters received by this government from royal persons, including some from Queen Victoria, Napoleon, and the Emperor of Germany; the true story of the sufferings of Greeley's heroic band of explorers; a private portrait of the new queen of the Netherland, etc.

The Review of Reviews gives the best and fullest summary of the events of the war, with infinite detail of much that calls for such treatment, to be found anywhere. Dr. Shaw is making a remarkable magazine, and no brief notice can give one an idea of its excellence. It is a magazine that every family should have.

NOTES.

Rockwood, Ill., Puly 31st, 1898.

Kress & Owen Company, New York City,

Gentlemen:

I cannot express myself as I would like to by the way I feel towards you in making me acquainted with Gylco Thymoline (Kress).

My first trial was the winter of 1896-97, that of a married lady 39 years old. She had had nasal catarrh since she was quite young; was effected more or less all over the body wherever catarrh will attack one, and suffered very much with leucorrhea; had been under treatment bytimes for over twenty years. For the nasal catarrh I used Glyco Thymoline (Kress) with Bermingham Douche twice a day, 33 per cent, solution, and seemingly incredible she was cured in 28 days. This was in January and February, 1897, and she has had none of the slightest symptoms to appear since. I prescribed Glyco Thymoline (Kress) for her in leucorrhea both local and internal, and in less than one month she was well, which seems almost miraculous; and still more wonderful she has been married for eighteen years, and I delivered her of her first child, a healthy eight pound girl, last week, the 26th.

Case No. 2, a retired farmer aged 67 years old had nasal catarrh for 15 or 20 years, could not state exactly, and Cystitis for a number of years. He had used so many injections that the urethra and penis were inflamed very badly, I prescribed Glyco Thymoline in 25 per cent. solution with Berminham Douche, and gave it internally in full strength, telling him to rest a while and then I would try injection. Next time I saw him, three weeks after commencement of first treatment, I found not only the catarrh cured, but all the effection of the bladder and pelvic organs cured as well; all that I had him on was Glyco Thymoline (Kress) and Nux. Vom. This was in April, 1897. These were my first cases. Since that time I have been looking over my memoranda and find that I have prescribed seventeen bottles of Glyco Thymoline (Kress) from July 1st, 1897, to March 1st, 1898. Then I took a sever spell of sickness and did not practise again until May 28th, and since that date I have prescribed eight more.

I hope that this will reach some of my brother physicians and be the means of curing the most obstinate disease known to the profession. Very respectfully,

S. P. Miller, M. D.
Rockwood, Ill.

A BABY POWDER ON A SCIENTIFIC PRINCIPLE.

The serious attention of the medical profession should be very strongly drawn to the question of a proper dusting-powder for infants. The renal secretion of the child coming in contact with the delicate skin causes an irritation which is trying to the good nature of the infant.

Starch powders soon show their weak points by becoming an irritating mass of paste which ferments easily.

Talcum being a mineral substance and not subject to fermentation, has largely superseded starch, but it is not without serious drawbacks. Talcum when dry is a mass of needle like crystals. It absorbs moisture and becomes actually mud and as irritating to the skin as a wet pack.

To many babies, Talcum is a violent irritant and certainly is not a rational protective.

What is needed is a protective dressing which will repel the moisture instead of absorbing it.

Any oleaginous substance like vaseline or olive-oil will do this. These cannot be recommended because of their uncleanliness. Some chemical combination of an oleaginous substance with a mineral base is the desideratum.

Pulvola (a stearo palmitate of Calcium and Magnesium) is such a powder. It is practically a powdered oil possessing the following characteristics:

1. A very light powder.
2. From 8 to 10 times the covering power of starch or talcum.
3. Adheres closely to the skin.
4. It is impermeable to moisture.
5. Is absolutely impalpable.

A soft, light powder, which when applied sticks closely and sheds water like oil.—Clinical Recorder, January, 1898.

Samples will be freely given to all physicians.

Pulvola Chemical Co.,
100 William St., New York.

MEDICINE, A PROGRESSIVE SCIENCE.

The Neurosis.

There is scarcely a writer of prominence today upon this subject who does not lay great stress upon the importance of early and prolonged treatment of the primary manifestations of an almost infinite variety of nervous affections with the view of preventing the constant development of still graver diseases.

Neurosine is composed of only such drugs as are recognized by the profession as standard medicinal properties. In Hysteria, Epilepsy and Neurasthenia unexcelled. Neurosine is presented in a most permanent and palatable form, an elegant and efficient combination of well-known and long tried remedies concerning whose virtues in the diseases and conditions indicated there is absolute unanimity of expression among all observers and authors upon the subject.

The paroxysms of Epilepsy are alleviated by

The paroxysms of Epilepsy is alleviated in the administration of Neurosine, a permanent relief is often obtained by its persistent use, but always where there are symptoms of Neurosis, Neurosine should be administered in tea-spoon ful doses in a wine glass of water, three times a day so long as such symptoms continues. In Epilepsy double this dose should be given and before the time the paroxysm is indicated the dose should be increased. Many severe cases of Epilepsy have been relieved entirely by the persistent use of Neurosine alone. In all forms of Female Neurosis, Neurosine should be combined with Dioviburnia.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology and Lecturer on the History of Medicine in the University of Minnesota.

St. Paul.

(Continued from LANCET of Sept. 15.)

Conservative surgery, however, based as it must be on a knowledge of true surgical pathology, was not yet born; its triumphs, rendered possible by anæsthesia and asepsis, were reserved for our own time and their history includes the names of many men still living.

In obstetrics, which we have seen, began to be practised by physicians and surgeons, and taken out of the hands of midwives, and which was studied and developed by the work of many eminent men, clinical teaching was but little employed in the schools until towards the end of the century chiefly because lying-in hospitals were very rare. About the only clinical instruction in this branch that was possible was such as might be given by practitioners to their assistants and apprentices. About 1765 the lying-in asylum of Westminster began to furnish obstetrical teaching, at the hands of its physicians, Edward Fort and John Leake, and a little later private institutions were established by Krohn, Osborne and Thos. Denman, whose book on obstetrics has made him famous. The famous Dublin school of midwifery originated from a private lying-in establishment founded by John Mosse, in 1746, and ultimately merged into the present Rotunda Hospital. During the early part of the last half of the century were founded the British Lying-in Hospital, the City of London Lying-in Hospital and the Queen Charlotte Hospital. With the growth and development of these institutions the opportunities for clinical instruction in obstetrics increased and towards the end of the century there was apparent a great improvement in the practice of this department of medicine.

The medical profession as a whole during the eighteenth century was on an infinitely higher plane than it had ever been before, and in some respects its position was more satisfactory than it is at the present time. The reasons for this are not far to seek. We can readily understand that medicine should share the general esteem in which all learning was held at this time, and it is not surprising that physicians as a class were looked up to, and considered to belong to the highest intellectual and social circles. Educational institutions at this time were not numerous, and such as existed were of a high class, and their degrees were recognized as evidences of superior learning. The education of physicians included not only medicine, but it embraced also a knowledge, of philosophy, mathematics and all the sciences and there were no more generally cultivated and refined people than the practitioners of medicine. There existed to be sure, as there always have, many charlatans and pretenders, who reaped a rich harvest by practising upon popular credulity, but they were not considered to be physicians, had no social position and although they were consulted by all classes of people, they were looked down upon and despised by the very people whom they duped. The medical practitioners of the last century were either highly educated or entirely uneducated; whereas at the present time there exists, to the great detriment of our profession, a third class of half-educated physicians, who, especially in this country, are annually turned out in great numbers by the many so-called medical schools which exist for revenue only, and which have made the degree of doctor of medicine so easy to obtain.

The proportion of physicians to the population was very much smaller then than it is at the present time, and it was a very rare thing to find a physician who had received a good education who was not able to earn at least a comfortble living from the practice of his profession, and it was by no means uncommon for those of conspicuous ability to acquire large fortunes. At that time medicine was not chosen, as is so often the case today, as a money making business, but it was selected from much higher motives, either on account of an earnest interest in its study or of some special fitness for its practice, and although of course physicians made their living by their practice, their first consideration was always the interest of their patients, and not, as we unfortunately see so often now, the size of the fee. It has been well said that "medicine is the noblest of professions but the meanest of trades." Medicine had not yet become a trade in the eighteenth century.

A number of interesting men who belonged partly to the eighteenth century, but who lived and labored well into the present century, deserve a place in medical history and may be mentioned here.

Francois Joseph Victor Broussais, born in

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

1772, gained a considerable reputation as a teacher and his name was attached to a theory of disease known as Broussaism, which attributed most internal disease to irritation and inflammation, without especially defining either of these processes. Gastro-enteritis, according to this theory, was at the bottom of most diseases and was the most important of all pathological processes. In treatment, depletion was the sheet anchor, and this was accomplished not so much by bleeding as by leeches, of which enormous members were used, several hundred being applied at one time. It is recorded that the enormous numbers of leeches demand by Broussais and his followers created such a scarcity of them in France that they became difficult to obtain.

Opposed to Broussais and his adherents were those who more scientifically based their study of disease upon pathology and insisted upon the importance of careful and accurate diagnosis. Among them were a number of scholarly and scientific men who early in the present century brought much fame and honor to medicine, especially clinical medicine, in France. We may mention specially Bayle, Cruveilhier, whose superb work on pathological anatomy was studied all over the world; Andral, and the greatest of all, Louis. Until a few years before his death, which occurred in 1872, Louis was preëminently the greatest teacher of medicine and the greatest physician in France. His chief writings on phthisis and on fevers were widely read and studied and translated into several languages. Louis originated the numerical or statistical method as applied to medicine.

Other familiar names in French medicine of the first half of this century were Magendie, especially known as a pathologist and as an experimental physiologist; Claude Bernard his successor and also a famous physiologist, Trousseau and Bretonneau, both of whom contributed extensively to our knowledge of diphtheria.

Phillippe Ricord, famous for his study and work on venereal diseases had a world wide reputation and until very recently was the greatest of all authorities on this subject. Another celebrated French syphilographer was Alfred Fournier.

Great Britian during the first half of this century, although her schools were much less popular for clinical teaching than those of France, produced many eminent physicians whose fame extended far beyond their own country, and some of her surgeons were the most brilliant operators in the world. In England were such men as Sir Charles Bell, the great anatomist and physiologist, Benjamin Travers, Richard Bright, whose name is so familiar in connection with diseases of the kidneys. Ireland produced John Cheyne, William Stokes, a great clinical teacher and especially famous as a physical diagnostician, and Robert James Graves, whose lectures on clinical medicine shoud be read by every medical student of today; the reading of them would be both interesting and profitable.

Surgery at the end of the last and at the beginning of this century was adorned by the achievements of a number of remarkably brilliant men.

Alexis Boyer, born in 1757, was a professor in La Charité, surgeon to Napoleon, by whom he was made a baron, and the author of an elaborate and important treatise on general surgery which went through several editions and was translated into several languages.

The most interesting name in the surgery of this period is that of Baron Larrey, who for 22 years followed the fortunes of the French army and participated in 60 great battles and 400 engagements. He has been called the greatest military surgeon who ever lived, and certainly few men have had more experience in the surgery of war than fell to his lot during the campaigns of Napoleon. His life during these years was one long series of exciting experiences, and marked by many instances of self denial and great personal bravery.

He was himself several times wounded while attending to the wounded soldiers under his charge and more than once he narrowly escaped death. He was not only possessed of great surgical ability, but he was a man of infinite resources and his conduct and management of the medical and surgical affairs of the great armies of Napoleon, and especially during the disastrous Russian campaign and that awful retreat from Moscow, have called forth the unqualified admiration of all historians. Napoleon, when he made his will at St. Helena, bequeathed him 100,000 francs, and says of him, "He is the most virtuous man I have ever known."

Larrey was wounded and taken prisoner at Waterloo, but on being recognized by a Prussian surgeon was at once released. He afterwards became famous as a teacher and as an author on subjects chiefly connected with military surgery. Larrey continued to exercise an important influence on surgery for many years, and as a man was universally loved and esteemed.

Dr. Oliver Wendell Holmes, in an address which I had the pleasure of listening to some 16 years ago, entitled "Some of my Early Teachers," in which he described some of the famous surgeons he saw in Paris during his student days in the first quarter of this century, thus describes Larrey, as he saw him: "The short, square, substantial man with iron gray hair, ruddy face and white apron is Baron

Larrey, Napoleon's favorite surgeon. To go round the Hotel des Invalides with Larrey was to live over the campaigns of Napoleon, to look on the sun of Austerlitz, to hear the cannon of Marengo, to struggle through the icy waters of the Beresina, to shiver in the snows of the Russian retreat, and to gaze through the battle smoke upon the last charge of the red lancers upon the redder field of Waterloo. Larrey was still strong and sturdy as I saw him, and few portraits remain printed in livlier colors upon the tablets of my memory."

Another great surgeon, and a great teacher of surgeons, also a baron, was Guillaume Dupuytren, chief surgeon of the Hotel Dieu, whose fame as a teacher attracted students from all over the world. Dupuytren was especially famous for his knowledge of fractures and dislocations, and he was among the first to appreciate the importance of the study of surgical pathology. Although his labors as a teacher and a hospital surgeon were immense, he found time to attend to an extensive private practice from which he acquired a large fortune.

Delpech (1777-1832) was the founder of orthopædic surgery, and performed the first subcutaneous tenotomy of the tendo Achillis. He practised at Montpelier where he was a professor and where he built a large orthopædic institute. He was murdered by a patient upon whom he had operated for varicocele, and who believed that the operation had made him incapable of procreating.

Jacques Lisfranc (1790-1847) was an accomplished anatomist and scientific surgeon and skillful operator. His amputation of the anterior part of the foot, at the tarso-metatarsal articulation, is still known as "Lisfranc's amputation."

Jean Civiale (1792-1867) is famous for his connection with the modern operation of lithotrity, and for an instrument which he invented for this purpose. Other eminent French surgeons of the first half of the nineteenth century whom we can only mention here although they deserve a more extended notice, were Amussat, Lamballe, Velpeau, Malgaigne, whose surgical writings are still read, and Nelaton who invented the porcelain bullet probe.

Before taking up the study of the history of medicine of the nineteenth century, of which we must consider the chief features, although it is not my intention to describe the events of contemporary medicine, save briefly, we may pause a little, and take a hasty survey of the early history of medicine in America.

The early history of American medicine, while it contains little of actual value in the way of advancing the knowledge of our profession, is interesting as a part of the general history of the early struggles of our ancestors while they were establishing the first settlements in the new world. The first permanent settlement in what is now the United States was founded at Jamestown, Virginia, in 1607, and accompanying the expedition under Captain Newport, as surgeon-general, we find the name of Dr. Thomas Wooten, but of his experiences we know but little. With each succeeding expedition came other medical men, some of whom remained but a short time, while others settled permanently and cast their lots with the infant colonies. Among the emigrants who came over on the Mayflower, who founded the colony of Plymouth, 1620, was Dr. Samuel Fuller, who appears to have been much respected and beloved by his fellow colonists, although of his attainments as a physician we have little knowledge, except that he continued in active practice for thirteen years, and died much lamented. His wife was a midwife, and in this capacity assisted her husband in his practice. We find the names of many medical men among the founders of the American colonies, and as they were men who had usually received conisderable education at English universities, it is not surprising that they became prominent in other than purely medical affairs. Thus Dr. John Pott, who is said to have been the first physician to settle permanently in the new country, became governor of Virginia in 1628.

John Winthrop, Sr., who was a lawyer as well as a physician, was governor of Massachusetts, while his son, a graduate of Dublin University, became the first governor of Connecticut. Harvard College was founded in 1638 and named after the Rev. John Harvard, who bequeathed to it his library and a large part of his estate. This was the first American educational institution, and here, too, the first medical lectures were given a few years later by Dr. Giles Firman, a physician of Boston, who lectured on anatomy, and who made the first dissections in this country.

Among the names of the medical pioneers of these early colonial days must be mentioned that of Dr. Thomas Thacher, who emigrated from England in 1635 at the age of 15. He was educated for the church, but as was so commonly the case at that time, he also studied medicine, and although he became pastor of the Old South Church in Boston, he practised medicine at the same time and acquired considerable reputation as a physician. He was the author of the first medical publication printed in America. This could hardly be dignified with the name even of a pamphlet, as it consisted of a single sheet of paper, and was entitled "A Brief Rule to Guide the Common People of New England; How to Order Themselves and Theirs in the Small Pocks or Measles"—printed and sold by John Foster, Boston, 1677.

It could hardly be expected that during the seventeenth century, which witnessed the birth of the American colonies, there should exist in this new country many conditions favorable to the progess of intellectual development or to the advancement of scientific medicine. Nor was progress much more rapid during the first half of the eighteenth century, although the rapidly increasing emigration of educated people naturally elevated in many ways the social condition of the colonies. The following universities were founded during this century: Yale College, in 1701; Princeton (originally called the College of New Jersey), in 1746; University of Pennsylvania, 1749; King's College (now Columbia University), 1754; Rhode Island College (now Brown University), 1764; Dartmouth College, 1769, and several others of less importance. These institutions did not at first give medical instruction, although medical schools were connected with all of them before the end of the century. With the exception of a few courses of lectures the only medical instruction up to the year 1765 was such as was given by practising physicians to their apprentices. In 1765, through the influence of Dr. John Morgan, a graduate of Edinburgh, the medical department of the college of Philadelphia was organized, the faculty consisting at first only of Dr. Morgan and Dr. William Shippen, the latter having been a pupil of William and John Hunter. Dr. Shippen had given private courses in anatomy and obstetrics for several years before the medical school was started. Other medical schools soon appeared, that of King's College, now the College of Physicians and Surgeons, gave its first course of lectures in 1767, and the first regular degree of doctor of medicine in this country was conferred upon Dr. Samuel Kissam by this school, in 1770, the first degree conferred by the Philadelphia school having been that of bachelor of medicine. The medical department of Harvard University was founded in 1783, and on its first faculty were Dr. John Warren, Dr. Benjamin Waterhouse and Dr. Aaron Dexter. In 1769 there was appointed on the faculty of the College of Philadelphia, as professor of chemistry, the first really great American physician, Benjamin Rush, then in his twenty-fifth year. His services to our profession and to our country were so eminent that we may well pause and consider his life in some detail. Benjamin Rush was born December 24, 1745, about twelve miles from Philadelphia, where his father owned a small estate. His great-grandfather, Capt. John Rush, had served in England in Cromwell's army, and had emigrated to Pennsylvania shortly after its first settlement by William Penn. Benjamin had at first intended to study law, and he received his university education at Princeton, taking the degree of A. B. in 1760. Having acquired a taste for medicine, (while still a student at Princeton he had translated the Aphorisms of Hippocrates), he became a pupil of Dr. John Redman, an able and successful practitioner in Philadelphia, and remained with him for six years, during which time he was a member of Dr. Shippen's first class in anatomy. In 1766 he went to Edinburgh to complete his studies, and in 1768 he received from that famous university the degree of doctor of medicine. His graduation thesis in Latin attracted much attention as well for its elegance of composition as for its scientific value. (De Coctione Ciborum in Ventriculo). Dr. Rush then spent some time at the hospitals of London and Paris and returned to Philadelphia in 1769, and immediately became professor of chemistry in the new medical school. Eminently fitted as he was both by nature and education for his profession, he soon became famous as a teacher and practitioner, and in spite of his busy professional life, being an ardent patriot, he found time to take an active interest in the exciting public affairs during the Revolution. He became a member of that famous Continental Congress, when timid men fell out of it, and he was the only physician who signed the Declaration of Independence. He was a member of the convention which framed the Constitution of the United States, an officer of the Revolutionary army, and later in life he was the first treasurer of the United States mint.

He was especially active in all matters pertaining to the public health and accomplished many important sanitary reforms. Dr. Rush was the author of many important medical writings, which were extensively read both at home and abroad, and through them his fame extended all over Europe. Through his influence important legislation was enacted for the more humane and scientific treatment of the insane, a subject in which he was greatly interested, and his most celebrated book was entitled "Medical Inquiries and Observations Upon the Diseases of the Mind." Benjamin Rush died of typhus fever, contracted while professionally engaged during an epidemic of that disease, in Philadelphia, in 1813. He was not only the greatest physician America had yet produced, indeed he has been well called the founder of scientific medicine in America, but he was equally great as a stateman and a patriot, and his name will always be conspicuous in the history of our country as one of the heroes of the Revolution, and as one of those through whose bravery and persistency our national independence was finally accomplished.

The most brilliant and accomplished surgeon of the century in America was Dr. John Warren, of Boston, already mentioned as one of the founders of the medical department of Harvard

University. He was the brother of Dr. Joseph Warren, one of the great heroes of the Revolution, who was killed at the battle of Bunker Hill. John Warren himself was present at this battle in the capacity of surgeon, and during the remainder of the war he was chief surgeon of the Military Hospital in Boston. He lectured with great ability for many years on anatomy and surgery at the Harvard Medical School and was easily the first surgeon of his time. He was president of the Massachusetts Medical Society for eleven years, until his death in 1815. Dr. Warren's son, John C. Warren, was one of the greatest surgeons of the first part of the present century, and his fame became world wide through his having performed the first surgical operation under ether, an event which belongs to what we may call contemporary medicine.

During the last quarter of the eighteenth century medical education was well established on a scientific basis in this country, although those whose means would permit it usually finished their education at one of the foreign universities. Medical societies were organized in most of the states, the earliest being in New Jersey (1766), Massachusetts (1781) and the Philadelphia College of Physicians (1787). General hospitals, with organized staffs of physicians and surgeons, were established about the middle of the century, the first being the Pennsylvania Hospital, chartered in 1751, and the New York Hospital a few years later. The latter, however, did not receive patients until 1791, its first building having been destroyed by fire before it was ready for occupancy, and the erection of the second one being delayed by the events of the Revolution.

Medical and surgical practice in America was of course, at first, entirely based upon European systems, and the universities and hospitals of the new country were modeled after those in England and on the Continent. There was scarcely any original American medical literature of any value as yet, save the works of Dr Rush, already mentioned, but many of the most important foreign works were republished in this country. The first American medical journal was "The Medical Repository," published quarterly in New York, which appeared in 1787. A translation of a French journal had appeared some years previously.

There were many American practitioners of medicine and surgery during the eighteenth century who attained professional eminence and great local reputation, but in this brief sketch I have only mentioned those who on account of their originality, or on account of their connection with the special events of medical importance have gained a place among the makers of the history of medicine.

(To be continued.)

ORIGINAL ARTICLES.

BOVINE TUBERCULOSIS*

By H. M. Reynolds, M. D.,

St. Anthony Park, Minn.

During the past few years I have been making a study of bovine tuberculosis in connection with my work at the University of Minnesota Agricultural Experiment Station. In the course of this work I have tried to make a careful study of the prevalence of tuberculosis under different conditions of stabling, breeding, etc., and I have been able to collect quite full data concerning over 3,500 cattle tested with tuberculin for tuberculosis. The data which I am about to submit were collected in as impartial a way as I could devise, and were not collected for the purpose of establishing any new theory or promoting an argument. They are offered merely as a showing of cold facts and are to be taken for whatever they may be worth; not as proving anything, perhaps, but rather as so much circumstantial evidence. All grading and classification was done by one person and according to definite plan.

TABLE 1.—PREVALENCE ACCORDING TO CLASS AND CONDITION.

Table Summary: Greatest prevalence among "pure breeds," "city dairies," "poor condition of stable" and "poor ventilation." Farm conditions, good stables and ventilation do not prevent infection, however. See note under table.

CLASS.	No. of herds tested.	No. animals tested.	No. reactions.	Per cent. tuberculous.
1. Natives	137	2839	223	7.8
2. High grades	5	157	17	10.8
3. Pure breeds	6	258	43	16.6
4. Farm herds	38	694	99	*14.2 (7.8)
5. City dairy herds	108	2736	284	10.4
6. In "good" gen. condition of stable.	57	1370	139	*10.1 (6.8)
7. In "fair" condition of stable	59	1140	83	7.28
8. In "poor" condition of stable	32	864	165	19.1
9. With "good" ventilation	45	1011	99	*9.8 (5)
10. With "fair" ventilation	45	1087	67	6.16
11. With "poor" ventilation	48	1210	201	16.6

Note. Fifty-five of these tuberculous animals in each case (groups 4, 6 and 9*) were from the same two herds. Eliminating these two herds from the groups 4, 6 and 9 the percentages are reduced respectively to 7.8, 6.8 and 5.

*Read in the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 15, 1898.

The showing of this table is what any intelligent man would expect. With better sanitary conditions, smaller percentages of tuberculosis. Groups 4, 6 and 9 show that tuberculosis may prevail to a serious extent with the best of stabling and care when herds have been founded with tuberculous stock, or when owners introduce tuberculous cattle in efforts toward improvement.

This table cannot fairly be understood to mean that farmers should not try to improve their stock by good breeding, but it does suggest that it is foolish to attempt this by introducing tuberculous animals for breeding purposes, no difference how long the pedigree or how fine the individual form. Neither would I have you understand me to suggest that a man should not establish a herd of pure bred stock, but I do insist that we have abundant evidence now to convince intelligent men that it is unwise to found such herds with tuberculous stock. So far as conditions of stabling and ventilation are concerned, the figures I have just read speak plainly. Comment is unnecessary. The herds from which these figures were taken are fairly representative ones, except that I have been unable to collect sufficient statistics as to the prevalence of tuberculosis among ordinary farm cattle kept under farm conditions.

Of the entire 3,500 animals tested, my records show that 11 per cent. were tuberculous, but this must not be taken as representing the entire cattle of Minnesota, for the reason that comparatively few farm herds were tested, and there is reason to suppose that tuberculosis is much more prevalent in breeding herds and city dairies. This percentage should be taken rather as an estimate of the prevalence in certain classes. The figures shown in this table support the conclusions that have been drawn from long experience, namely, that finely bred herds and city dairies are more prone to this disease than farm herds kept under ordinary farm conditions.

Table 2 presents another study of this problem and also a study of the accuracy of tuberculin as a diagnostic.

A review of table 2 shows that 1,135 tests were made during this period. Twelve of the total 27 herds which were tested in this series were more or less tuberculous, the percentage varying all the way from zero to 39.8 per cent. The latter occurred in a well-bred herd of shorthorns and is the highest percentage found by the writer up to this time. Other experiment station veterinarians and veterinarians in private practice in the eastern states have found much higher percentages in their breeding herds, the figures running all the way up to 90 per cent. of large herds.

PERCENTAGES OF TUBERCULOSIS AND ACCURACY OF TUBERCULIN.

(Records taken during a certain period by the writer.)

Table Summary: Number tested 772—Number condemned 120—Per cent tuberculous 15.5—Tuberculin very accurate, 70 animals proven tuberculous of 71 post-mortemed.

Herd number.	Number animals tested.	Number reacted.	Per cent. tuberculous.	Numbr Retested.	Numbr Retests.	Breeding.	Kind of tuberculin used.	Number of post mortems.	No. proven tuberculous.	REMARKS.
1	159	45	28.3	58	361	Mixd	Bu.	40	40	Founded with tuberculous stock.
2	16	0	0	0	0	"	Bu.	0	0	
3	83	33	39.8	1	2	S H	Bu.	12	11	Writer did not see the post mortems.
4	42	3	7.1	0	0	Mixd	Bu.	0	0	
5	39	11	28.2	0	0	"	Bu.	5	5	
6	31	0	0	0	0	"	Bu.	0	0	
7	19	0	0	0	0	"	Bu.	0	0	Cow dealer.
8	7	0	0	0	0	J	Bu.	0	0	
9	11	0	0	0	0	Mixd	Bu.	0	0	
10	22	0	0	0	0	"	Bu.	0	0	
11	30	0	0	0	0	"	Bu.	0	0	
12	17	3	17.1	0	0	"	Bu.	3	3	
13	27	3	11.1	0	0	"	Bu.	0	0	
14	42	5	11.9	0	0	J	Bu.	2	2	The remaining three that reacted isolated for experimental work.
15	18	0	0	0	0	Mixd	Bu.	0	0	
16	30	0	0	0	0	"	Bu.	0	0	
17	46	2	4.2	0	0	"	Bu.	0	0	
18	33	3	9.6	0	0	"	Bu.	2	2	
19	34	3	8.9	0	0	"	Bu.	0	0	
20	23	8	34.	0	0	"	Bu	6	6	
21	6	0	0	0	0	"	Bu.	0	0	
22	1	0	0	0	0	J	Bu.	0	0	Family cow.
23	4	1	25.	0	0	Mixd	Bu.	1	1	Feeding steers.
24	2	0	0	0	0	"	Bu.	0	0	Stable very damp.
25	26	0	0	0	0	"	Bu.	0	0	
26	2	0	0	0	0	"	Bu.	0	0	Steers slaughtered.
27	2	0	0	0	0	"	Bu.	0	0	Steers slaughtered.
	772	120			363			71	70	

I would also call your attention to the fact that out of 71 post mortems 70 animals gave reasonable evidence of tuberculosis. The one exception was a large shorthorn bull which gave an atypical reaction. I did not conduct this post-mortem but have no doubt as to the accuracy of the work. The post mortem was made by a very careful veterinarian in whom I have the utmost confidence; but I think medical men will agree that it is possible for small lesions to exist in the body and not be discovered on very careful post mortem. I do not mean to convey the impression that I consider tuberculin absolutely infallible, but I do consider it more nearly infallible than the human eye or sense of touch. Whether this bull was tuberculous is not a very important question. Seventy cases of tuberculosis out of 71 post mortems is so accurate as to be entirely practical as a diagnostic.

Location of Lesions as Shown in Postmortems.

I have also made a study of the location of the lesions as shown in post mortems, thinking that this would throw some light on the methods and sources of infection. The following table is taken from my experiment station bulletin (51) on "Bovine Tuberculosis:"

Summing up this table, we find that of a total of 48 animals post mortemed during this period 38 showed lesions of the pleura, lungs 43, bronchial glands 31, mediastinal glands 16, post pharyngeal glands 9, liver 17, spleen 13, mesenteric glands 6, intestines 21, uterus none, udder 8, peritoneum 4, kidney 1, heart 2, omentum 4 and trachea 1.

Allow me to explain concerning the relatively large numbers given for the intestines, liver and spleen, that some of these may probably be charged to error in estimating post mortem findings. In some of these post mortems no laboratory demonstrations were made, and my later experience convinced me that some of these lesions which have been charged to tuberculosis, in the past, were probably in error.

Several important points are illustrated in

TABLE 3.

Table Summary: Unusual prevalence of tuberculosis among young stock. A large percentage of all post-mortems show disease of the lungs, their attached glands and the pleura, which indicates that the most common source of infection was the air—Udder diseased in 8 cases of total 48.

Organs normal except as indicated: — not examined; v, vv, vvv, vvvv indicate extent or degree of disease.

NAME.	Test number.	Post pharyngeal glands.	Pleura.	Bronchial glands.	Mediastinal glands.	Lungs.	Liver.	Spleen.	Mesenteric glands.	Intestines.	Uterus.	Mammary glands.	Peritoneum.	Kidneys.	REMARKS.
One Eye		v	vv		v	vv	v	v		vv	—	vv			Omentum vv.
Molly	39		v	vvv		vvv				v					Heart v.
Bones	253	—	—	—	—	vvv	—	—	—	—	—	—	—		Made by butcher.
Bob-tail	252	—	—	—	—	vvv	—	—	—	—	—	—	—		Made by butcher.
	222	—	vvv	vv	vv	vvv	—	—	—	—	—	—	—		Hastily.
	221		vv	vvvv		vvv	v			v		vv			
Olive's Calf	43		v	vv		vv									
Molly's Calf	45		v	vvvv		vvvv									Omentum vv.
Jennie's Calf	46		vv	vvv						vv					Omentum vv.
Princess' Bull	49		vv	vvv		vvvv									
University Princess	54		v	vvv		vv	vv					vv			
Big Princess	56					vv						vvv			
	103		vv	vvvv	vv	vvv	vv								
Reddie's Calf	41		v	vv					vvv						
	1		vvvv	vvv		vvvv									
Dido	5					v				v					
Tricksy 2nd	12		vvvv	vvv		vvv				v					Dam died from tuberculosis.
Maria 2nd	13			vv		v			vv				v		
Daisy	104		vv	vvv		vvv	v	vv				vv			
Houston 2nd	24		vvv	vv		vvv		v							
Sully	31		vv	v		v		vv		vv			v		
	355		vv			vvv			v	v					
	356			vv	v	v									
	389		vv	vv		vv									
Wild Eyes	446			vvv		vvvv	v			—					
Madge	447	vv	vv	vvvv	vvvv	vvvv	vvv	v							
Spot	448					v		v		vv					
Alderney	449					vvv	v			vv		v			
Deer	482		v	vvv	vvv	vvv									
	601		v			vvv				vv					
Jennie		v	vv		v	vvv	vvv								
Dido's Calf	86					vv									
Ida			vv				v	vv		v					
Houston			vv	vv	vv	vvvv	vv	—	vvv	v					Trachea vv.
Olive			v		v	vv	vv			v					
Lou	1051		vv	v				vv		v					
Quidde	1050		vv			vv		v		v		vvv			
Lydia	1049	vv	vv										v		Carpal and tarsal joints show extensive ulcerations.
May	882		vv	vv	v	vv				v					
Polly		v	v		vv	vv									
Silver Pogis		vv	vvv	vv	vvv	vvvv	vv	vvv	vvv	vv			vv		Omentum vvvv.
Fancy 2nd		v	v	vv		vv									
Fancy's Bull		vv	vv	vv	vv	vv		vv		vv					
Fancy		vv	vvv	vvv	vv	vvvv	vv					vv			
Dora's Pogis			vv	vvv		vv	vvvv	vv	vv	vv				v	
Young Maiden			vvv	vvv		vvv	v								Heart vv.
University Princess 2nd			vv		v	v									
Bess			vv	v	v	vv	vv	vv		vv					

this table: First, that of the 48 post mortems 8 showed tuberculosis affecting the udder, and it is the general testimony of bacteriologists that milk from tuberculous udders is quite apt to contain tubercle bacilli. Second, a very large percentage of these show lesions affecting the lungs. It is possible that some of these may be charged to error in post mortems; but after deducting all probable errors there still remains a very large number in which the lungs show undoubted lesions of tuberculosis, indicating that air infection is the most common and serious. I trust you will not overlook the fact that 16 per cent. of these cattle had lesions affecting the udder.

STATE CONTROL.

Switzerland—Several of the European countries have undertaken to control bovine tuberculosis, usually by less radical methods than have been tried in this country. Several years ago the federal council of Switzerland sent out an official circular concerning this matter. In this circular it is represented that the government has taken this ground in response to petitions from cantonal governments and agricultural societies, asking that measures be taken to combat bovine tuberculosis by government authority.

The government offers tuberculin free to the various local governments and offers to pay one-half the cost of making tests, the tuberculin to be used by graduate veterinarians and according to prescribed rules. Bovine tuberculosis is not treated the same as some other contagious diseases of animals, in that the laws against glanders, anthrax, etc., are not enforced against tuberculosis.

If an owner wishes to have cattle tested under these provisions he must have the entire herd tested. Those that react must be branded by tag in the ear. Tuberculous cattle must be separated from the healthy. The government takes the position, now generally accepted, that some animals may react and still be useful for breeding purposes, production of milk or even for fattening; the milk not to be used, however, without special preparation.

Points especially worthy of note in the Switzerland method are that tuberculin is furnished gratuitously; half the expense of test is borne by the government; no partial herd tests allowed; cattle that react must be permanently branded. Sound cattle may be branded or not at the option of the owner.

Denmark is operating upon a similar plan, the government furnishing the tuberculin and veterinary services for testing, upon application, young cattle. Owners are urged to have their entire herds tested, but they must pay for having the older stock tested. Animals that are selected for early slaughter may be omitted from the test but are inspected at the place of slaughter. The law expressly forbids the use of uninspected meat from tuberculous cattle and the use of milk from tuberculous cows that have diseased udders.

One of the most prominent features of the Denmark plan is that of dividing the tuberculous herd into two portions, placing those that react and those that do not in separate stables, or in carefully divided portions of the same stable. Badly diseased animals and certain others are killed at once. The calves from tuberculous mothers are removed at birth, put with healthy cattle and reared on milk from healthy cows or on other milk that has been rendered wholesome. When animals in the tuberculous division reach an advanced stage they are killed. You will observe by this plan the healthy division is constantly increasing and the tuberculous one is decreasing until finally the herd is entirely free from the disease without any radical measures or severe losses for the owner.

France—France is attempting to deal with this problem. The French plan is as yet quite incomplete and imperfect like the others. There are some good points in the French plan, for instance, no cattle can be brought into France except those free from the disease as shown by the tuberculin test. If an animal is found presenting symptoms of the disease, or if such animal is found at the slaughter house, the entire herd from which it came must be tested. The owner then has an option: he may have slaughtered at once all that reacted and receive compensation from the government or he may isolate them for six months for retest. At the end of this period they are tested and those that react must be slaughtered under government inspection. If the carcass is condemned, the owner loses all.

I would call you attention especially to the fact that all these slaughter houses are under government or city supervision and the carcasses are there inspected by public officials. It is to be earnestly hoped that American cities may adopt this plan in the near future.

TUBERCULIN TESTS.

Tuberculin came into quite prominent use in this country as a diagnostic for bovine tuberculosis in 1892 and its use became rapidly more general in '93 and '94. It is perhaps unfortunate that its early use was attended with so much noise and confusion and even alarm in many quarters instead of more quiet thinking. It was quite reasonable to expect that an agent which condemned as diseased so many valuable cattle showing no external symptoms of the disease, should meet with severe opposition. Tuberculin met with a storm of opposition from breeders, stockmen, agricultural editors and even a few veterinarians, although the evidence as to its di-

agnostic value has been conclusive from the beginning. Very absurd charges were made against it and all sorts of queer objections were urged, but tuberculin has steadily gained ground and is now recognized everywhere by veterinarians and even by stockmen as a useful and accurate means of diagnosis. It was urged that the injections of tuberculin were to blame for various pathological conditions found on post mortems. Any medical man will see the absurdity of this in a moment.

Anyone who is at all familiar with the method of preparation ought to have known that tuberculin was not only sterilized by heat, but filtered through porcelain so that it could ordinarily contain no germs living or dead. Others hastened to start the old cry that was used against tuberculin in human practice several years ago, viz: that it generalized the diease and made acute pathological changes which would have otherwise remained chronic and latent. So far as bovine tuberculosis is concerned, this has been shown by thousands of tests to be an insignificant feature if indeed it ever occurs. It took four years to disprove this statement to the public mind, and meantime the work was seriously hindered. Intelligent people, and especially medical men, should not be so ready to accept statements of opinion that rest on no experimental data. I can but feel that too much importance has been given to this possibility by my medical brethren, and that there is not sufficient reason why tuberculin should not be used at least as a diagnostic in human practice. An early diagnosis is all important and it is frequently too late for medical treatment or change of climate when it is possible to make positive diagnosis by means of the microscope or inoculation experiment. It seems to me that there is already a reasonable amount of evidence to show that tuberculin is so accurate as to be at least quite practical as a diagnostic. I confidently expect tuberculin to come into general use in human practice as a diagnostic when medical men recognize the urgency of its need and malpractice suits no longer stare them in the face.

"The following resolutions were adopted unanimously by the United States Veterinary Medical Association at its meeting in Buffalo, N. Y., September, 1896. These resolutions reaffirm and in stronger terms, the resolutions passed by the same body at the meeting in Des Moines, September, 1895, and show plainly the opinion of the leading veterinarians of America:

"Whereas, Tuberculosis of some of our domestic animals and especially of cattle, is a wide spread and destructive disease; and

"Whereas, Statistics accumulated during the year past show that the disease is very prevalent throughout this country, especially in dairy herds, and indicate that it is steadily increasing, except in states where active measures for its suppression have been enforced; and

"Whereas, There exists in some quarters a difference of opinion as to the relation of tuberculosis among cattle to the public health, notwithstanding the fact that this matter has been the object of careful scientific inquiry by a great number of eminent scientists in all parts of the world, and that reliable and uniform results and observations are recorded in great numbers in the veterinary and medical literature; be it

"Resolved, That it is the opinion of the United States Veterinary Medical Association that the following points have been demonstrated beyond dispute and may be accepted as fully established:

"1. That tuberculosis of man and cattle is identical.

"2. That the milk from cows with tuberculous udders may cause tuberculosis in animals fed upon it.

"3. That the milk from cows with extensive tuberculosis, but apparently heathly udders, may in some cases contain the germs of tuberculosis and cause the disease in animals fed upon it.

4. That in some cases the germs of tuberculosis appear in the milk of tuberculous cows that are not far advanced in the disease, and that have udders that are healthy, so far as can be determined by an examination made during the life of the animal.

"5. Slightly tuberculous cows sometimes succumb to a sudden exacerbation of tuberculosis, and furnish virulent milk for a period before it is possible to discover their condition by means of a physical examination.

"6. Tuberculin furnishes incomparably the best means of recognizing tuberculosis in the living animal.

"7. Tuberculin, properly used for diagnostic purposes, is entirely harmless to healthy cattle, and is so exceedingly accurate in its effects that the few errors resulting from its use cannot affect the general results, and are of less frequent occurrence than following the use of any other method of diagnosing internal diseases.

"8. That the carcasses of tuberculous animals may be and sometimes are dangerous to the consumer, and all such carcasses should be subjected to rigid inspection by a competent veterinarian, and those that are condemned should be disposed of in such a manner that it will be impossible to put them on the market for consumption as human food.

"9. That the importance of dairy inspection cannot be overestimated, and municipal and health authorities should at once perfect a system commensurate with the vast importance of the subject.

"Resolved, That the live-stock and especially the breeding interests of this country can never regain their former prosperity until such measures have been carried out by the national and state governments as will afford some reasonable guarantee against the continued ravages of this disease. And in view of the prevalence of bovine tuberculosis in foreign countries, and the measures taken by some of them to protect their cattle from further infection, the United States should prohibit the importation of breeding animals until they have been proven by the tuberculin test to be free from this disease."

LEARNED BY EXPERIENCE.

There are many points regarding the use of tuberculin that we have had to learn by experience; for instance, that certain caution is necessary to avoid mistakes in interpreting the results of tests.

We have learned beyond the possibility of reasonable question that tuberculin is not injurious to either tuberculous or healthy cattle in reasonable doses; that it is extremely acurate but not infallible. The only condition, as far as we know, under which tuberculin is apt to fail as a diagnostic is now well understood, namely, that

cattle which are badly and generally diseased, and especially if the lesions have been of long standing, may give indefinite reactions, or fail to react even though tuberculous.

On the contrary, it is equally well known that tuberculin is almost infallible in cases of recent infection and where the lesions are very limited in extent.

We know that tuberculin must be carefully prepared and uniform in quality and strength as it comes from any one labratory. We have also been compelled to learn that it is possible to make very careful post mortems and still fail to find lesions of tuberculosis in a tuberculous animal. We are quite certain, too, that a cows's udder may be apparently healthy and still the bacilli may appear in milk, and that the bacilli are very apt to appear in the milk and be more or less abundant when the udder is diseased. We know too that calves are rarely tuberculous until after at least one year of age, and that the probability of tuberculosis increases rapidly with age.

There can be no longer any question that this disease is more prevalent among highly bred cattle and that this prevalence is not a matter of breed but rather of individual conditons.

The young of various domestic animals, for instance, calves, pigs, etc., have been repeatedly infected in feeding and inoculation experiments with meat and milk of tuberculous cattle. It is not unreasonable to suppose that human beings may also be infected, particularly children and even older people from tuberculous parentage.

WHAT CAN BE DONE.

In considering sanitary legislation and police control, we must remember that this is a large issue and great financial interests are at stake. I am not in favor, for the present at least, of any radical methods that shall sweep over this state or our country with a view to immediate eradication. I do not believe that such methods can be made practical at present, although they may be very near the theoretical ideal. Undoubtedly the first and most important thing to be accomplished is education of the people.

The Danish Medical Association has recently appointed a committee for the purpose of disseminating public information concerning tuberculosis. This committee has distributed all through that country, placards and pamphlets which give instruction for the prevention of this disease. The placards are hung up in the most public places, for instance, railway carriages, stations, schools and factories. Pamphlets giving information concerning the disease are also distributed freely to the school children.

When people generally understand the nature of this disease, how it can be contracted and how avoided, and when they properly appreciate the seriousness of this matter, we shall have made great progress. Surely if there is one disease which all men should be able to consider intelligently, it is this one.

In bovine tuberculosis we have a very difficult problem. In the first place it is widely prevalent, scattered more or less commonly all over this country. Again, there is a large proportion of latent and mild cases that may possibly make spontaneous recovery. A cow is tuberculous, however, if but one lymphatic gland is affected, and if tuberculous at all, she may be infectious. Perhaps the greatest complicating factor is that human tuberculosis and bovine tuberculosis probably constitute one disease which may be transmitted either way, and this, of course, is the central proposition of our present discussion. There has been another complicating factor, namely, dairymen and breeders have been unreasonably prejudiced against the tuberculin test and aginst any discussion of this problem, but this difficulty is rapidly passing. There is another complicating factor which may be carefully considered or we shall make a poor progress towards a final solution of this problem. I refer to the fact that the predisposing causes which are largely to blame for our present trouble, are still in operation and must be removed.

The great question we have to consider at present is, what can be done about it? Sanitary laws which deal with this question are not of recent origin by any means, neither are we facing a new problem. The old Mosaic law deals with it, Rome in her palmy days tried to deal with it, but it was confounded during all this time with leprosy. Wurtemburg had an ordinance away back in the sixteenth century regulating the sale of flesh from tuberculous cattle. In the latter part of the eighteenth century, the Duchy of Baden enacted quite stringent laws for the same purpose. Sanitarians have always been handicapped by a lack of means for early and positive diagnosis. This difficulty no longer exists. We must not forget, in considering this matter, that it will be many years before ideal conditions or even very satisfactory results are possible. For the present, I believe that our plan should be an improvement, rapid as possible, of existing conditions, always taking the most seriously threatening problems at first.

In the first place, I think we should begin with the dairies supplying milk for city consumption, and we should make no distinction whether they are located inside or outside of the city limits. I do not believe that milk should go into any city supply that has not come from tested cows. The tuberculin test should be imposed as one of the conditions on which license to sell milk may be granted, in every city having a population of over three thousand, and this test should be repeated at least once a year, bet-

ter twice. Every animal should be permanently marked when tested and this mark should show plainly that the animal is either tuberculous or non-tuberculous.

Regular inspection should be maintained, and I mean a thorough inspection. Merely looking at the cattle from the doorway is no inspection at all. This work should be done by some one who has had special training for the work. Such inspection should include an estimate of air space per cow, ventilation changes, sunshine, drainage, disposition of manure and other refuse, general cleanliness of cows, stables and attendants. This inspection should further include the kind and quality of food and water. Cows cannot produce good milk and butter from poor food.

No animal can remain healthy without a reasonable amount of exercise, sunshine and air. If lions, tigers and monkeys are shut up in cages, they become tuberculous, and when dairy cows are closely and continuously confined, they too become tuberculous. It is one of nature's laws, with which medical men are familiar, that organs which are not used or are used less than nature intended, lose tissue nutrition, tissue vitality and become subject to disease. We cannot reasonably expect the cow's lungs to prove an exception. If, generation after generation, they must lose in size, lose expansion power and tissue nutrition, why should the lungs not become tuberculous?

Every cow in the stable should be allowed at least one thousand cubic feet of air, and this is too little unless abundant ventilation is provided. Stables should be built with a view of letting in more sunshine and with a vew to good drainage. When all this is done, and when pure bred herds and city dairies are tested at least once a year, when all stock that is added to these herds is also tested, we shall have made very satisfactory progress towards the final solution of this problem.

CONCERNING MEDICAL BACTERIOLOGY.

A FEW NOTES FROM CURRENT HISTORY.*

By Franklin Staples, M. D.,

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It is no longer necessary to emphasize the importance of bacteriology in its relation to practical medicine and surgery. In the later development and great advance of modern medicine it has had and continues to have a place second to none. A distinguished teacher and practical surgeon ten years ago gave the situation in substance as follows: "Bacteriology opened a new era for surgical pathology. * * * Recent advances in surgical pathology laid the foundations for the wonderful advancements of modern surgery. * * * During the last fifteen years there have been more real advances made in surgical pathology than during twenty centuries preceding them."* In the time that has elapsed since this observation was made, what has appeared in the progress of this department of science more than justifies all that was then said.

Certain Conditions, Causes and Effects.

While the material progress in surgery and surgical pathology in the last quarter of a century has been phenomenal, the causes and principal means of development are not unknown. The history of the coming of bacteriology as a science and of its relation to medicine has been largely written, and more than a brief notice of it is here unnecessary. Incident to the changes in methods of study and teaching which of late have come to our advanced institutions, have been the increase and improvement of laboratories for experimental work, and of the means of clinical demonstration. The pathological laboratory is now a necessary department, and has a large place in all advanced schools of medical and surgical instruction. Its effect has been to extend the course, widen the scope and elevate the standard of college instruction. The student is taught the use of instruments of precision, and how to observe the phenomena of normal and diseased actions in the animal body, and the conditions resulting therefrom. The microscope, the beginning of which was made by Leeuwenhoek in Holland in 1675, after more than two centuries, has its place and time of greater usefulness in the higher work of scientific study and demonstration. The study of biology in its various departments has its important place in the foundation of what has come to be the structure of modern pathology.

In observing the conditions now existing in the progress of scientific medicine, and in considering some of the causes and effects, the following appears: The trend of modern thought and investigation is in the way of realism in science. Systems in medicine, as in other departments of science, based on theory alone, which in different forms have existed from ancient and mediæval times, are passing away, and have ceased to have value in the educated mind of today. As said by Senn: "We live in an age of independent thought and investigation. No discovery is accepted unchallenged, and all new

* Read before the Southern Minnesota Medical Association at the annual meeting at Rochester, Minn, Aug. 4, 1898.

*Prof. N. Senn in "Surgical Bacteriology."

claims are subjected to the crucial test of criticism based on original research." The field of practical surgery has been greatly enlarged, and the danger to life from surgical diseases and operative measures has been lessened. The reason appears in this: that an experimental knowledge of pathogenic germs, of their existence and action in the tissues of the body, and of the means of their destruction and prevention has its great advantage in modern surgery. By its application in preventing infection, in other words, the securing of asepsis, and this, when necessary, by antiseptic means, the domain of operative surgery has been greatly extended, and the danger to human life in operative procedures as greatly diminished.

On Medical Education.

In compliance with the demand for broader education, largely occasioned by the extension of the field of scientific research, the required college course has been largely extended, and additional facilities afforded for experimental work in fields newly discovered and explored. In all of this the science of bacteriology has its important place, and laboratory work in the study of pathology has become a requisite. In this country, as before, in different ways, in leading European countries, state enactments, now very general in effect, have not only made requisite a higher standard of medical education, but have demonstrated the advance in the public appreciation of a more real and advanced educational culture in the world of medicine. A brief mention of advances in practical medicine, in addition to what more directly relates to surgery, shall be given.

Bacteriology in Medicine.

Prof. Abbott, of the University of Pennsylvania, heads the introductory chapter of his work, "Principles of Bacteriology," as follows: "The overthrow of the doctrine of spontaneous generation and the further application of the law, 'Omne vivum ex vivo.'" The author expresses the truth concerning the importance and relations of the new science as follows: "From the very onset its history is inseparably connected with that of medicine, and as it now stands, its relations to hygiene and preventive medicine are of the utmost importance. It is, indeed, to a more intimate acquaintance with the biological activities of the unicellular, vegetable microörganisms, that modern hygiene owes much of its value, and our knowledge of infectious diseases has reached the position it now occupies."

While giving due credit to the contributions of men of recent years in placing bacteriology on the footing of a science, Prof. Abbott notices the foundation work done by those in earlier times. Beginning with Leeuwenhoek, the linen draper of Amsterdam, who first ground lenses, and with his rude microscope discovered what was called motile "animalcules" in a drop of rain water, and, a little later, other microorganisms which now have their place in the role of bacteria, he mentions the work of Marcus Antonius Plenciz, of Vienna, who in 1762 first suggested the casual relations between the microorganisms discovered by Leeuwenhoek and all infectious diseases. Plenciz is accredited with the belief that the infection of disease was a living substance, and that it was capable of multiplication within the body, and he spoke of the possibility of its transmission through the air.

Here, then, was the beginning of what is now established in bacteriology and is generally regarded as true in scientific discovery.

Shortly before the time of the discoveries of Leeuwenhoek, in Holland, and before the work of Plenciz, in Austria, Harvey, in England, had published his discovery of the circulation of the blood. Hermann Boerhaave, who had made Hippocrates and Sydenham his models, was then teaching his eclecticism at Leyden, and medicine was coming to be established upon something of a physical and an anatomical basis. The time, however, of Leeuwenhoek, the inventor of the microscope, and of Plenciz, the Austrian physician, was more than a century too early for their teaching to find a place in the world of science, and it remained for Pasteur, Polender, Davaine, Helne and a few others, as late as the year 1858 and in the few years thereafter, to establish on a permanent basis the principles of modern bacteriology.

Important discoveries, various improvements in the means of investigation and a general advance in all departments of science has made the way of this great element of progress possible. Pasteur's first discovery which attracted attention was that certain specific agents, forms of bacteria, were the causes of fermentation and putrefaction. Polender and Davaine determined the presence of rod-shaped organisms in the blood of animals dead with splenic fever. Helne explained and taught the doctrine of infection.

In the great development that followed these beginnings, and has come to the present time, the discoveries and improvements in means and methods, and the utilization of the same in the treatment and prevention of disease, have an immense importance in the present of practical medicine. There is now a large literature in medical bacteriology and an army of laborers in this department, representatives of which are found in all countries where learning and advanced science have any considreable place.

Germany, France, England and the United

States have furnished scientists whose names will remain associated with the most important means of advancing scientific medicine in the nineteenth century. Prominent among these are the original discoveries and the additions thereto which have been made by the different contributions of such observers and scientists as Schwann (1839), Ehrenberg (1840), Dujardin (1841), Robin (1853), Schröder and Van Dusch (1854) and Devaine (1859); and by the later advanced work of Pasteur, Cohn, Hoffman, Tyndall, Koch, Polender, Eberth, Klebs, Löffler, Schultz and others. In this country the works of Surgeon-General Sternberg, Abbott, of Philadelphia, and others are important. A mention here of the specific work of any of these contributors may not be attempted. A partial list of recent publications in this department, and a few references to the journal literature of the same, will be given.

Present Outlook.

In this, as it ever is in matters where change, whether for better or worse, is involved, different opinions obtain in the professional world. There are those who, from want of knowledge and the consequent ability to observe and judge rightly, are active in unintelligent opposition. Well informed, scientific workers, not unmindful of the magnitude and difficulties of their work, are too busy to regard unworthy objections, and are patient in their efforts to discover and utilize what is valuable. In our present study and outlook the following appears: New terms and new material have found a place in our materia medica, some of which seem to have acquired a permanence. "Immunity and Serum Therapy" is the title of a practical work by Sternberg. The terms are properly applied; the first, to a feature or condition in pathology and physiology now understood; the second, to effective modern therapeutic means for the relief and prevention of disease The question of what constitutes immunity of the body from disease infection, and how it is induced, has long been a subject of study The knowledge of bacteria, of what may occur in connection with their pathogenic action, their agency and behavior in the different forms of tissue pathology, now seem to promise a satisfactory solution.

It is found, that immunity may be natural to the body, may be produced by an attack of the infectious disease, or secured by artificial means. The first is seen, for instance, in localities subject to yellow fever, where a certain percentage of the native inhabitants are found to be incapable of contracting the disease. It is not uncommon during the prevalence of diphtheria among children to find in the throats of attending adults, who have never suffered from the disease, the diphtheria bacillus, which does not produce infection. Immunity of the second kind is well known as resulting from attacks of ordinary contagious diseases, and varies in completeness and permanence in different diseases and persons. The immunity obtained by artificial means is what especially concerns our present observation. The following is given as a brief explanation: Pathogenic bacteria affect the animal organism in two principal ways: first by depriving the cells of different animal tissues of oxygen and nitrogen, appropriating the same to themselves in their multiplication and growth; and second, by infecting the solids and fluids of the body by certain toxic substances which they secrete. These toxic substances, which in full strength are in a greater or less degree injurious to the tissues and may cause death, may so affect the body as to prevent after infection by the same or a similar germ. These germs may be isolated and reduced by cultures outside the body. Attenuated cultures may still contain toxins whose virulence has been reduced. An antitoxin is a substance elaborated by the animal tissues in reaction to a toxin. The methods of obtaining from the tissues and of preparing the various antitoxins for therapeutic use are various, and require skillful manipulation by expert hands. The antitoxins, when prepared, are used by inoculation. Thus, in the warfare of disease the army of defense is strengthened, successful opposition favored, and the resulting condition of the country, immunity, is the guarantee of future protection.

In the study of living germs as factors in disease, reasonable answers to many heretofore obscure questions seem to appear. The facts of the self-limitation of disease, of a definite period of incubation to various infections, and the history of development, crises and natural decline in many diseases are illustrative. The reason for what was known to the ancients as the vis medicatrix naturæ is seen in this.

Credit for the discovery that animals may be rendered immune to specific infections by the injection of the products of disease germs is given to Pasteur, who, in 1880, experimented with fowls in the disease known as chicken cholera.

The different antitoxin serums have become numerous, but as yet are found to vary to some extent in their effectiveness in securing the desired result. We have serum antidiphtheria, antipneumonia, antibubonic, antirabic, antisyphilitic, antitubercle, antityphoid, antitetanic, antistreptococcic, antivenomous, etc.

Great and continuous efforts on the part of many able scientists have been required to advance the standard of serum therapy to what appears at the present time, but more time will be required before the desired results can be secured in the treatment and prevention of im-

portant diseases now under experimental study. It is generally admitted that the antitoxin treatment of diphtheria has afforded better results than has been realized in that of any other disease. A recent estimate is given as follows: "From the most trustworthy statistics that are now available, it appears that the actual mortality from diphtheria including membraneous croup) has been reduced at least one-half by the general adoption of the serum treatment."* In this connection comes the thought that greater results may be expected when physicians generally become more prompt in the application, and are always in possession of a high grade of antitoxin serum. As prophylaxis is better than cure, greater advantage may be made possible by securing immunity in the bodies of those exposed to the contagion.

In tetanus and rabies, and now in pneumonia, good results are claimed from the use of the serum treatment. Cases of trismus nascentium are reported as successfully treated by the tetanus antitoxin.

In the matter of the tuberculin treatment of tuberculosis, greater difficulties have been experienced than, perhaps, in that attempted in any other disease. Great credit is due to Koch for his continued efforts and valuable discoveries in this important study which point to a future success. The character of the disease and the varieties and complications found in its various forms are the chief elements of difficulty. Many scientists are still at work in this investigation. An American physician has recently reported concerning his success as follows: "The scientific gain of my investigation is the preparation of a really antitoxic and bactericidal antiphthisic serum, with a probability next to a certainly we may expect this serum to become an important factor in the preventive and curative treatment of human tuberculosis." † The use of mallein in the diagnosis of glanders, and the Widal test, or the serum diagnosis, of typhoid fever, are established procedures of great value in the study and management of these diseases. Because of the extent and importance of typhoid fever, great interest has attended the studies in bacteriology pertaining to its etiology, pathology, prevention and treatment. An exhaustive account of laboratory investigations of the bacteriology of this disease, as shown in the serum diagnosis, appears in the Journal of the American Public Health Association for April, 1898.*

These diseases and their treatment by serum therapy are mentioned as illustrative rather than as an approach to a summary of the scope of this treatment. It must be borne in mind, however, that other valuable means and methods may not be supplanted by what is contained in this. Discoveries in bacteriological pathology have not only extended the field of therapeutic measures, but have increased our knowledge of the value and the reasons therefor of means and methods long since in use. For instance, in tuberculosis, correct climatic influence and supporting treatment, cod liver oil and hypophosphites may tend to secure a degree of immunity by improving organic action and vitality in the tissues. Disinfecting the alimentary canal and judicious elimination in typhoid fever are in opposition to the life and activity of bacteria. Rational practice in medicine will endeaver to accept what has merit in the new, and to hold fast to what is valuable in the old.

In this brief mention of what appears in the present general outlook concerning medical bacteriology in its relation to the medicine and surgery of the present time, no full account has been attempted. What is given may in a measure be illustrative and suggestive as to the present direction of a study in science which has already afforded much of value, and now promises still more important and beneficent results and victories in the great arena of practical medicine.

Bibliography.

Some of the recent publications on bacteriology are shown in the following list of works by English, German, French and American authors:

Works in English:

Sternberg; Manual of Bacteriology; New York, Wm. Wood & Co., 1895.

Sternberg; Immunity and Serum Therapy; New York, Wm. Wood & Co., 1895.

Muir & Ritchie; Manual of Bacteriology; London, Pentland, 1897.

Abbott; Principals of Bacteriology; Philadelphia, Lea Bros., 1897.

Schenk; Elements of Bacteriology; London and New York, Longmans, Greene & Co., 1893.

Crookshank; Text Book of Bacteriology; Philadelphia, W. B. Saunders, 1897.

McFarland; Text Book Upon the Pathogenic Bacteria; Philadelphia, W. B. Saunders, 1890.

Klein; Microörganisms and Disease; London, Macmillan & Co., 1896.

Kanthack; Course of Elementary Practical Bacteriology; London and New York, Macmillan & Co., 1895.

Woodhead; Bacteria and Their Products; New York, Scribner & Welford, 1891.

Hueppe; Methods of Bacteriological Investigation; New York, Appleton, 1897.

* Jacob Friedman, Jour. Am. Med. Assn., Oct. 9, 1897.

† Carl Fisch, M. D., St. Louis, Mo., Jour. Am. Med. Assn., Oct. 30, 1897.

Senn; Surgical Bacteriology; Philadelphia, Lea Bros. & Co., 1891.

Salmonsen; Bacteriological Technique (English Translation).

De Bary; Lectures on Bacteria; Oxford, Clarendon Press, 1887.

Frankland; Microörganisms in Water; London, Longmans, Green & Co., 1894.

Novy; Ptomains and Leucomains; Philadelphia, Lea Bros., 1898.

Eisenberg; Bacteriological Diagnosis; Philadelphia, F. A. Davis, 1892.

Miller; Microörganisms of the Human Mouth; Philadelphia, S. S. White Dental Mfg. Co., 1890.

Works in French:

Corneil & Babes; Les Bacteries; Paris, Felix Alcan, 1886.

Desflocq; Lecons sur les Bacteries Pathogenes; Paris, Masson et Cie, 1897.

Nocard & Leclainche; Les Maladies Microbiennes des Animaux; Paris, Masson et Cie, 1896.

Charrin; Poisons de l'Organism; Paris, Masson et Cie, 1896.

Macé; Traité Practique de Bacteriologie.

Works in German:

Flugge; Die Mikroorganismen; Theil I, II. Leipsig, Vogel, 1896.

Migula; System der Bacterien; Erster Band, Jena, G. Fisher, 1897.

Frankel & Pfeiffer; Microphotographischer Atlas der Bacterienkunde; Berlin, Hirschwald, 1896.

Fischer; Verlesungen uber Bacterien; Jena, Gustav Fischer, 1897.

Stubenrath; Das Genus Sarcina; Munchen, Lehman, 1897.

Levy & Wolf; Bacteriologisches Notiz und Nachschlagebuch; Strassburg, Friedrich Bull, 1897.

Busse; Heen als Krankheitserreger; Berlin, Hirschwald, 1885.

Brieger; Uben Ptomaine; Berlin, Hirschwald, 1885.

Gunther; Einfuhring in das Studium der Bacteriologie.

Brieger; Weitere Untersuchungen uber Ptomaine; Berlin, Hirschwald, 1885.

The following are the principal periodicals devoted especially to bacteriology and allied sciences now published.

Journal of Pathology and Bacteriology; London. Pentland.

Journal of Exeprimental Medicine; N. Y. Appleton.

Baumgarten; Jahresbericht uber Pathogene Mikroorganismen; Braunschweig. Harold Bruhn.

Centralbatt fur Bacteriologie; Jena. Gustav Fischer.

Zeitschrift für Hygiene, &c.; Leipsig. Von Voit & Co.

Archiv für Hygiene; Munschen. Oldenbourg.

Annales de l'Institute Pasteur; Paris Masson et Cie.

In addition to what appears in the foregoing bibliography of bacteriology, an important part of the literature belonging to this department, and much of practical value to the physician, has appeared of late in the leading medical journals of this and other countries.

LEUCOCYTHÆMIA.*

By Charles O. Wright, M. D.,

Kasson, Minn.

Leukæmia, one of the many forms of anæmia, is an affection characterized by the increase of white blood corpuscles associated with enlargement of the spleen and lymphatic glands or changes in the bone marrow, either of which may be alone or they may be associated together.

Of the etiology of leukæmia we know but little, as the causes are somewhat obscure. Males are more prone to this disease than females, as I suppose they are more exposed to its predisposing causes, which are thought to be malaria, syphilis, bad hygiene, frequent hemorrhages, hard labor with exposure to cold, rheumatism, etc. As to heredity, Camerion describes a case of a woman passing through three pregnancies, bearing on each occasion non-leukæmic children. Sanger claims that intra-uterine transmission of leukæmia from mother to child does not exist, as leuycotes cannot pass through the placenta from mother to child, which was proved by examining the blood of the placenta and cord. The blood of the former was leukæmic, while that of the latter was normal. Yet there may be an hereditary predisposition transmitted, which may cause the subsequent development of the disease.

SYMPTOMS.

The beginning of the leukæmia is so gradual that the first symptoms usually pass unnoticed, especially in the splenic form.

In lymphatic leukæmia we may first notice enlargement of the glands. Palpitation of the heart, shortness of breath, pallor and gastro-intestinal symptoms sometimes precede the onset. Cases are reported of fatal hemorrhage before pro-

*Read before the Southern Minnesota Medical Society, August 4, 1898.

nounced symptoms were manifested. On examining the blood we shall find a large increase in the white cells. The ratio of white to red may be 1 to 10 or more. Sometimes the white cells exceed the number of the red. The pulse is rapid and compressible. There are seldom cardiac symptoms, except palpitation. Where there is much enlargement of the spleen, the heart may be lifted upwards and otherwise displaced. Œdema of the feet and legs usually occurs early where there is much enlargement of the spleen. In the late stages of the disease we may have

CUT NO. 1.

general anasarca and dropsy, caused by pressure of the tumor on the large vessels. Epistaxis is the most common of hemorrhages that occur in this disease. We may have severe pain in the tumor, which is very sensitive to pressure; ringing in the ears is common and very annoying to the patient. The nervous system is not usually involved.

TREATMENT.

Many drugs have been recommended for the treatment of this disease, but those thought to be of most value by our best authorities are arsenic and iron, internally, and the local applications of mercury.

Dr. Page, of New York city, recommends and uses in the early stages mercurial plaster over the spleen and arsenic internally.

HISTORY OF THE CASE.

Mrs. C., a widow, American, age 45 years, was taken sick during the summer of 1893. Complained of being tired and weak, loss of appetite, etc. In February, 1894, the patient applied at St. Mary's Hospital, Rochester, for operation on hemorrhoids. It was at this time that enlargement of the spleen was made out by Dr. W. J. Mayo, and on examining the blood the diagnosis of leukæmia was made. After the patient was discharged from the hospital she got along without much suffering until September of the same year, when I was called to see her, and found her suffering with severe pains in the tumor and stomach, which lasted the greater part of September and October, and could only be relieved by the use of morphine. At this time the spleen was very much enlarged and firm, extending very near the medium line on a level with the umbilicus. Her temperature at this time was 98° to 100° (F.) and the pulse 100; this continued about the same throughout her sickness. After this attack she got along very well, with the exception of occasional pains in the spleen, until April, 1895, when she was again taken with pain in the tumor and diarrhœa, which lasted about one week.

From this time until April, 1897, I was only called to see her a few times. On April 21 I drew off a large pail of fluid, which gave her considerable relief for some time, when it recurred, and I did not feel safe in repeating the operation, owing to the difficulty and danger attending it, as it could only be accomplished by lifting the spleen upwards and forward and passing the trochar in behind it.

At this time the spleen extended about three inches to the right of the median line and down to the pubes, very hard and smooth. In September, 1897, she was advised by friends to visit the "Divine Healer" at Chicago, but after three weeks of treatment his "divine" power failed to reduce the size of the tumor, and she returned home.

Cut No. 1 shows two large carbuncles which I corrected by incision, causing a slough of six inches square.

Cut No. 2 is a side view, showing the marked degree of emaciation and the size of the abdomen, which measured 28 inches from the ensiform cartilage to the pubes and 56 inches in circumference. The tumor was estimated to weigh between 50 and 60 pounds. Soon after

these pictures were taken, anasarca and dropsy developed and the patient died on Feb. 6, 1898, after an illness extending over five years. I was unable to get the consent of the family to have an autopsy, but after drawing off the fluid I could make out a very large liver and the spleen diminished in size about one-third.

CUT NO. 2.

There are several points of interest in this case:

The duration of the sickness.
The size of the spleen.
The enlargement of the lymphatic glands.
No hemorrhages, except late, and then slight.
The marked degree of emaciation.

A study of sixty-one cases of locomotorataxia in the Colorado Sanitarium, by Dr. W. H. Riley, showed the knee-jerk absent in 55, severe paroxysms of pain present in 54, atoxia in locomotion (with eyes closed) in 54, various paræsthesia, numbness, pricking, etc., in 53, and the girdle sensation in 39.

HOSPITAL AND CLINICAL MEMORANDA.

A CASE OF MYXŒDEMA.*

This case came under my observation at the City Dispensary. She does not present all the symptoms described in a typical case of myxœdema. She complains of pain on the right side; she is tired; does not feel like makng physical effort; is nervous and apprehensive, and has bad dreams. She says she is always cold and does not perspire. Most of the typical cases do not perspire at all. She has frequent urination and is unable to control it; appetite is fair and bowels fairly regular.

Examination will reveal a large deposit all over her body; it shows in her face, her lips are thick and you will also notice her hands are tremendously enlarged. The ankles are very large but there is no pitting upon pressure. The urine shows no albumen at all, no casts, and the specific gravity is normal. Her eyes are expressionless, sheepy, looking as if she were sleepy all the time. Her skin is thickened as you can demonstrate for yourselves by pinching a portion of it between the thumb and finger; her hair has fallen out which is also typical. The temperature is normal, and although I have taken it several times I have not been able to find it subnormal. In most of the reported cases the temperature has been subnormal.

The ears are thoroughly characteristic and feel like cartiliges.

I have refrained from putting her on full treatment, but during the past three weeks she has been taking three five grain tablets daily of P. D. & Co's. thyroid extract, but up to the present time there has been no appreciable improvement

W. R. Ramsey, M. D.

The Albion, St. Paul.

Koplik describes as a pathognomic sign of measles an eruption which appears from seventy-two to twenty-four hours before the outbreak of the exanthem of the skin, and consists of minute bluish-white specks, surrounded by a reddish area upon the mucous membrane of the cheek and lips. These minute specks are but slightly attached to the mucous membrane, and may be rubbed off if the mouth has been washed.

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Northwestern Lancet.

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POISONOUS PLANTS.

The damage to life and property in the form of the domestic animals from eating poisonous plants is a matter little regarded in this country, and yet one well deserving attention, because an increase in popular knowledge of the subject would result in a considerable saving to the community. Ordinarily the poisonous plants of a neighborhood are looked upon as rarities not likely to be met with, and it is only when a systematic study is made of them and they are collected together for description in one book that it becomes possible to realize the extent of the danger to which all are exposed.

These observations were suggested by the perusal of a recent report made by the Division of Botany in the United States Department of Agriculture, entitled "Principal Poisonous Plants of the United States." The report is made by Mr. V. K. Chesnut, who was commissioned some three years ago to investigate the subject. This was done through a newspaper clipping bureau which furnished accounts of all cases of poisoning reported in the press; these cases were investigated and when possible specimens of the poisonous plants were secured and direct reports of the symptoms and treatment obtained from attending physicians. About fifty plants are included in the list and these cover the principal poisonous varieties. The report on each plant gives its various names, scientific and common, and describes simply its botanical characters, habitat, poisonous properties, the symptoms produced, gives the antidote, if any, and the proper treatment. Most of the plants described are illustrated by original sketches from specimens. The pamphlet is thus admirably adapted for its purpose, that is to put people on their guard against this form of poisoning.

The most dangerous plants to human life are undoubtedly the poisonous mushrooms or toadstools. The demand for this article of food is growing rapidly and with increased consumption of mushrooms will come an increase in the number of cases of poisoning. A single genus, the amanitas, furnishes practically all the fungi that have actually caused poisoning in this country. There are some twenty-five or thirty species of this genus, of which a few are edible, while at least one-third of the number are known to be poisonous. For mushroom pickers it is not enough to know the common kinds that are poisonous. As has been pointed out many times, no one should eat a mushroom without knowing that that particular kind is safe, and knowing it, too, not by its conformity to any general set of rules, but he must know it individually, just as he would know that he was picking whortleberries and not nightshade, or digging horseradish and not aconite root.

Most of the poisons enumerated in Mr. Chesnut's report are dangerous chiefly to cattle, but cases of poisoning by eating the plant itself were recorded of false hellebore or poke root, of the common wild cherry, the kernel of whose seed contains prussic acid, of the water hemlock, of the common hemlock, of the laurel, of the jimson weed and of the nightshades. This says nothing of the numerous cases of poisoning from the use of these and other plants medicinally, but in improper doses.

An interesting part of the subject is that which deals with plants that are poisonous to the skin when applied externally. The familiar example of this is the poison ivy; less common is the poison sumac or dogwood, while the poison oak is confined to the Pacific coast. It will be

surprising to many to learn that the lady's slipper or moccasin flower is poisonous in the same manner as ivy, though in less degree. The first suspicion of the poisonous character of this plant was aroused by Prof. H. H. Babcock, of Chicago, in 1875, but it was not possitively proved until an investigation was made in 1894 by Prof. D. T. MacDougal of the University of Minnesota. The poisonous properties of the plant are found to reside in the hairs covering the leaves and stem and containing an oil whose action is similar to that of the poison of ivy. Of the three common species of moccasin flower, the white with purple stripes, the large and the small yellow, all are poisonous, the first two in about half the individuals experimented upon and the last in a lesser degree. It is rather unfortunate that the flower that has been made the state flower of Minnesota by act of legislature, should have such unpleasant properties. The pamphlet states that no accidental cases of poisoning from the lady's slipper have been reported. This is no doubt due to the fact that all cases of poisoning ofter gathering flowers in the woods are attributed to contact with ivy, whether that plant was known to be encountered or not. A few years ago the writer observed several cases of dermatitis venenata on the hands of people who han just been gathering moccasin flowers and were quite sure they had not come into contact with ivy, but as the eruption is the same and there is no mention in the books that the lady's slipper is poisonous, the conclusion had to be that there had been unsuspected contact with ivy.

The latest study of the ivy shows that its irritant properties lie in an oil that is not volatile, contrary to the accepted belief. Mr. Chesnut suggests as a practical point that since the poison is an oil and therefore not mixable with water, after suspected contact with poison ivy the hands should be washed with alcohol. He further urges that the wholesale destruction of the plant should be undertaken by the proper public officials. This might be difficult to carry out thoroughly in some of the unsettled counties of a large state like Minnesota, but it is certain that the plant should not be allowed to grow within the limits of cities. Here in St. Paul, for instance, the poison ivy grows freely under the wooden steps that lead over Walnut street between Summit and Pleasant avenues, steps that are used daily by hundreds of people, some of whom have no doubt acquired there cases of ivy poison whose source was a mystery to the victims.

There is one plant not mentioned in Mr. Chesnut's pamphlet whose omission is surprising. This is the castor oil plant, much used as an ornament about houses, and producing a bean containing a violent irritant poison, that has more than once been reported to have caused alarming symptoms in children, who, with the inconsistency of their age, have voluntarily eaten in the bean that oil which has for children terrors second only to those of the parental rod.

A writer in the Indian Lancet, says that in inflammations involving the nasal and nasopharyngeal structures in which douches are employed, it must be remembered that the solution which is of the proper strength for the inflammation and diseased structures, may, after the relief of the condition present, by its prolonged continuation keep up exactly the condition which you aim to relieve. It is well to occasionally stop all treatment for a week or ten days.

NOTES.

NEW PUBLICATIONS.

Mr. W. B. Saunders, of Philadelphia, announces that he has made arrangements for the publication of the whole series of the "Lehmann Medicinische Handatlanten," several volumes of which have already been noticed in these columns. The Atlas of External Diseases of the Eye and the Atlas of Skin Diseases are in preparation and will be ready soon. The text of the atlases has been translated into nine languages and eleven publishers are engaged in bringing out the work, sharing among them the great expense of the plates, which accounts for the low price at which these books are offered.

Mr. Saunders has also issued among other works new editions of Da Costa's "Modern Surgery," MacFarland's "Pathogenic Bacteria," "An American Text-Book of Diseases of Children" and "An American Text-Book of Gynæcology." Works that will shortly appear from the publishing house are Vierordt's "Medical Diagnosis," fourth edition; Griffith's "Care of the Baby," Butler's "Materia Medica and Therapeutics," Stengel's "Text-Book of Pathology," "A Text-Book of Obstetrics," by Barton Cooke Hirst, and "The American Pocket Medical Dictionary." In January will appear "An American Text-Book of Diseases of the Eye, Ear, Nose and Throat"; also Church and Peterson's "Mental and Nervous Diseases."

SURGICAL CONVALESCENCE.

With Report of Blood Count in Twenty Cases.

By Stuart McGuire, M. D.,

Richmond, Va.

Professor of Principles of Surgery in the University College of Medicine; Surgeon to St. Luke's Hospital and the Virginia Hospital, Richmond, Va.

Several months ago I received a visit from an agent of the M. J. Breitenbach Company of New York, manufacturers of Gude's Pepto-Mangan, who stated that his firm was anxious for me to test their preparation on surgical cases and to publish the results. I agreed to do so, provided I be allowed to utilize the first twenty major cases on which I operated, and that this company supplied me with the drug and paid the cost of the necessary blood-counts.

I append a report of twenty cases. Eleven of them were private patients at St. Luke's hospital, and nine were clinic cases at the Virginia Hospital. The histories are taken from official records, augmented by the blood-counts made by Dr. M. D. Hoge, Jr., Professor of Pathology in the University College of Medicine.

When it is remembered that the patients were all confined to bed; that they were recovering from the effects of serious surgical operations; and that they were subjected to the depressing influence of hospital life, the average increase of red blood corpuscles is remarkable. Had the cases been selected, and only anæmic patients tested, the results would have been even showier.

Case I.—Miss E. G., aged 20; patient St. Luke's Hospital. Struck on back by windlass of well four months prior to admission. Laminectomy and removal of carious bone and clotted blood. Gave Gude's Pepto-Mangan 60 days. First count, 1,500,000 red corpuscles to the cubic millimetre. Second count, 3,300,000 to the cubic millimetre. Rapidly improving, and recovery assured.

Case II.—Mrs. M. K., aged 29; patient St. Luke's Hospital. Cystic disease of ovaries and chronic inflammation of appendix. Double Beattie-Tait, and appendectomy. Gave Gude's Pepto-Mangan 20 days. First count, 3,950,000 red corpuscles to the cubic millimetre. Second count, 4,000,000 to the cubic millimetre. Discharged well.

Case III.—Miss C. H., aged 22; patient St. Luke's Hospital. History of frequent attacks of hepatic colic —no jaundice. Opened the gall-gladder and removed a calculus one inch in diameter. Gave Gude's Pepto-Mangan 28 days. First count, 3,940,000 red corpuscles to the cubic millimetre. Second count, 3,900,000 to the cubic millimetre. Bile still escaping from fistula, but patient otherwise well.

Case IV.—Miss A. N., aged 32; patient St. Luke's Hospital. History of sudden peritonitis accompanied by profound sepsis. Exploratory incision revealed a pedunculated fibroid tumor of uterus, gangrenous from twisted pedicle. Myomectomy. Gave Gude's Pepto-Mangan 36 days. First count, 3,800,000 red corpuscles to cubic millimetre. Second count, 4,000,000 to the cubic millimetre. Good recovery.

Case V.—Miss E. J., aged 17. Patient St. Luke's Hospital. Spinal irritation from a fall. Anæmic, emaciated, and confined to bed for more than a year from contraction of ham-string muscles. Electricity, massage, and passive movements. Gave Gude's Pepto-Mangan 40 days. First count, 3,650,000 red corpuscles to the cubic millimetre. Second count, 4,425,000 to the cubic millimetre. Her menses, which had been suppressed, became regular. She fattened 20 pounds, and left the hospital walking with a cane.

Case VI.—Miss B. T., aged 21. Patient St. Luke's Hospital. Retroverted uterus, bound down by adhesions. Opened abdomen, freed organ, and stitched it to anterior abdominal wall. Gave Gude's Pepto-Mangan 30 days. First count, 3,900,000 red corpuscles to the cubic millimetre. Second count, 3,950,000 to the cubic millimetre. Complete relief from symptoms.

Case VII.—Master D. S. J., aged 9. Patient St. Luke's Hospital. Acute suppurative osteomyelitis of femur, tibia, and tarsus on one side and of tibia and tarsus on the other. Amputated one limb and used chisel and curette on the other. Gave Gude's Pepto-Mangan 45 days. First count, 3,720,000 red corpuscles to the cubic millimetre. Second count, 4,600,000 to the cubic millimetre. Patient discharged with well-healed stump, but incision in ankle still draining.

Case VIII.—Mrs. H. E. W., aged 48. Patient St. Luke's Hospital. Carcinoma of cervix; vaginal hysterectomy by clamp method. Had a bad liver and an irritable stomach, and though Pepto-Mangan was tried in varying doses and at different times during convalescence, she was never able to take it for more than a day or two consecutively. First count, 3,400,000 red corpuscles to the cubic millimetre. Second count not made. Case made a slow recovery, but is now well.

Case IX.—Master R. G., aged 14. Patient St. Luke's Hospital. Compound depressed fracture of skull from a three pound mass of type metal falling five stories. Trephined and removed blood clot and spiculæ of bone. Gave Gude's Pepto-Mangan 21 days. First count, 3,900,000 red corpuscles to the cubic millimetre. Second count, 3,800,000 to the cubic millimetre. The loss was less than anticipated, as the boy was injured while in vigorous health. Recovery rapid and complete.

Case X.—Miss A. E. S., aged 27. Patient St. Luke's Hospital. Indigestion, constipation, and dysmenarhœa. Rapid dilatation of cervix. Gave Gude's Pepto-Mangan 34 days. First count, 3,900,000 red blood corpuscles to the cubic millimetre. Second count, 4,400,000 to the cubic millimetre. Bowels became regular, menstruation painless, and strength and weight increased.

Case XI.—Mrs. W. A. M., aged 29. Patient St. Luke's Hospital. Symptoms of long-existing ovarian and uterine trouble, to which had recently been added those of inflammation of the appendix. On section, the uterus was found retroverted, the ovaries cystic, the appendix impacted and adherent, and the intestines filled with lumbricoids. The uterus was righted and stitched to the anterior abdominal wall, the ovaries and appendix removed, and later a brisk purgative expelled the worms. Gave Gude's Pepto-Mangan 18 days. First count, 4,200,000 red corpuscles to the cubic millimetre. Second count, 4,310,000 to the cubic millimetre. Recovery and complete relief from symptoms.

Case XII.—Mrs. L. A. W., aged 44. Patient Virginia Hospital. Carcinoma of breast, with extensive lym-

phatic involvement. Radical extirpation of disease. Gave Gude's Pepto-Mangan 10 days. First count, 4,500,000 red corpuscles to the cubic millimetre. Second count, 4,620,000 to the cubic millimetre. Case discharged in two weeks and not heard from since.

Case XIII.—Mrs. L. J., aged 25. Patient Virginia Hospital. Pyosalpinx following puerperal septicæmia. Opened abdomen, freed numerous intestinal adhesions, enucleated pus tubes, and removed uterus by Baer's method. Gave Gude's Pepto-Mangan 28 days. First count, 3,410,000 red corpuscles to the cubic millimetre. Second count, 4,100,000 to the cubic millimetre. Perfect recovery.

Case XIV.—Master J. F. S., aged 11. Patient Virginia Hospital. Tuberculosis of knee and femur, with secondary infection and profuse suppuration. Amputation. Gave Gude's Pepto-Mangan 24 days. First count, 4,005,000 red corpuscles to the cubic millimetre. Second count, 4,300,000 to the cubic millimetre. Rapid recovery and marked constitutional improvement.

Case XV.—Miss A. H., aged 25. Patient Virginia Hospital. Diseased ovaries and retroverted uterus. Double ovariotomy and ventro-suspension of uterus. Gave Gude's Pepto-Mangan 30 days. First count, 4,300,000 red corpuscles to the cubic millimetre. Second count, 4,200,000 to the cubic millimetre. Patient a hypochondriac and still complains.

Case XVI.—Mrs. E. B., aged 36. Patient Virginia Hospital. Cirsoid aneurism of scalp and forehead causing agonizing pain from involvement of orbit. Ligation of right common carotid artery. Gave Gude's Pepto-Mangan 16 days. First count, 4,400,000 red corpuscles to the cubic millimetre. Second count, 4,100,000 to the cubic millimetre. Force of pulsation diminished and pain completely relieved.

Case XVII.—Mr. P. S., aged 51. Patient Virginia Hospital. Suppurative osteomyelitis of tibia. Amputation of limb. Gave Gude's Pepto-Mangan 28 days. First count, 3,400,000 red corpuscles to the cubic millimetre. Second count, 3,700,000 to the cubic millimetre. Recovery, with marked improvement in general health.

Case XVIII.—Miss N. C., aged 30. Patient Virginia Hospital. Rapidly growing fibroid tumor of uterus. Complete hysterectomy and removal of mass weighing forty pounds. Gave Gude's Pepto-Mangan 30 days. First count, 3,700,000 red corpuscles to the cubic millimetre. Second count, 3,750,000 to the cubic millimetre. Intercurrent attack of pneumonia, which retarded recovery and interfered with the regular administration of medicine.

Case XIX.—Mrs. S. S., aged 50. Patient Virginia Hospital. Carcinoma of breast. Amputated organ and dissected out adjacent lymphatic glands. Gave Gude's Pepto-Mangan 10 days. First count, 4,200,000 red corpuscles to the cubic millimetre. Second count, 4,250,000 to the cubic millimetre. No report from case since discharge.

Case XX.—Mrs. S. J., aged 31. Patient Virginia Hospital. History of three acute attacks of appendicitis. Thin, anæmic, and nervous. Appendectomy. Gave Gude's Pepto-Mangan 26 days. First count, 2,644,000 red corpuscles to the cubic millimetre. Second count, 3,950,000 to the cubic millimetre. Gained fifteen or twenty pounds in weight and is completely well.—Virginia Medical Journal.

Acute Inflammation of the Prostate Gland.

The Journal of the American Medical Association, for August 20th, contains a report on inflammation of the prostate gland, which was presented to The Section of Surgery and Anatomy at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898, by Liston Homer Montgomery, M. D., of Chicago, Ill. His plan of treatment in acute inflammation of the prostate gland is to wash out the abscess cavity with hydrogen peroxide give copious hot water enemata and hot hip baths frequently, avoid morphine internally and advise care lest the patient strain at stool during micturition. On the theory that toxins are retained in the circulation and within the gland, and to prevent degeneration in the gland substance, he administers triticum repens or fluid extract tritipalm freely, combined with gum arabic or flaxseed infusion. Along with these remedies the mineral waters, particularly Vichy with citrate of potash, go well together. Hydrate of chloral or this salt combined with antikamnia are the very best anodyne remedies to control pain and spasms of the neck of the bladder. These pharmacologic or medicinal remedies are the most logical to use in his judgment, while externally, applications of an unction of 10 or 20 per cent iodoform, lanoline, as well as of mercury, are also of value.

Sanmetto in Genito-Urinary Diseases. Substitution.

I have prescribed Sanmetto with much satisfaction in diseases of the genito-urinary organs —with marked benefit in prostatic troubles of old men, and in different kinds of urethral inflammation, even in gonorrhœa. It is certainly an excellent vitalizing tonic to the reproductive system. I am using original packages, except very rarely in small quantity, and then I am absolutely sure that no substitution is practised, as I see to it with my own eyes, if necessary, that the genuine article is gotten by my patients. I have an honest registered pharmacist, though, and have little apprehension as to him. The subject of substitution, so largely practiced, is one of preëminent importance, and needs to be watched by all physicians with both eyes.

Joseph W. Robb, M. D.

Russell, Kan.

An All-Round Uterine Tonic.

I have found Dioviburnia prepared by the Dios Chemical Co., of St. Louis, to meet the most exacting requirements of a general all-round uterine tonic, and know of no other preparation on the market to fill all the requirements so well. I have used it in a case of chronic uterine trouble following a miscarriage in which

the patient, a multipara past forty years of age, had been a suffer of uterine trouble over fifteen years Countless other remedies had been tried until the patient almost despaired of recovery and was about to undergo an operation when Dioviburnia was tried, acting almost like magic. I have found it equally satisfactory in several other cases of chronic uterine trouble, and find it where given a fair trial, an invaluable assistant.

Thos. J. Arundel, M. D.

202 N. Fruit St., Youngstown, O.

Improvements in Artificial Limbs.

We wish to call our readers' attention to the scientific improvement made in artificial limbs during the past few years by the Winkley Artificial Limb Company of Minneapolis, Minnesota. The special feature of the artificial leg they manufacture is the patent adjustable slip socket, of which the inner is made over a plaster cast of the stump and therefore fits the stump perfectly. This inner socket works up and down in an outer socket, bringing all the friction and chafing between the two sockets instead of between the socket and the stump and relieves the stump of all chafing and irritation. The sockets are adjustable so that they can be enlarged or taken up to meet the changed condition of the stump. The Winkley Company is one of the oldest and largest establishments of its kind in the United States, the success of which is attributable to their years of experience, anatomical knowledge, mechanical skill and ingenuity.

Good Hunting Grounds.

No doubt many readers of the Lancet who take an annual outing in the shooting season, are asking for, not only good, but the best shooting grounds easily accessible from the Twin Cities. After inquiry among men who have means of knowing, we can confidently say the very best duck and goose shooting is to be found along the western division of the "Soo" railway; and we also know that no other road gives so much attention to this class of patrons. The man who is going after game, especially if he is going into new fields, has many questions to ask; and, unfortunately, many railway officials take little pains to post themselves so as to be able to answer such questions. It is not so with the "Soo Line" officials, and we commend them to any of our readers who want to know all about the fishing and shooting on that line, east or west.

Tuberculosis of the Lungs.

Dr. Landon B. Edwards, Professor of Practice of Medicine, University College of Medicine, Richmond, Virginia, reports in Volume 53, No. 15, New York Medical Record, 35 cases of tuberculosis of the lungs treated by serum with 11 total recoveries, and by recovery he means, disappearance of bacilli, healthy respiratory action, chest expansion increased from one to two and a half inches, flesh increased to normal, and that the patients look well and according to physical signs and symptoms are well. He notes other patients improving and states that the record is greatly better than he ever obtained with any other treatment than serum; that he had used no other serum than Paquin's of St. Louis.

Sanmetto.

I have been using Sanmetto for the past three years in my practice. Have prescribed it in chronic cases of irritable bladder, urethral canal, irritable and enlarged prostate gland, sexual perversion, dropsy and cystitis. I have found, and know it to be an excellent remedy for all the above named diseases. I am more than pleased with Sanmetto. Every physician should be made acquainted with Sanmetto.

J. P. Hawkins, M. D.

Avondale, Ala.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology and Lecturer on the History of Medicine in the University of Minnesota.

St. Paul.

(Continued from LANCET of Oct. 1.)

Of the many influences which have contributed to the tremendous intellectual and material progress of the present century, it is difficult, if not impossible, to declare which has been the most important to knowledge in general, or to which medicine owes the most. Among the greatest of popular benefits we must place the general enlightenment of the people by the diffusion of knowledge and the extension of education made possible by the common school system. The result of the general adoption of this system by which education is offered to all the people, instead of being confined to a comparatively few, has been of course, an enormous increase in the number of intellectual workers in all departments of knowledge. The improvements in the art of printing and the general freedom of the press which has produced everywhere such enormous numbers of newspapers, magazines and books, and placed them within the reach of the poorest people: the increased facilities for rapid and cheap communication between all parts of the world, so that all new knowledge instead of remaining local for a considerable time, becomes at once the property of the whole world, have brought about a condition of intellectual equality among the great nations of civilization, a condition which is particularly apparent in regard to scientific affairs. Speaking broadly we may say that medical and surgical practice today is the same in all civilized countries, modified of course, by peculiar local conditions and circumstances. A striking exemplification of this fact is seen in the great international Congresses of Physicians and Surgeons, at which representatives of all nations assemble to discuss matters pertaining to our profession.

Chief among the predominating elements of the rapid medical progress of our century, we may mention the development of the study of pathology, both gross and microscopic and especially the study of the microörganisms of disease. To the latter we are indebted for asepsis in surgery, and for the germ theory of contagious and infectious diseases and for the still undeveloped principles of serum therapy.

The remarkable advance in all the natural sciences have given immense contributions to medicine, both in regard to diagnosis and treatment, and the mechanical arts have given us many instruments of diagnostic precision and innumerable surgical appliances and instruments. The growth and development of medical journalism and the multiplication of medical societies have been of great value to the improvement of medical practice and to the general progress of the science of medicine, although there is, especially in this century, a tendency to over development in these directions, which is unfortunate. The same may be said of medical education, which at the present time is overstocking an already crowded profession, and in many cases the education of those who have been given the degree of M. D. is most superficial and insufficient.

We have already mentioned, although briefly, most of the distinguished physicians and surgeons who were conspciuous during the first part of this century, but there remain a few whose achievements seem worthy of a more extensive notice.

There are few names which shine more brilliantly in the history of surgery, than that of Sir Astley Cooper, and although he died more than fifty years ago, his name is still a familiar one in every medical school. Astley Cooper was the son of a clergyman and was born in Norfolk county, England, in 1768. At the age of sixteen he went to London to study medicine with his uncle William Cooper, who was a well known surgeon of Guy's Hospital. He afterwards became apprentice to Mr. Cline, also surgeon of Guy's Hospital and for several years devoted himself to the study of anatomy and in 1781 he was made Demonstrator of Anatomy in St. Thomas's Hospital, and two years later he divided the course of anatomical lectures at the same hospital with Mr. Cline, and shortly afterwards he established a new course of lectures on surgery. In 1792 he spent several months at the Hospital of Paris, and was present during the most exciting events of the French revolution.

After his return to England he continued his lectures on anatomy and surgery and began the practice of his profession. He was from the first extremely popular as a lecturer, but his private practice, which afterwards became so extensive and lucrative was for several years quite limited. His first year of practice brought him five guineas. His fame as a surgeon gradually increased and from 1800 to 1815 his practice grew

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

rapidly larger until it reached in the latter year upwards of £20,000, and for the remainder of his life he is said to have earned from 15,000 to 20,000 pounds a year. In 1820 he became surgeon to George III. and was by him created a baronet. He was afterwards surgeon to William IV., and to Queen Victoria. Cooper's success as a practitioner was due partly to his ability as a surgeon and to his tremendous capacity for work, and partly to his attractive personality and his great popularity among all classes of people. He was idolized by his pupils and the enormous number of students whom he helped to educate contributed greatly to his consultation practice. As an instance of his boldness as an operator we may record that he was the first to tie the abdominal aorta which he did in 1817. His chief surgical works were "The Principles and Practice of Surgery," "The Anatomy and Diseases of the Breast" and his book on "Dislocations and Fractures." Cooper died in 1841 at the age of 73, and continued in active practice up to a few months before his death. He will always be considered as among the greatest and most successful of English surgeons. Cooper is described by his contemporaries as having been, in his old age one of the grandest looking men of his time. Tall, erect, broad and of magnificent physique, with a face marked with benevolence and kindness.

Although his professional income was enormous he continued throughout his life to attend many poor people for nothing. In regard to his fees he was in the habit of accepting whatever was offered to him, and that he was not always the loser by this custom the following anecdote will show. In 1813 he operated for stone upon a rich and eccentric West India merchant, Mr. Hyatt. When making his last visit as he rose to leave the room, the patient who was sitting near the fire, took off his night cap and threw it at him, saying: "There young man, put that in your pocket. Cooper readily perceived the joke and slipping his hand into the cap, took out a paper and threw back the cap remarking that he would not deprive his patient of so useful an article. The paper proved to be a check for 1,000 guineas, said to have been the largest fee up to that time ever paid for a surgical operation. Astley Cooper's nephew and pupil, Frederick Tyrrell was a skillful operator, and was especially known as an ophthalmic surgeon and besides editing Cooper's lectures on surgery was himself the author of a well-known treatise on "Diseases of the Eye." A contemporary and warm friend of Cooper's and also a celebrated surgeon, was Sir Benjamin Brodie, chief surgeon to St. George's Hospital. He wrote a work on diseases of the joints, which is still consulted and which was long considered the best work on this subject. George James Guthrie was a celebrated military surgeon and was to Wellington what Baron Larrey was to Napoleon. He was also well known as a teacher and an author. The names of Timothy Holmes and Thomas Bryant are familiar in connection with their great text books on surgery, still used in many medical schools.

One of Guy's most noted surgeons and teachers was Charles Aston Key, born in 1793. He began to study medicine in 1812 and became apprenticed to Sir Astley Cooper in 1814. In 1820 he succeeded Mr. Cline as lecturer on anatomy, was appointed assistant surgeon at Guy's in 1821 and three years later full surgeon. He became one of the most distinguished surgeons of his time, especially famous for his rapidity, dexterity and grace as an operator. In 1845 he was made a councellor of the College of Surgeons and in 1847 he was made surgeon to Prince Albert. One of his earliest major operations was cutting down between the great vessels of the neck to reach an abscess which he had diagnosed in the wall of the pharynx, which he succeeded in opening and thus cured his patient. He was the first in London to successfully ligate the subclavian artery for an axillary aneurism. As an instance of his skill as a lithotomist the following story is related of him: The famous French surgeon Dupuytren had been visiting Sir Astley Cooper and just before returning home he expressed his disappointment with the operations he had witnessed as not being up to the reputation of English surgery abroad. Sir Astley expressed his regret that he should leave with such an impression and it being operating day at Guy's asked him to accompany him there in hopes that something might turn up to modify the views of his guest. On reaching the hospital they met Key, then a young surgeon, on the steps and on enquiring were told that there was not anything very particular but that he had a couple of cases of lithotomy. When the time arrived the first patient, who had been fully prepared by the dressers in the ward, was brought in and the stone quickly placed in Dupuytren's hand. As the patient was removed, the second was quickly brought in. Meanwhile Dupuytren asked for a chair, and as there was a little delay in bringing it from the adjoining ward and getting it through the crowds, the second stone was given to him, whereupon with all the enthusiasm of a Frenchman he broke out with "Mon Dieu, I have seen operations in every part of Europe, but I have never seen any to compare with what I have seen today." Of course he spoke in French.

Key's practice was enormous and it is said that under the income tax his was one of the two largest medical incomes in the United Kingdom.

He died of cholera during the epidemic of 1849, at the age of 65.

A very famous English physician of the first half of this century, whose name is familiar to all medical men and is even more commonly used by persons other than physicians, was Dr. Richard Bright.

Dr. Bright commenced the study of medicine by entering the University of Edinburgh in 1808 In 1810, in company with Dr. Holland, he went with Sir George Mackenzie in his journey through Iceland, contributing valuable notes. On his return he for two years commenced his clinical work at Guy's Hospital and at once developed a taste for pathology and post mortem observation. He then returned to Edinburgh, graduating in 1813. In 1816 he became a licentiate of the Royal College of Physicians and the same year assistant physician to the London Fever Hospital, which he gave up on becoming in 1820 assistant physician to Guy's. In 1821 he became a Fellow of the Royal Society, in 1824 full physician at Guy's and began to lecture on medicine with Dr. Cholmeley and afterwards with Dr. Addison. In 1827 his famous "Reports of Medical Cases" came out in three volumes, with beautifully colored plates painted by hand and embracing liver, brain and kidney disease. This was too expensive a work for republication and consequently is very rare. He treated also of the diseases of the kidney in the Gulstonian Lectures in 1832, having been elected a Fellow of the College of Physicians in 1832. He resigned in 1843 and died in 1858. Dr. Bright was below middle height and somewhat stout, calm and placid in demeanor and entirely free from self-assertion or any appearance of conscious superiority. He was kindness itself to the poor patients under his charge, and as he progressed in his investigations freely communicated all his views to the students around him. Dr. Barlow says of him: "What one is struck with in reading Bright's writings is, that his powers of observation were almost phenomenal, for, as most men find it easier to theorize than to see facts, Bright's mind was peculiar in his ability to photograph objects without altogether seeing their meaning. Thus in persuing his great work there is nothing to indicate Bright attached more importance to his cases of disease of the kidney than to those of the brain or other organs." Yet it was said that previous to his discoveries we knew no more of kidney disease than was known in the time of Celsus. Alluding to his quiet and unostentatious manners Sir Astley said of him, that though the students might not give him credit for having a very large practice, he had in fact the most aristocratic practice in the kingdom. He was the family physician of the Duke of Wellington and was with the old hero in his last moments, was Physician Extraordinary to the Queen, and on the continent was regarded as the foremost physician in England. On resigning his post as physician at Guy's he was made consulting physician, so that the institution did not lose altogether the benefit of his services. Although highly cultivated and an able lecturer he never could make a speech on ordinary occasions. He was a man of remarkably even temper and cheerful disposition, sincerely religious and in every relation of life one of the most lovable of men.

A contemporary of Bright's and joint lecturer with him was Dr. Thomas Addison, an Edinburgh graduate. Addison was a fluent and original lecturer and was a great favorite with the students, his lecturers and clinics being the most popular of his time. For nearly forty years he remained one of the most conspicuous figures at the medical school of Guy's Hospital. Addison's writings were not numerous although he advanced in several monographs some views that were distinctly original, concerning the pathology of tuberculosis. He is best remembered on account of the diseased condition of the suprarenal capsule which he first described and which is known as Addison's disease.

Germany, many of whose surgeons are today the most eminent of the world, was not conspicuous in this department during the first part of the century. A few great German surgeons, however, were justly renowned. Vincenz Von Kern of Graz, afterwards of Vienna was one of the first to bring the Vienna school into prominence; and was an operator and a teacher of extraordinary ability.

Langenbeck of Hanover was a bold and original surgeon and an active writer.

Carl Ferdinand von Graefe of Warsaw was a professor in Berlin, a celebrated and scientific ophthalmic surgeon and also the originator of many ingenious plastic operations.

Another world famous and brilliant German surgeon of the first part of the century was Dieffenbach, a professor in Berlin, a tireless and enthusiastic student of surgery and a celebrated teacher, attracting by his reputation many students to Berlin. Like Von Graefe he was enthusiastic on the subject of plastic surgery and was a brilliant ophthalmic surgeon.

I have given thus briefly an account of some of the most eminent medical men of the first half of the nineteenth century, but as their history is still recent I have not attempted any detailed description of their work. The history of the nineteenth century should not be written until the twentieth. Of the medicine and surgery of today I shall not speak in detail, as we are dealing with the past and not the present of our profession. That which more than anything else

has made modern surgery what it is, that which has absolutely revolutionized its practice, so that many of its present possibilities were scarcely dreamed of by the great surgeons of the past, the discovery of anæsthesia, has already become history and a detailed account of this great discovery will not, I think, be out of place.

On the sixteenth of October, 1846, in the amphitheatre of the Massachusetts General Hospital in Boston, there were assembled an unusually large number of the medical students and physicians of the city, for it was public operating day, and it had been whispered abroad that a wonderful experiment was going to be made; that a patient was to undergo a severe operation while in a state of artificially produced sleep; sleep so profound that no pain could disturb it. We can imagine the sensation which such a rumor must have produced. Fortunately we can, none of us, remember the horrors of surgery before that time; when patients were often dragged, shrieking with fear, to the operating table, and there were strapped down to undergo the torture of the surgeon's knife. No wonder, then, that there was an eager throng of men to witness the beginning of the end of painful surgery. I do not suppose, however, that a single person of all who were present on that occasion, fully realized what the events of that day were destined to bring forth, to the glory of surgery and to the happiness of mankind. In that same amphitheatre, the very sponge from which ether was first inhaled is carefully preserved in a glass case, and is regarded as the most precious historical relic of that venerable institution. In that same amphitheatre there were gathered together, 50 years later a great assemblage of physicians, students of medicine and citizens, to rehearse the story of the birth of anæsthesia, and to do honor to the memory of those who gave it to the world, and who robbed surgery of its greatest terror and maternity of its pain.

Before describing what took place in that historical old amphitheatre that day it will, perhaps, be interesting to look backwards a little farther and to scan somewhat hastily the events which led up to this, the grandest discovery in the whole history of medicine. From the very earliest times of which we have any record men sought to produce an insensibility which would conquer pain. The accessible literature of the ancient Greeks, the Egyptians, the Scythians, the Assyrians, and even of the Chinese all record attempts, some of them more or less successful, to dull sensibility by the use of drugs.

Mandragora, a drug now obsolete and its very nature almost unknown, is mentioned in Grecian literature as capable of producing an insensibility which would permit even of a painless amputation. It has been suggested that it was this very drug which Shakespeare had in mind when he makes Friar Laurence prescribe a sleeping draught for Juliet, and tell her that:

> "Presently, through all thy veins, shall run
> A cold and drowsy humor which shall seize
> Each vital spirit; for no pulse shall keep
> His natural progress, but surcease to beat.
> No warmth, no breath shall testify thou livest;
> The roses in thy lips and cheeks shall fade
> To paly ashes; thy eyes' windows fall,
> Like death when he shuts up the day of Life.
> And in this borrowed likeness of shrunk Death
> Thou shalt continue two and forty hours!"

One of the early Italian surgeons, Theodoric, who lived in Dante's time, practised the inhalation of some vapor from a sponge saturated with a mixture of opium, hyoscyamus, hemlock and lettuce to produce insensibility. It has also been recorded that an Italian of the thirteenth century produced an aqua ardens from red wine and common salt, which, being inhaled, would induce a heavy sleep. We may also read in ancient medical writing of attempts to produce local insensibility by mechanical means, such as the compression of nerves, and by freezing the surface of the body. It was not, however, until the end of the last century that the first suggestion of modern anæsthesia was made by the experiments of Humphrey Davy, in England, with nitrous oxide gas. The chemical and physiological properties of sulphuric ether began to be somewhat vaguely known at about the same time.

(To be continued.)

ORIGINAL ARTICLES.

AN INQUIRY INTO THE POSSIBILITIES OF ARTIFICIAL IMMUNITY.

By David Owen Thomas, M. D., M. R. C. S.

Minneapolis.

Artificial immunity undoubtedly is the most important medical problem today, both clinically and microscopically. The practitioner who does not know its present importance and still greater possibilities is more of a back number than the physician who doubted fifteen years ago that bacteria were in any way accountable for disease.

In this short paper I shall not attempt to detail the results of experiments, nor give the statistics of recoveries by means of serum ther-

* Read in the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 15, 1898.

apy, but shall deal practically with the nature of artificial immunity and discuss the question to what extent will its practice displace the present medical and surgical mode of treatment.

The aim of medical treatment is to restore health, a condition analogous to temporary immunity. In dealing with acute diseases the tendency of modern treatment is to employ either antiseptic remedies or the methods of artificial immunity. In these clinical measures we unconsciously imitate laboratory methods, for nearly all acute diseases are treated with germicides, and the remedy which enjoys the best laboratory record often becomes suddenly unaccountably popular. In the treatment of diphtheria, for instance, before the discovery of antitoxin, some of our best men used bichloride of mercury internally as well as locally. In the treatment of tuberculosis it is customary even now to use iodine, creosote, guaiacol, etc. What is the theory underlying this plan of treatment? Is it not the false hope of performing internal or constitutional disinfection, for some authors recommend the administration of the remedies in such a manner as to "saturate" the patient as quickly as possible. The use of creosote and guaiacol in pulmonary tuberculosis has failed to convince me that their therapeutic action is in any way disinfective or of more than doubtful efficacy. The failure may have been perhaps because I did not weigh my patients and compute what quantity of either drug would be necessary to saturate their tissue fluids or convert their serum into an efficient germicide.

In like manner the treatment of typhoid fever, cholera infantum and other diseases of the alimentary tract is conducted on the antiseptic plan, and germicides are used which are expected to combine with the intestinal juices to form antiseptic solutions; but their action often is disappointing, and the final treatment conducted largely on the supportive and symptomatic plan. After all, when we are recommended to "saturate the blood," or to bring about "intestinal antisepsis" the question naturally arises, do we act upon the fluids of the body or upon the secreting glands and cellular tissues? The internal administration of bichloride of mercury in diphtheria, whether it has any remedial value or not, surely does not act as a germicide, for it is known that the symptoms are due mainly to toxins which circulate in the blood, and that at first the microörganisms which cause the disease are few in number and found mainly in the neighborhood of the tonsils.

We also give mercurials in syphilis, but does anyone imagine that curative processes are not begun until we saturate the body fluids of our patient to a certain germicidal percentage? If the internal administration of mercury, iodine or creosote is not attended by any rational theory we cannot wholly disparage the action of such remedies, for the use of mercury in syphilis is certainly curative, but we must reserve the explanation of its action until we express our views on the question of immunity. A therapeutic remedy administered internally may be curative without producing constitutional disinfection, for even diphtheria antitoxin is not a germicide. Antitoxin is neither a chemical reagent nor a germicide, for it is known that microörganisms will multiply in it, and retain their virulency, as proved by removing the antitoxin.

It is not my purpose to repeat the various theories of imunity which have been put forth and again overthrown from Pasteur to Behring. It has not been possible to advance a theory of immunity that will satisfy all phenomena, but this is not surprising, for as yet the chemical formulæ of "tox albumins" and antitoxins have not been made out. But enough is known perhaps to predict the importance of the subject and the extent to which success may be possible. It is not easy to over-estimate the importance of this subject, for nearly three- fourths of all diseases are acute or infectious. Yet it would be unwarranted to expect cure by artificial immunity in all of these. Since diphtheria antitoxin has reduced the mortality of the disease about 49 per cent. we anticipate favorable results to follow the serum treatment of other acute diseases. Our present inquiry is in which diseases will it succeed?

The value of artificial immunity must be estimated from its use both as a preventative and curative measure, as a temporary and permanent immunity. The durability of artificial immunity as applied to each special disease depends upon the natural behavior of the toxins of that special disease. We find that in some diseases, such as the exanthemata, one attack generally confers life long immunity. In other diseases, such as erysipelas, rheumatic fever and cholera, the immunity is only of temporary duration, while in a third class, containing diseases of life long duration, such as leprosy, tuberculosis and lupus, there is no immunity at all. The lesson gathered from this observation is this, that artificial immunity is expected only in diseases with sudden onset and powerful toxins, and that the duration of the artificial immunity is determined by the natural immunity of that special disease. For instance, acquired immunity in diphtheria is believed to be of about six weeks duration, consequently on exposure a recurrent attack may occur any time after that period. In like manner artificial immunity brought about by antitoxin is of similar duration. It is believed that the presence of disease develops a protective principle in every person before acquired immunity takes place. In some diseases, like influenza and rheumatic fever this immunity may

be very unstable and transient. If we ever shall be able to produce an influenza antitoxin, all that can be expected of it will be to make the patient well, rather than to keep him well.

In diseases in which the microbes are old and degenerate, as in lupus or leprosy, the toxins are too feeble to stimulate the tissues to react and produce a protecting serum, consequently it is doubtful if artificial immunity can ever take place in diseases essentially chronic. For this reason it is questionable if artificial immunity can ever be established in tuberculosis unless the bacilli are rendered more virulent and the toxins more powerful, a condition which possibly prevails in some cases of acute tuberculosis. Acquired immunity rarely occurs in tuberculosis, and when established probably is very different from that of diphtheria or tetanus. It must be remembered that the pathology of tuberculosis is very different from that of these diseases, for whereas few fixed bacilli are found at first near the seat of infection in diphtheria and tetanus, giving rise to very virulent toxins, in tuberculosis, on the other hand, the bacilli are very numerous and their toxic products more benign, but their presence stimulates cell proliferation, and the tubercular infiltration from tubercle tissue, which finally impedes the vascular circulation of the part, giving rise to necrosis and a cavity.

In diphtheria and tetanus the symptoms are mainly those of toxæmia, and their respective antitoxins are effective by counteracting the toxic products. But in pulmonary tuberculosis we need an agent which will both counteract the toxins and retard the growth of the bacilli. It may be asked, does not artificial immunity imply the destruction of microörganisms as well as the elimination of their toxins? Ultimate immunity certainly implies freedom from bacteria and their products, but the application of antitoxin to microörganisms in a test tube is not strictly germicidal. However, laboratory experiments in immunity do not always agree with clinical observations. Even if antitoxin is not strictly a germicide, it is fair to infer that its administration to a patient stimulates certain tissues to secrete a germicidal fluid, for it has been clinically observed that the pathogenic microbes of diphtheria and pneumonia disappear during convalescence. The theory of phagocytosis implied that bacilli incorporated in leucoytes are destroyed. But now it is further conceded that free microörganisms as well as those intracellularly imbedded disappear during convalesence in such diseases as erysipelas. I am inclined to believe that phagocytes cause the microörganisms to disappear not by mechanical pressure, or any chemical action, but by secreting a fluid (agglutins) which digests them. That tissue fluids possess a digestive action is certain for catgut sutures imbedded in wounds undergo digestive maceration and absorption, as if left in the stomach.

In this view antitoxin itself is instrumental only in calling into action a protective fluid which renders an animal or a patient immune, a fluid possessing the power of conferring similar immunity on another animal or person similarly treated. The action of attenuated toxins administered in gradually increasing doses, as well as in the milder attacks of disease, is to stimulate the cellular tissues to secrete a digestive or attenuating fluid which confers temporary or permanent immunity according to the stimulating impulse, and the pyrexia which attends disease is an evidence of reaction rather than of toxæmia. But if the toxins are strong or concentrated in a localized area, or if there is an impairment of function, the poisoned cells fail to react, and owing to their lethal condition partake of the paralysis which overwhelms the nerve centers and brings about the death of the subject. Acquired immunity on the part of the cells concerned implies tolerance to continue their normal physiological functions, and a power to respond to the extraneous stimulus which will arrest, change and remove toxins whether they be due to vegetable alkaloids, snake venom or microörganisms.

It might be expected that if acquired immunity is the result of a special digestive process, that one kind of antitoxin might prove effective against all varieties of "toxalbumins," as one form of pepsin digests various forms of proteids. This may be the case to a certain extent, and in harmony with the thought, it is the usual practice in diptheria, if the bacillus of Loeffler is associated with the streptococcus that the antitoxin should be given in large and frequently repeated doses. But artificial immunity, owing to the diversity of the toxins, is a complex problem, and as we do not know the chemical formulæ of the toxins we cannot argue positively as to their affinity in the system. Tetanus, for instance, responds to tetanus antitoxin, but it has been discovered by Wassermann and Takaki that in animals an emulsion of a normal medulla injected near the source of infection confers immunity; thus the tetano-toxin by affinity combines with the emulsion before reaching the central nervous system (N. Y. Med. Jour. Feb. 26, '98). This discovery with regard to tetanus may revolutionize our ideas of antitoxin, for we may find albuminoid bodies which by affinity will combine with bacterial toxins and nullify their power near the source of infection.

Having dealt briefly with the nature of acquired immunity we are prepared to consider the probable importance that it may obtain in prac-

tice. Diphtheria antitoxin undoubtedly has reduced the mortality of that disease about 50 per cent. Lancet, Feb. 19, 1898. It has furnished satisfactory treatment for laryngeal diptheria where we were formerly helpless. Tetanus antitoxin also has been used successfuly, reducing the mortality from about 80 per cent. to 38 per cent. Year Book 1898. We may expect the immunity method to be efficacious also in yellow fever, typhoid and similar diseases that confer life long immunity. Despite the persistent endeavor to produce an antitubercular serum no special success thus far has been achieved. Should it be possible to discover an immunizing serum for tuberculosis, in the nature of the disease we cannot expect it to effect a life long immunity. Furthermore we could not expect it to be efficacious except in the primary stages of tuberculosis. In diphtheria, for instance, antitoxin will not restore organic lesions which the kidneys and nervous system have sustained; in like manner tubercular antitoxin could not restore pathological conditions, even if it could arrest the active processes of disease. Furthermore tuberculosis is frequently complicated by the presence of micrococci which hasten suppuration, increase sepsis and exhaust the patient. Owing to the conditions enumerated the field for any antitubercular serum will always be limited.

Since the various species of micrococci confront us as suppurative complications of other diseases and as special septic inflammations, we may consider what prospect is there of a protective serum against them. Some of our gravest diseases, such as appendicitis, pneumonia and puerperal fever, belong to this class. Those who have experimented in this field for years unsuccessfully are not at all despondent. May we not yet see lesions of the appendix treated with serum and the threatened appendicitis aborted, remaining an insignificant appendicity? However there are grave difficulties in the way. The special microörganism will have to be discovered in each case, for it is known that antistreptococcic serum will give no protection against staphylococci.

Furthermore it is suspected that the streptococci form different species. The antistreptococcic serum of Marmorek confers immunity only against the germs from which it is produced, and its power is so fugitive that transportation from France to Germany causes it to become worthless. It has repeatedly failed to cure erysipelas caused by the same microbes, and invariably failed when other streptococci were involved. For this reason it has been proposed to combine various streptococci and produce a multiple serum, but even this has been unsatisfactory. It is difficult to determine the immunizing power of antistreptococcic serum, for the cultures with which animals are infected contain chains of streptococci that cannot be divided to form a uniform fluid, consequently an injection may contain either no microörganisms of a disproportionately large number.

As acquired immunity in erysipelas and other suppurative diseases is of a temporary nature it is not to be expected that any kind of antistreptococcic serum could do more than establish a temporary immunity. But a temporary cure would be quite as much as we are able to accomplish now in such diseases as pneumonia, erysipelas, puerperal fever, etc.

De Renzi's antipneumonic serum was used in 32 cases; 29 recovered and 3 died of complications. Prof. Maragliano, after using it, writes: "In view of the results I believe de Renzi's serum may be considered as a remedy of undoubted efficacy and that it is manifestly indicated in all diseases caused by Fränkel's bacillus, namely epidemic cerebro-spinal meningitis, pleurisy, pericarditis, peritonitis, the arthritis of pneumonia, etc." (N. Y. Med. Jour.). However it should be said that special serums, such as those of Marmorek's and de Renzi, have been more successful in the hands of their discoverers than in the hands of others. This may also be said of Coley's fluid, a sterilized product of the streptococcus of erysipelas and bacillus prodigiosus, which in the hands of its author has acquired some prominence as a remedy for sarcomata. Apparently it possesses little if any beneficial efficacy in carcinoma. The danger and uncertainty attending its action limit its employment to inoperable cases of sarcomata. Mansell-Moullin reported its use in five cases of inoperable sarcomata with three recoveries.

Notwithstanding the incomplete solution of the artificial immunity problem, the indications are that this plan of treatment will eventually prevail in all infectious diseases, and inasmuch as antitoxin is equally efficacious when taken by the mouth as when administered hypodermically, doubtless we shall have the various antitoxins in tablet form.

However, apart from diphtheria and tetanus antitoxins, no other serum as yet is ready for the physician. The power of any antitoxin must first be satisfactory to the laboratory experimenter, and in its clinical employment we must determine microscopically the microörganism involved in the case. The serum that best agglutinizes the microörganisms generally gives the best promise. Any new remedy should be introduced with the utmost care so as to save it from disrepute and reverses.

An East Indian surgeon caused fatal poisoning by writing "Extr. Nucis Vom." instead of "Tinct. Nucis Vom." as he intended.

ABUSES OF INEBRIETY DERIVED FROM A STUDY OF THE CASES IN THE INEBRIATE DEPARTMENT OF THE ROCHESTER STATE HOSPITAL.*

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This paper is largely a collection of personal opinions. It may be criticized that on such a subject facts, and not opinions are wanted; that "facts" only are scientific and reliable, and that the facts being given, readers can form their own opinions. I would reply briefly that readers are enormously at a disadvantage in any effort at forming opinions as compared with the direct observer; that much of the impression made upon the observer cannot be transmitted by words; that one case only, if fully detailed, is tedious in length, and the detailing of many is impossible; that few readers will ever sift the facts given, study them, and form their opinions, as the writer has presumably done from long consideration. Finally, that the so-called facts are often themselves, only "opinions."

I have witnessed the coming and going at the Hospital at Rochester of nearly 500 individual inebriates (577 admissions) up to the repeal of the law in 1897. A summary of the facts noted, the result and the personal conclusions, the public are, it seems to me, rightly entitled to, as experiments of the character of the one which they have furnished are very few. This summary I will try to give you briefly.

First, what was the character of the cases received? It is to be said at once, that most of them were chronic drinkers, found in the different towns of the state, whom all efforts to reform had failed. Fifty-nine of them had already tried the Keely cure, or one of its copies. In other words, the inebriate department of the Hospital was used only as a last resort. Moreover, the majority of them were financially wrecked. A few wealthy men, or more accurately, those having wealthy relatives were admitted, but the lack of room, of accommodations, and the association with the insane made them rather few. On the other hand, the proportion of the laboring classes seemed rather smaller than chance alone would make it, much less indeed than among the insane who are admitted. The comparison for a two years period is as follows:

There were admitted:

	Insane per cent.	Inebriate per cent.
Of laborers	28	14
Of farmer	32	4.7
Of professional men	32	11
Of business men, mental effort prominent	3.5	26
Of business men, mechanical effort prominent	5	25
Of mechanical trades	14	19

A large share of these very marked differences are simply explained by the greater temptations of city life, though some tendency is possibly to be noted toward selecting men under brain strain or effort. Insanity does not show such selection, according to our experience.

The second question is, what is the mental condition of these admissions? As the Hospital was chiefly for the insane, there was some carelessness in the early history as to whether some persons were to be committed as insane or inebriate. Occasionally an inebriate warrant was selected, as perhaps less repugnant to friends, when the patient was quite definitely insane, though inebriate also. Among the nearly 500 committed as inebriate, 28 were insane enough to make a warrant of insanity quite unequivocally appropriate.

Of the others, those not apparently insane, many individual peculiarities might be noted, but for the most part, notwithstanding all hints to the contrary, their mental state must be admitted to be one of sanity and responsibility. Although I have a personal proneness to follow the modified forms of insanity out into sane society, and to find the fundamental elements of insanity among those nominally sane, yet I have no sympathy with the careless statements that hint such people to be insane or irresponsible. The word "insane" carries with it in all ordinary cases the elements of chronicity and of complete irresponsibility, and thus carries false ideas when used as above. The words "mental failure" or "slight mental impairment" or "mental defectiveness" can be used instead, carrying more accurate ideas. In drawing our arbitrarily placed line between sanity and insanity, we must leave on the side of sanity a multitude of mental impairments. It is a common though a gross fallacy that underlies the assumption that people are perfectly responsible till pronounced insane and perfectly irresponsible thereafter.

The next question is, what is the mental attitude of the patients toward the treatment and toward their own condition? Very few came here voluntarily, probably not over six. The great majority came with ideas of injustice done them, of being imposed upon, or plotted against, and in some cases, occasionally in those quite

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intelligent and bright, these ideas amount to vaguely defined delusions of persecution. After being sent here, however, a fair majority wished to get what benefit they could from treatment. They were nearly all anxious to get away before the time thought proper. Only rarely did one realize the strength with which he was bound. That he was committed usually seemed to him merely an accident, the result of carelessness. This impression was helped by another reason, the fact that very few professed to like the "taste" of distilled liquors. They only liked the early effects, the ending in a drunkenness or stupor being an undesirable accident.

The next question might be, what are the causes of inebriety? We are compelled at once to divide them into predisposing and exciting causes. As one man will develop consumption under the same conditions in which twenty-five others are exempt, so one man will become so grossly inebriated as to receive the name, under the same conditions as twenty-five others, who do not have the name attached to them. Nay, more. Of a certain number who drink equally much, and with equal recklessness, only one will get and retain the name "inebriate," because he is the only one whom the drinking affects so profoundly. These effects which decide the use of the name vary. In one case drinking makes the man ugly, ill-tempered and dangerous to his family, and he is forthwith called inebriate. In another case the man is a spendthrift, and comes to want while drinking, and he receives the name inebriate. In another case he becomes profoundly comatose and is in danger from exposure, while drinking, and common opinion dubs him an inebriate. In another case, rather rare, a periodical and so-called "uncontrollable return of restless desire against which the patient may struggle till he falls into a spree is noted, and such an one received the name also. Another man shows mild signs of insanity while drinking, not notable at other times. Each one receives the name inebriate, not because of the amount of drinking, but because of some effect or other which is troublesome to society. Many of his comrades are not called inebriates because the same drinking does not happen to produce any of these effects.

Of exciting causes, the ones commonly talked about we usually disregard. Even the death of near relatives and other profound emotional disturbances should be traced back to their method of acting. After a considerable study I was satisfied that most frequently the immediate or so-called exciting cause of drinking in those who had had the habit so long as to be called inebriates was a nervous or mental depression and irritability from which liquor, by a general mental uplift and quickening, produced relief. The one on whom liquor produced this uplifting effect most decidedly was most apt to become truly inebriate. Those upon whose nervous system drinking produces little stimulation or quieting, are to an extent immune from being called inebrate.

This leads us to notice many careless statements concerning inebriates as being defectives. The unstable mental and nervous system of defectives would, of course, lead them to be more frequently affected by drinking than other people. Occasionally, moreover, the drinking is but a truly imbecile manifestation. In general, however, the word "defective" could not be properly applied to inebriates. The neurotic tenedency inherited or acquired, and all so-called neurasthenic symptoms, may make a man more liable to inebriety, but these symptoms are not inebriety nor part of inebriety, as is so often assumed. They are separate, and exist more often in women, among whom are fewer inebriates.

We are next led to the recent fad of speaking of inebriety as a kind of disease, of pitying inebriates, of shielding them from penalty and of looking on them as unfortunates. A whole book might be written on this subject, but here we only present for answer several pertinent questions:

First, we ask, Is inebriety a disease? Our answer would be "No." Defining "inebriety" as "drinking," and "disease" as "a fairly well defined group of symptoms, with known or presumed pathology or causation," inebriety is not properly called a disease.

Is inebriety a symptom of a disease? Sometimes it is, though usually not. Occasionally, as in the early stages of paresis, it is a symptom of mental failure. Sometimes also, it is one of the elements of moral failure or lack, of defectiveness or imbecility, but in the majority of cases it is to be classed like all other habits. The causal difference in nervous make up outlined above is not properly a disease. It is a constitutional trait, one among many variations in consituation, to which we are all subject.

Is inebriety a vice? Yes, as a habit, if it is known and admitted to be injurious, it becomes a vice. In the early stages of drinking if the constitutional trait above referred to be admitted as an excuse which shall take away the viciousness of the habit, then almost any vice is excused in like manner. In the later stages of the drinking "uncontrollableness" is claimed as an excuse by inference, or otherwise, and the next question would be, Is not inebriety at times uncontrollable? I would answer guardedly, in a very small number of cases, it is approximately so. But so are smoking, opium eating and other habits. Especially do those habits have great power which in addition to the pure habit (the mental

warp) have a hold on the physical nervous system. The nervous system is depressed and has an actual need or hunger for which alcohol instead of good, tonic living is taken. This power, however, is greatly exaggerated, and under confinement these inebriates not only did not suffer much from lack or drink, but after sufficient time to recover the tone of the nervous system had no marked longings for drink.

We have not time to enter into the question of how much of this element of uncontrollableness is inherent in native temperament or nervous constitution, or of the farther question of free will, not only as regards drinking, but as to one's irritability of temper, one's provident or spendthrift ways, one's cheerfulness or gloom. Finite judgment must confess itself unable to draw accurate lines of responsibility. Even approximations are rough as to where these perversions shall change from sanity to insanity. There is an interweaving of one with the other.

Does not the periodicity of some cases prove, at least in those cases, that the inebriety is a disease? Not exactly. If clean-cut periodicity be proven as an element, it, in my opinion, indicates a defective or diseased condition, but the periodicity is in my belief the same periodicity found so commonly in insanity, while the drinking is only, as before, a vice added to relieve the nervous depression or unrest.

In upholding the disease theory, elements of mental perversion are frequently used to confuse the subject. In fact it is the chief way of fogging the subject of inebriety and making it appear an insanity. Of such elements of insanity there are plenty of course in ever community. Of motiveless crimes, queer mental traits, of trances and of moral obliquities, they are many to be found among inebriates, but also among those who are not inebriates, and they do not constitute inebriety by any ordinary definition. As a legal question, the legal profession rightly fears to declare an inebriate irresponsible. While the nominal aim of the courts is justice, the real aim of law is the "safety of society." A multitude of mild impairments are practically ignored because inherent in people of ordinary responsibility. Even if fully admitted, to excuse crime on their account would lead to social unsafety.

As to the facts used to support the disease statement, they are all kinds, physical and mental, and are largely to be admitted as facts, but whatever these facts are, the usual error seems to lie in lugging them in whether irrelevant or incidental to the drinking, and then triumphantly declaring that inebriety is a disease. These facts are not inebriety. Often they have not even relationship to it. Even the finding of a bullet in the lung of an inebriate after his death has been triumphantly held up as proving that his inebriety was a disease. Nothing but such a broad unfounded statement as that "anything which shows impairment of the body or mind in an inebriate proves inebriety to be a disease," can logically stand as a foundation for these assumptions.

We would described then, briefly, our idea of the character of inebriety by stating that inebriety (drinking) starts in as a vicious habit, rather rarely is difficult to prevent in its beginning, that later it tends to produce, beside varying effects upon other organs of the body, reactionary warp or depression in the nervous element calling for renewed stimulation. That later it tends to produce changes in the kidneys, liver, heart, arteries and brain, which when becoming fairly well defined, it is common to group, though variable and often unconnected, under the name chronic alcoholism.

Given this class of inebriates, what were the results? First, nearly all were able to stop drinking without the aid of any particular treatment, and after the first one or two weeks steadied up quite well, put on flesh, and appeared as well as if they had not been drinking. There was usually left to surface observation no especial reason that they should fall back. There remained, however, seemingly a warp to the cell structure, so that the first drink, taken usually in a careless and needless way, brought back the old feeling with which they left off. We have no means of following the many who left the hospital, as they were scattered about the state after leaving us. From the reports received, however, it would seem that nearly all sooner or later drank again. Most of them will abstain for a few months, some of them for years. A small number do not seem to have tried to abstain at all.

What is presented of value in treatment? Modern treatment must necessarily, I think, use strychnine, and use it in a hypodermic form as having more effect on the nervous system and less on the digestive. I believe this to be the prominent element in Keeley's remedy, for reasons before assigned. There is no objection to tapering off in the drinking during a few days, if you have perfect control over the person, but usually this is needless. A combination of tincture of valerian, chloral and hyoscyamus can be temporarily used as a substitute and as a sedative with good success. To aid strychnine, and as of general tonic effect, massage, electricity and the tonic forms of baths are good. These arrayed into a prescribed form with control of diet and exercise, will form a sanitarium style of treatment, having probably the best effect.

Ought inebriety to have a special asylum supported by the state? Ought the state to

care for its inebriates? The answer would be that a refuge of some kind is certainly humane in its intentions, but that there are reasons both for and against state provision. Crowded so that there was not bed room enough and asosciated with the insane, yet our admissions during the later years multiplied rapidly, as the means of treating inebriates became better known, so that at the last about 100 admissions a year were received. If, instead of abolishing the department, a separate building had been provided with modern comforts, conveniences and amusements, it is beyond doubt in my mind that the number seeking accommodations would have multiplied with extreme rapidity and have proved a heavy load upon the taxpayers. The adverse influence of free accommodations of the kind was rapidly becoming apparent in the recklessness of drinking, based on the knowledge that, as a penalty, they would get nothing worse than a care free, well fed berth for the winter, frequently a wished for result. It is doubtful if the adverse influence in this way was not bad enough to counterbalance the good done.

As the state, or better, the people of the state allow these inebriates with appetites which they have assumed so often to be "uncontrollable" to be surrounded on every side by temptations tc drink, there is a sort of rough justice in being obliged to take care of them when utterly wrecked. Excluding all sentimental expressions, it seems to me a plain matter of fact that liquor drinking is the most financially expensive and the most physically and morally disastrous agency of the country, and on plain, straightforward reasoning, prohibition, so often laughed at, is in simplicity and economy and direct efficiency immeasurably above any expedients of punishment or medical treatment. By prohibition, we here mean of course prohibition with the majority upholding it, for where the majority rule, a mere law with minority signifies little. Colonizing, a form of local prohibition, seems to present too many difficulties to become a general remedy.

CRETINISM.*

By F. A. Dodge, M. D.

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Cases of cretinism are so rare in this locality that, having found a typical case, I feel warranted in taking a portion of the time allotted to the section for nervous diseases to consider this disease and its relation to a disease which we are often called upon to treat.

"Cretinism is defined as being a chronic, and usually endemic disease in which, associated with a varying degree of mental and moral torpor, there is a characteristic physiognomy and a peculiar malformation of the head and body, dependent to a considerable extent on premature union and arrested growth of certain bones, and having an intimate though obscure relation to disease or absence of the thyroid gland."

Not until the end of the eighteenth century, when Malacarne's important work appeared, do we find scientific accounts of the disease, but since that time the literature of the subject is very extensive.

Cretinism and goitre are found in almost every habitable portion of the globe, but they are endemic chiefly in the valleys of mountain regions. The history of cretinism is so intimately associated with the Alps that it has been termed by some writers the Alpine disease. In our own country the valleys in Vermont, Massachusetts and California are known to favor its development.

Climate, altitude, soil and water have all been studied and treated extensively in looking for the cause of cretinism, but it occurs with almost equal frequency in cold and warm climates, whether the atmosphere be dry or moist, and on every geological formation without regard to the quantity of lime and magnesia in the drinking water. Interbreeding is thought by some authors to be a predisposing cause.

There is a constant association of goitre and endemic cretinism where cretinism abounds, though cretinism is not always found where goitre is prevalent. About two-thirds of all cretins are said to be goitrous, and in the remaining third, where there is absence of goitre or where the thyroid gland is small or absent, there are often found large goitres in their noncretinous relatives. Maffei says: "Goitre is the beginning of that degeneration of which cretinism is the end."

Healthy parents moving into so-called infected districts often beget children who are, if not pure cretins, goitrous and dull of intellect. On the other hand persons removing from the endemic influence of cretinism and goitre often beget children who remain free from goitre. Entire absence of the thyroid gland is more constant in sporadic cretinism than in the endemic form, and it is probable that where the gland is congenitally absent cretinism is always present. We cannot judge of the amount of healthy thyroid tissue present by the size or appearance of a goitrous tumor, for the majority of them do not consist of an increased quantity of thyroid tissue, but are cystic, fibro-cystic or vascular diseases and by constant pressure destroy more or less of the glandular structure. An old goitre may contain little or no healthy gland tissue and

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its gradual destruction in the manner referred to may give rise to a cretinoid condition.

In the few post mortem examinations that have been made of cretins, the presence or absence of the thyroid gland is not stated.

Virchow's observation concerning the premature ossification of the spheno-basilar bone and the consequent shortening of the antero-posterior diameter at the base of the skull hindering the growth of the base of the brain, was supposed to be a factor in the development of the characteristic deformities of cretins, but this condition is by no means constant.

Descriptions of the brain do not offer a satisfactory explanation and no special or constant characters are recorded of the nervous centres.

An excellent, though somewhat overdrawn, description of a cretin is given by Berchtold-Beaupre. "Who," asks he, "is this melancholy creature which bears the human form in its lowest and most repulsive expression? I see a head of unusual form and size, a squat and bloated figure with stupid look, with bleared, hollow and heavy eyes, with thick projecting eyelids, and a flat nose. His face is of a leaden hue, his skin is dirty, flabby, covered with tetters, and his thick tongue hangs down over his moist livid lips.

"His mouth, always open and full of saliva, shows teeth which are going to decay. His chest is narrow, his back curved, his breath asthmatic. I see, indeed, arms and legs, but the limbs are short, misshapen, lean, stiff, without power and without utility. The knees are thick and inclined inward, the feet flat. The large head droops listlessly upon the breast, the belly resembles a bag, and its integuments are so loose that they cannot retain the intestines in its cavity. This loathsome, idiotic being hears not, speaks not, and only now and then utters a hoarse, wild, inarticulate sound. Notwithstanding his greediness, he is hardly able to support life. One passion alone seems to rouse him from his usual insensibility, this is the sexual instinct in its rudest brutality.

"At first sight we should be inclined to take this wretched being for a gigantic polypus, something in imitation of a man; for it scarcely moves, it creeps with the painful heaviness of a sloth. And yet it is the monarch of the earth, but dethroned and degraded. It is a cretin."

In the majority of cases the characteristic features of cretinism are not recognizable before the sixth month, when it will be noticed that the child is weak, its body fat, abdomen unusually large; head is large, often contracted from before backwards and expanded at the sides; fontanelle and sutures widely open; eyes languid and generally half closed; appetite voracious; the mouth is large, lips thick, nose flat; the tongue often enormously large and protruding from the mouth, also filling the throat so as to interfere with breathing; the neck is short and thick and occasionally the thyroid gland is enlarged though it is often absent.

The child grows slowly; dentition is late and the eruption of the teeth is often accompanied by convulsions. The disease may not develop before the seventh year. Cretins are short, rarely exceeding five feet, many only three feet in height.

The trunk is relatively longer than natural, while the lower limbs are short and often crooked and the ends of the bones enlarged. The eyesight is generally good, but hearing, taste and smell usually blunted. Many are deaf; only about one-third enjoy perfect hearing. Hernia is common; phthisis rare, and rickets is stated to be frequently associated with cretinism.

The mental condition varies from mere sluggishness to complete idiocy, and authors have divided cretins into three classes according to the degree of their mental powers. The first class, simple cretins, manifest only vegetative functions, have neither reproductive nor intellectual faculties and have no power of speech. The second class, semi-cretins, possess the power of reproduction and some command of language, but their intellectual efforts are limited to bodily wants. The third class, the cretinous, have more intellectual powers than the semi-cretins and are able in some degree to learn a trade or to do different kinds of work.

The only peculiarity, and this is not constant, which distinguishes the mental condition of cretinism from that of other forms of idiocy is that alluded to by Maffei, viz: "The total suspension of almost every mental act during several hours, and that periodically several times in the day. During these attacks the cretins remain with their eyes open and fixed upon the sky or some object, without moving the eyelids, the mouth open, almost without breathing and without giving any sign of life."

Sporadic cretinism does not differ materially from the endemic form. The absence of the thyroid gland is said to be more constant and there is a greater tendency to heaping up of subcutaneous fat, forming the fatty swellings seen in the neck and various other parts of the body.

The temperature in cretinism, as in myxœdema, is subnormal, as low as 95° or 96° with a daily variation less than normal.

Diagnosis. The distinctive peculiarities which differentiate sporadic cretinism from idiocy are that the latter is more commonly congenital, the exceptions being universally classed as accidental (inflammatory, traumatic, epileptic, etc.), and always commences in infancy or early childhood; cretinism, while it occasionally begins during infancy, may not develop until after the age of seven years, and sometimes occurs

after adult life. Cretinism is also far more susceptible to treatment than idiocy. Brush says: "The deformities of non-cretinous idiots are accidental and not the rule; they are of any and all the members, and not, as in cretinism, of a specific character which stamps the mark of the disease upon the victim."

Prognosis is good for improvement in all cases, and complete cure in many if treatment is continued during the life of the individual. Mental improvement is less marked in cases that are fully developed and have not been subjected to treatment until they have reachd the age of seven years, as it is prior to this age that the growth of the brain and the development of the mind is most rapid.

No. 1. August, 1896.

Bury sums up the prophylaxis of endemic cretinism as follows:

"1. To combat dampness of the soil and all other general causes of insalubrity, and to improve the hygienic conditions of the population in every possible way.

"2. To make a careful selection of the available drinking water, rejecting that which is much contaminated with earthy salts.

"3. To treat promptly every case of goitre, either by removal from the district, or, if this be impossible, by the administration of appropriate therapeutic measures, such as the external application of iodine, blisters, etc., and the internal administration of iodide of potassium or dilute fluoric acid; and in many cases operative interference will be desirable.

"4. That mothers who have previously borne cretins should emigrate during the period of pregnancy to healthy places.

"5. To send young children out to nurse in high and salubrious situations."

Treatment. Prior to the year 1891 the treatment of cretinism was very unsatisfactory. Writers on this subject limited the treatment to the use of tonics, such as cod liver oil and iron, cold sponging, gymnastic exercises and massage, together with mental training in suitable asylums. The use of the remedies mentioned tended only to ameliorate the condition of this class of unfortunates, and was not considered curative.

Atrophy of the thyroid gland was found by Sir William W. Gull, in 1873, to be a constant pathological condition in myxœdema.

Kocher, in 1883, described a condition termed "cachexia strumipriva," which occured as a result of extirpation of the thyroid gland, the symptoms being almost identical with those of myxœdema. The characteristic symptoms common to the above diseases and to cretinism, viz: a subnormal temperature, chilliness, a thickened, coarse, dry skin, and subcutaneous deposit of mucin, led to the administration of preparations of the thyroid gland in these diseases, with beneficial results incredible to one who has not had the opportunity to see the wonderful transformation of a creature, whose comprehension did not surpass that of some of the lower animals, into an intelligent human being.

Caution, however, must be exercised in the use of thyroid medication, for, while it is all powerful for good in suitable cases, it is not without ill effect in poorly selected cases or in over doses. It is best to begin with five grain doses daily and increase gradually to fifteen grains daily in divided doses. A rise of temperature to one degree above normal, an increase of the pulse rate of more than twenty beats per minute, or any gastro-intestinal disturbance indicates that the dose is too large and must be reduced.

The following case was brought to me in August, 1896, on account of a large, umbilical hernia:

Lizzie L., aged five years, born in Le Sueur, third child of German parents who have lived in America two years and three months. Father's age 31 years, mother's age 26 years. Family history as to goitre, epilepsy, tuberculosis, insanity, malformation, deafmutism, idiocy, imbecility and intermarriage, negative. No accident or disease during pregnancy; no history

of intemperance in the father. Mother states that this child was born after a normal labor; weight eight and one-half pounds at birth. Nothing wrong noticed until the child was about six months old, except that it was always constipated. Umbilical hernia was discovered at the age of six months; about the same time dulness of intellect was noticed, the tongue began to enlarge and the child had difficulty in breathing.

Dentition began at two years of age and was completed at four and one-half years. Every spring previous to the beginning of treatment the skin became rough and there followed a general shedding of the epidermis.

No. 2. November, 1897.

At the time of the first examination I made the following notes: Weight 50 pounds, height 2 feet 9 inches, pulse 95, temperature 97°. Abdomen greatly distended, superficial veins prominent over chest and abdomen; large umbilical hernia; fontanelle closed; hair coarse and thin; slight convergent squint; bones enlarged at epiphyses, especially at wrists; nose flat; tongue greatly enlarged, so that it always protruded from the mouth; breathing harsh; voice coarse and unnatural; neck short, fat and thick; apparent absence of the thyroid gland; reflexes normal; sight and hearing normal.

Child neither talks nor walks; is able to stand by a chair, and its mode of locomotion is by hitching along with the aid of the hands and limbs, while sitting on the floor.

I made a diagnosis of cretinism and gave Parke, Davis & Co.'s thyroid extract, two and one-half grains three times daily. Had photograph No. 1 taken.

Within two weeks the effect of treatment became apparent; the tongue was noticeably smaller and the abdomen diminished in size. General physical and mental improvement followed and the treatment was continued.

In June 1897, the child could walk and began to talk. Nov. 2, she could talk sufficiently to form sentences. Height at this time three feet; weight not ascertained, probably forty pounds; temperature normal, pulse 90. January 1, 1898 treatment was discontinued in order to determine the necessity for the continued use of thyroid extract. I did not see the case again until March 12, when I noticed increase in the size of the tongue, abdomen enlarged, and a general tendency to become stout, together with a failure of the mental faculties. Resumed treatment May 6, weight 37 pounds, height three feet two and three-quarter inches, pulse 96, temperature 100.6°. Tongue of normal size; breathing normal; bones normal; hair soft and natural. The child's intellect at this time compares favorably with that of an ordinary child at two and one-half or three years of age.

During the spring of 1896 and 1897, there was no shedding of the epidermis.

Note. The rise in temperature May 6, was due to the beginning of an attack of measles.

REPORT OF THE STATE BOARD OF MEDICAL EXAMINERS.*

By J. B. Brimhall, M. D.

Secretary of the Board.

St. Paul.

It will perhaps interest some of you to know what is being done by the Minnesota State Board of Medical Examiners and also something of the work done by this Board in the past. Under the old law, from October 11, 1883, to July 1, 1887, the number of licenses issued was 1,503. Under the present law, from July 1, 1887, to June 1, 1898, the number of licenses issued is 909, making the total number of licenses 2,412.

The number of candidates examined from July 1, 1887 to June 1, 1898 is 1,216.

*Read in the Section of Medical Education, Jurisprudence and State Medicine of the Minnesota State Medical Society, June 15, 1898.

Total number examined.....1,216
Total number licensed..... 909

Number of failures..... 307

These 307 failures were made by 231 candidates; of these 231 candidates 88 succeeded in obtaining a license at subsequent examinations leaving 143 who failed to secure a license in this state.

The percentage of failures from 1887 to June 1, 1898 is twenty-five and two-tenths.

The licensing of midwives is also one of the duties of this Board.

April 20, 1891, the Legislature of the State of Minnesota enacted a law to regulate the practice of midwifery. From that date to June 1, 1898, the total number of licenses issued to midwives is 457.

These licenses are issued April 20, of each year. Some cease practising at the end of the year and do not renew the license. The number of licenses renewed April 20, 1898 is 236. There are no doubt many others throughout the state who may be brought to the notice of this Board in the near future. And we are also well aware that there are now in our state many illegal practitioners of medicine. In justification of this Board, it seems to us also that this might be the proper time and place to explain some of the predicaments in which this Board finds itself. The Secretary is asked almost daily why a certain man or woman is allowed to continue the practice of medicine unmolested by our Board. We regret to say the facts are these: No money is at our disposal to prosecute violators, and furthermore the law does not state that it is the duty of this Board or of any member of this Board to make complaint and prosecute such violators of our medical law. However, the Secretary hereby signifies his willingness to do all in his power to enforce this law in all cases where it is evident that such enforcement will be for the public good.

If proper at this time and place, we beg to make a few suggestions to your Legislative Committee.

Section 3 of our law reads as follows: "It shall be unlawful for any person to practice medicine in this State without a license from said Board, or without having filed with the Secretary of said Board an affidavit setting forth the times and places in which he or she has practised medicine within the state prior to the passage of this law."

Does this not give the right of exemption to any midwife, or horse doctor (so-called) who practised prior to July 1, 1887, irrespective of his or her qualifications then or now? It seems to us that it should be proved that these applicants possess ordinary skill in the practice of medicine.

We desire also to call the attention of your Legislative Committee and all members of the medical profession to the fact that we have in our midst the so-called osteopaths who are not licensed to practise medicine. At the next session of our legislature these osteopaths will introduce a bill which they already have prepared, legalizing their practice in this state. Should there not be some organized opposition or should the efforts of the Legislative Committee be directed towards defining their practice and differentiating them definitely from the medical profession. We hope the Legislative Committee will realize the gravity of the situation and direct their efforts accordingly. It is appropriate at this time to quote from the following letter, written to the medical press of the country by the Secretary of the Illinois State Board of Health:

Springfield, May 26, 1898.

"To the Editor:

"A concern in Chicago claiming to teach the alleged science, misnamed osteopathy, makes the following remarkable statement relative to its so-called courses, in circulars which are sent broadcast over the country:

" 'Terms of study are so graded and the course of study so broad and complete that they comply with all the requirements of the Illinois State Medical Board and allow our students two years' credit on a regular medical education. These credits are recognized in any medical college in this country and will be equivalent to two years' work done there.'

"If by the 'Illinois State Medical Board' is meant the Illinois State Board of Health, the assertion made in reference to that body is a lie in the fullest acceptation of the term. It is not true furthermore, that the 'credits' named are recognized in any medical college in this country. On the contrary it is exceedingly doubtful if a single reputable medical institution will grant any advanced standing whatever to applicants from this and other 'colleges' of similar character. Should however, this be done, it is needless to say that the institution or institutions concerned will receive no further recognition from this Board, and it will be remarkably strange if the various State Boards of Medical Examiners throughout the Union will view such irregular proceedings with complacency.

"As the circulars are calculated to deceive the unwary, and to cause prospective graduates in medicine to waste two years of time, I will ask you to give this letter a prominent place in your journal, so he who runs may read.

"J. A. Egan, M.D.,
"Secretary Illinois State Board of Health."

Northwestern Lancet.

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SEWER GAS AND INFECTION.

Not long ago a leading official in one of the American cities caused a good deal of trouble by persistently maintaining that a prevailing epidemic of typhoid was due to defective house drainage rather than to contamination of the water supply. This he stubbornly maintained in the face of a united medical profession, and owing to his position he was able to hinder needed improvements in the water system and prevent the inauguration of the only measures which could be expected to prevail against the disease. For public opinion is strong to the effect that there is no more satisfactory explanation for an infectious disease than to find somewhere a defect in the plumbing; beyond this point it is seldom thought necessary to try to carry the search.

There is a good deal of medical authority to support the public in the view that defective drainage is the principal cause of many of the communicable diseases, particularly typhoid fever and diphtheria. Indeed it is not many years since medical opinion was quite as strong as popular opinion in going to the sewers first of all to seek the source of infection. The writer of the article "Sewer Air" in the "Reference Hand-Book of the Medical Sciences" says "There are very strong reasons for believing that the specific poisons, or germs, of a number of contagious diseases may be transmitted by sewer air. That dysentery, diarrhœa, and periodic fevers are frequently produced by sewer-emanations cannot be doubted. It is also believed that the poisons of typhoid fever, of cholera, of yellow fever, have been transmitted from house to house by the medium of the sewers. Indeed the evidence of such transmission amounts almost to a positive proof." Parkes, in his work "Practical Hygiene," edition of 1890, speaking of sewers says: "There can be little doubt, too, that the air in contact with such infected materials also becomes imbued with specific contagious properties. The infective material is in all probability —although actual demonstration is still wanting —due to active, living organisms or their germs of the class bacteria, which after evacuation from the body of the patient, find a suitable soil for growth and propagation in sewage and sewer deposits." Parkes goes on to explain that the organisms of disease probably get into the air of a sewer through evaporation or by the bursting of bubbles of gas upon the surface of putrefying sewage.

On the other hand numerous careful examinations of sewer air by competent bacteriologists have shown that it is not rich in microbic life, ordinarily containing merely the spores of molds and similar organisms rather than the germs of disease. As Leffmann says in the "American Year-Book of Medicine and Surgery" for 1896, bacteria are not flying fish; though they may develop in sewage they cannot get out of it themselves to contaminate the air, and there is no known agency to lift them out of the fluid contents of sewers and set them floating in the air, for Parkes' bursting bubble theory is a little fanciful and generally inadequate, while evaporation falls to the ground as accounting for raising solid bacteria from the surface of a stream. So that Walford is justified in a statement he makes in the "Sanitary Record" of July, 1897, that "there is very little reliable evidence to show that the ordinary specific infectious diseases are caused by inhaling sewer gas, and usually, where sewage is responsible for their causation the mischief has arisen through swallowing either water or food which has become contaminated

with sewage matters." Indeed it is claimed by one writer that even the classical poisoning that has been attributed to sewer gas has arisen chiefly from the leakage of illuminating gas into the sewers.

It is far from the intention of this article to show that sewer gas is harmless and that the plumbing of houses need be no longer looked after. Apart from the question of cleanliness and bad odors there is every reason for taking the utmost pains to prevent the escape of sewer gas into the living rooms of houses. For it would at least contaminate the air, and even if it did not directly produce disease, experiments have shown that by lowering the tone of the organism it diminishes the power of resistance of the body to the poison of disease, thus laying the individual open to infection from various disease germs that abound everywhere. The point to be made is that in wrongfully ascribing to defective drainage the causation of an epidemic there is danger of overlooking the real cause and of missing the chance to take the proper steps to stop the spread of disease.

BOOK NOTICES.

A Text-Book upon the Pathogenic Bacteria. By Joseph McFarland, M. D., Professor of Pathology in the Medico-Chirurgical College, Philadelphia, etc. Second edition. Revised and Enlarged. Illustrated. Phila: W. B. Saunders. 1898. [Price, $2.50.]

It goes without saying that the second edition of this book will be very welcome to bacteriologists; to the surgeon, also, it appeals particularly because of the intimate and essential relation between the knowledge of germs and the asepsis that is indispensible to the surgeon. To the general practitioner it also appeals as an important work, for although he may not use its technical directions for the examination and cultivation of bacteria, he cannot know too much of the natural history of microörganisms, not only to perfect his medical education, but also to aid him directly and practically in the management of cases and more particularly in hygiene, that most important branch of medicine. Besides the general consideration of bacteria, their detection, cultivation and inoculation upon animals this edition contains a new and excellent practical chapter for the bacteriologist upon the method of determining the thermal death point of microörganisms and the value of disinfection, a study of the bacteriology of whooping cough, mumps, yellow fever and other diseases and a description of a few new bacteria. The subjects treated of in the first edition have also been rewritten and brought thoroughly up to date.

Diseases of Women. By F. H. Davenport, A. B., M. D., Assistant Professor of Gynæcology, Harvard Medical School; etc. Third Edition. Illustrated. Phila: Lea Brothers & Co., 1898. [Price, $1.75.]

Davenport's book is particularly the book of the physician rather than of the surgeon, that is to say, it deals with gynæcology with the medical side uppermost. Some gynæcologists maintain that there is no medical side to this subject, and that medical treatment of the diseases of women is for the most part time lost. Dr. Davenport's book would be valuable to refute the extreme view of the gynæcological surgeon if for no other purpose.

It must not be supposed that the book does not deal at all with the surgical side of the subject. On the contrary, it gives a clear and plain account of the various operations most commonly performed, and advises resort to them in a wisely conservative manner.

An America Text-Book of the Diseases of Children. By American Teachers. Edited by Louis Starr, M. D., Consulting Pædiatrist to the Maternity Hospital, Philadelphia; etc. Assisted by Thompson S. Westcott, M. D., Instructor in Diseases of Children, University of Pennsylvania; etc. Second Edition. Revised. Phila: W. B. Saunders. 1898. [Price, $7.00.]

As contrasted with the first edition, the second has been generally revised and rearranged. Tuberculosis and maliaria are now included in the section devoted to infectious diseases, new articles have been written upon modified milk and lithæmia, a section upon orthopædics has been added and a number of chapters have been rewritten or subjected to a careful revision in order to bring the subjects treated of fully up to the times.

As stated in its title the Text-Book is the work largely of teachers of diseases of children or of kindred subjects, teachers in the prominent medical schools of this country, some of them young men and some older ones. There is scarcely a man in the country whose name is familiar in connection with the diseases of chil-

dren who does not appear in the list of contributors to this work, which is the largest and most complete upon this subject that has been written on this side of the water.

Guide to the Clinical Examination and Treatment of Sick Children. By John Thomson, M. D., F. R. C. P., Ed., Extra Physician to the Royal Hospital for Sick Children, and Lecturer on the Diseases of Children in the School of Medicine of the Royal College, Edinburgh. Illustrated. Phila: Lea Brothers & Co., 1898. [Price, $1.75.]

This little work, which is devoted exclusively to the diagnosis and treatment of the diseases of children contains a great many useful hints that will well repay a careful reading. Although written by an Englishman the remarks it makes about children are entirely adaptable to Americans. It is conservatively written, taking middle ground in many disputed questions of pædiatrics such as the propriety of feeding with condensed milk and the importance of teething as an ætiological factor. To the American reader it is gratifying to find that great importance is given to American methods of infant feeding.

An American Text-Book of Gynæcology. By Many Writers. Edited by J. M. Baldy, M. D. Second edition, revised. Illustrated. Phil: W. B. Saunders, 1898. [Price, $6.00.]

To lay great stress upon the typographical and pictorial excellence of a book is pardonable in the case of a second edition whose text has already received favorable notice, when, as is the case with this work the mechanical and artistic part is of unusual superiority. The colored plates are works of art, the illustrations in black and white are accurate and original and the diagrams are of great help to the understanding of operative technique, which in gynæcology is often difficult to explain clearly.

The first edition of the Text-Book was published so lately that there are no new subjects to be treated of in this edition; but the whole book has been revised, much has been rewritten and many new plates substituted for old ones, particularly where changes in methods of operating have demanded new figures and diagrams.

NOTES.

RHINOLITH OR NASAL CALCULUS.

By William H. Poole, M. D.,

Mr. President and Members of the Wayne County Medical Society: The pathological specimen I have the pleasure of exhibiting to you this evening is one of unusual interest, even to those of us who limit our practice to diseases of the eye, ear, nose, and throat, from the infrequency with which we meet these cases, and also from the circumstances which led up to its discovery, owing to the fact that it was situated somewhat differently from most cases of this kind.

Miss L. K., aged twenty-four years, from whose nose this was taken, consulted me January 1, 1898, regarding her nasal catarrh, with which she stated she had been afflicted ever since her childhood. Ten years ago she had been treated for about a year by one of the leading rhinologists of this city, receiving considerable benefit, but for the last two or three years she has had a rather profuse nasal discharge, thickened, and increasingly offensive in character, with obstruction to nasal respiration, loss of smell, nasal voice, and the other usual symptoms which we find in an aggravated case of chronic rhinitis.

I suggested an operation for the removal of the hypertrophied tissue of the lower turbinal, and on January 15th, I operated.

Hemorrhage was not very profuse and was readily controlled at this time. The patient returned home, and soon after suffered from an attack of nervous sick headache.

As usual, the headache ended with an attack of retching, after which straining the hemorrhage started in afresh and rather profusely. I tried again to control it with styptics and plugging the naris with absorbent cotton, but did not succeed in thoroughly arresting the flow of blood, and, as the patient was getting very weak, with the kind assistance of Dr. Suttie, I tamponed through the posterior naris with a sponge tent, which instantly stopped the hemorrhage. I then ordered her to be liberally supplied with beef extract, for the double purpose of nourishment and to increase the arterial tension.

The next day she was doing nicely, but was very weak; there was no recurrence of the hemorrhage, but I did not think it advisable to remove the tampon as she was too weak to bear it.

January 17th, the patient was a little stronger, but owing to debility I could only remove a part of the tampon from the anterior naris.

The next two days I removed still more of the sponge anteriorly, in all about two thirds of it being removed up to this time, the patient still being too weak to bear much manipulation.

On January 20th, I attempted to remove the remainder posteriorly, but found it so firmly fixed that it could not be dislodged except with extreme force under anæsthesia. I called in Dr.

Chittick and anæsthetized the patient, when, with considerable difficulty, we removed the remainder of the sponge.

Next morning she came to my office for treatment and stated she had enjoyed perfect freedom in breathing through that nostril until about four o'clock in the morning, when, changing her position in bed, that side became suddenly obstructed. After cleansing the nostril, which was seemingly full of an offensive discharge, I discovered this body which was attached at the posterior end on the outer side of the inferior meatus, lying, as it were, in a groove or pocket.

The anterior or loose end of it was sharp like a spiculum of bone, and black in color; it was freely movable about its long axis, so that you could pass a cotton holder around it and lift it from its bed. After cocainizing, I grasped it with a dressing forceps and, giving it a twist, removed it. I then thoroughly cleansed and disinfected the cavity with the hydrozone solution, which removed the odor and rendered the cavity wholesome.

The next day the two smaller pieces were removed while cleansing and treating the nose. They were loose and seemed as though they had just scaled off from the bed where the larger piece had lain.

The spraying of the nasal cavity with hydrozone, followed by the use of glycozone, constituted the treatment for the next four days, by which time the offensive odor had entirely disappeared, and the parts had assumed a healthy condition.

This concretion formed on the outer side of the inferior meatus, and as it grew larger it obstructed the flow of tears through the naso-lachrymal canal, as evidenced by the overflow of tears from the left eye, which condition ceased immediately after removal of the rhinolith.

The secondary hemorrhage was evidently due to a relaxation of the pressure on the vessels of the turbinate, owing to the calculus being disturbed in its position when the patient was retching.

Being desirous of ascertaining, if possible, what served as a nucleus, and at the same time of finding out the composition of the formation, I cut it in two.

Microscopical examination reveals that it is composed of amorphous phosphates, undoubtedly the phophates of calcium and sodium, which came from the tears.

There has been a marked improvement in the young lady's condition since the removal of the rhinolith; overflowing of the tears in the left eye has ceased, nasal respiration has become perfect, her voice has lost the nasal twang, and her general health has improved rapidly, as indicated by the fact that she has gained four pounds in weight since the operation (four weeks ago), and is still improving.—New York Medical Journal.

270 Woodward Avenue.

TUBERCULAR OSTEOMALACIA (VERTEBRAL)—BONE NECROSIS.

The following interesting case is reported from the Sound View Hospital, of Stamford, Ct.:

Mrs. T——, Portchester, N. Y.; American; age 39; May 27, 1898: sent by a brother physician. Examination revealed the fourth, fifth and sixth dorsal vertebræ badly diseased. The spinous process of the fifth was almost destroyed, and had a sinus leading down to it which exuded a large quantity of foul-smelling sanguineous pus. I urged immediate operation, but it was refused. Then put the patient on a teaspoonful of bovinine in old port wine every hour; also twenty grains glycero-phosphate of lime every three hours; besides twice a day giving a hypodermic injection of kreasote in liquid albolene, between the shoulder blades. The sinus was syringed out with peroxide-on-bovinine followed by Thiersch, then filled with bovinine and dressed. There being so much diseased tissue and in such a broken condition that it was impossible to build it up, I insisted on a slight operation, merely removal of the spinous processes of the fifth and sixth vertebræ, and a thorough curettement of the cavity and uncovered vertebræ. This was finally consented to, and on June 6th, assisted by Dr. Friedenberg, with the patient under a. c. e., I cut down, and removed the spinous process of the fifth and sixth vertebræ, and thoroughly removed by curettement the pathological tissues of the cavity and surrounding parts. Following this, the cavity was thoroughly washed out with Thiersch solution; and then, in order to destroy any bacilli that might have been left in the wound, the depuration by peroxide-on-bovinine was employed; cavity was washed out with Thiersch, dried, and packed with plain sterilized gauze saturated with bovinine pure. The outer wound was dressed with bovinine changed daily until the 14th, when the cavity was found filling up all over with healthy granulations, and the denuded bone surfaces rapidly covering with new periosteum. The daily dressings being continued to the 26th, the bone was then found covered, and the cavity nearly filled with healthy tissue; thence to the 29th, when removal of dressing showed entire healing of the wound. July 2d, the case was discharged cured.

This is an unusually interesting demonstration of the efficacy of supplied blood in so-called incurable bone disease.

INSTRUCTIVE EXHIBITS.

"One of the chief attractions at the annual gatherings of The American Medical Association is always the exhibition hall, where the principal drug, instrument and food products of the world, the results of years of experimental research and labor, are placed in view."

"Among the many attractive exhibits at this year's Denver meeting, that of IMPERIAL GRANUM, recognized by many leading physicians as the standard among prepared foods, occupied a prominent space and the representative in charge was kept busy explaining to the visiting physicians the superiority of this preparation. Handsome sample boxes of the FOOD, and copies of The Imperial Granum Co.'s valuable clinical record, were presented to each physician in attendance."—From The Journal of the American Medical Association, Chicago.

Tuberculosis and its Treatment by the Later Methods.

The Journal of the American Medical Association, July 23rd, 1898, presents a report of A. G. Deardorff, M. D., San Francisco, made to the annual meeting of the American Medical Association at Denver, of twelve cases of tuberculosis treated by serum made by Paquin of St. Louis, with four cases in first stage recovered, in second stage two greatly improved, one well in the third stage and several benefited.

In conjunction with serum, Dr. Deardorff advises tonics, cod liver oil, antiseptics sprayed in the throat and lungs of Boro-luptol, listerine, etc. When pus exists in the sputum he uses the Anti-Streptococcus Serum alternately with the Anti-Tubercle.

SANMETTO RELIEVES QUICKLY IN PROSTATIC TROUBLES.

To say that Sanmetto does all that could be reasonably expected of it, in all troubles of the genito-urinary organs, is not an adequate description of its therapeutic value. For it aids in any congestion more or less, and is therefore an invaluable remedy for all congestions, especially of the prostrate gland, affording relief quickly.

Drake, Mo.

H. A. Gross, M. D.,
1858 Med. Dept. Washington Univ.
(St. Louis Med. Col.) St. Louis, Mo.

Nineteen Black Bass, weight 53¼ pounds, caught in two hours, Aug. 7, 1898, in Beaver Dam Lake, Cumberland, Wis., by Traveling Agent Frazer and Local Agent Luff.

LECTURES AND ADDRESSES.

THE HISTORY OF MEDICINE AND OF THE MEDICAL PROFESSION.*

By Burnside Foster, M. D.,

Clinical Professor of Dermatology and Lecturer on the History of Medicine in the University of Minnesota.

St. Paul.

(Concluded from LANCET of Oct. 15.)

Another half century, however, was destined to elapse before any practical results were achieved towards the accomplishment of that for which many earnest workers had striven for many centuries. There are four names which must always be associated with the final demonstration of the safety and practicability of surgical anæsthesia: Horace Wells, of Hartford, Conn., Crawford W. Long, of Georgia, Charles Thomas Jackson and William Thomas Green Morton, both of Boston. It is not my purpose, nor indeed would it profit us even if I had the time, to enter into the details of that bitter controversy between these four men as to which of them was entitled to the honor of being the discoverer of the anæsthetic properties of ether. I will content myself with stating that, while a careful study of the history of the subject proves beyond a doubt that Crawford Long performed the first operations upon patients rendered insensible by ether narcosis, the honor of the first public demonstration of the safety and practical value of the use of ether in surgery belongs to Morton! It was Morton who gave it to the world!

There is no doubt that Dr. Long, during the years 1842, 1843 and 1844, performed a number of operations under ether, but as he lived in a part of the country remote from medical journals and societies, and as he did not seem at first to fully appreciate the significance and the importance of his observations and experience, he failed to report or to record his knowledge until some years after Morton, who had never heard of Long or his work, had publicly proven that operations could be painlessly performed upon patients who had been rendered insensible by inhaling ether.

William Thomas Green Morton was born in Worcester county, Massachusetts, August 19, 1819, and spent his early years upon a typical New England farm, receiving his preliminary education at the famous old Leicester Academy. At the age of seventeen he went to Boston to earn his living, but having from his boyhood shown a great aptitude for scientific pursuits, he found commercial life uncongenial, and determined to study dentistry, which was then just attaining the dignity of an important branch of surgery, and becoming recognized as a respected profession. He went to Baltimore, where the first dental college in America had recently been established, and, after graduating, he returned to Boston, where he speedily acquired an extensive and a lucrative practice. His tremendous energy and capacity for work was shown by the fact that, besides attending to a large office practice, he found time to attend the lectures at the Harvard Medical School, for he was desirous of obtaining the degree of Doctor of Medicine. From the beginning of his professional life Morton was possessed with the idea that he was destined to discover some method by which insensibility to pain might be produced. He had experimented somewhat with nitrous oxide gas, the properties of which he had learned from Dr. Horace Wells, with whom he had been for a time associated in the practice of his profession. In a conversation with Dr. Jackson, with whom his medical studies had brought him into somewhat intimate personal relations, in regard to the manufacture of nitrous oxide, Morton received the suggestion that sulphuric ether might accomplish the same purpose. He immediately began to experiment with it upon animals, upon such persons as he could persuade to submit to it, and upon himself. In spite of many discouragements and much ridicule from those who knew of his attempts, he persisted patiently, until finally he became satisfied that he could produce safely a brief period of insensibility sufficient for the ordinary operations of dentistry. Then came the question of its use in surgery. Fortunately Morton counted among his warm friends Henry J. Bigelow, who was about his own age, and who afterwards became, as you all know, one of the greatest surgeons our country or any country has ever produced. Dr. Bigelow had faith in Morton's discovery, and determined to assist him in obtaining an opportunity to give it a public trial. Finally, on the fourteenth of October, 1846, Dr. Morton received a note from the house surgeon of the Massachusetts General Hospital, written at the request of Dr. J. C. Warren, then senior surgeon, inviting him to be present on the following Friday, and to administer to a patient, then to be operated upon, "the preparation which he had invented to diminish the sensibility to pain." No wonder that his nights were sleepless, and his days were anxious during that brief period before the day

* Extracts from a course of lectures delivered before the students of the University of Minnesota, during the winter of 1898.

of trial. Remember, he was but twenty-seven years of age, and comparatively unknown, and he was to appear before the most distinguished and experienced surgeons of that time to demonstrate something which seemed to them an impossibility. On the morning of that memorable day, the sixteenth of October, 1846, there was assembled, as I have said, an unusually large number of spectators in the Amphitheatre. As the hour for the operation approached the excitement became intense, and even the surgeons seemd to share it. Ten o'clock, the hour named, had passed, and still Dr. Morton had not arrived. Slowly the minutes, five, ten, fifteen dragged on, and then Dr. Warren, taking out his watch and smiling somewhat sarcastically, said: "Gentlemen, as Dr. Morton is not present, perhaps it will be as well to proceed with the operation in the usual way." The patient, a young man with a tumor of the neck, was brought in and prepared, when, at the last moment, Dr. Morton, who had been delayed in his final preparations, appeared somewhat out of breath, but cool and self possessed, and ready to proceed with his demonstration. Rapidly he proceeded to pour out the fluid, whose vapor he directed the patient to inhale, as it was held close to his face. Not a word was spoken. Not a sound broke the silence of that room, save the deep breathing of the patient and the restless movements of that eager and excited throng of spectators. Presently that death-like stillness was broken by the quiet voice of Dr. Morton, who turned to Dr. Warren and said: "Your patient is ready, doctor." There lay the patient, apparently only in a heavy sleep; but there was probably no one present, save Morton himself, who did not expect to see him start up with a cry of pain at the first incision of the surgeon's knife. But no! Swiftly and surely the knife has cut through the skin, the blood is flowing freely, the tumor is skillfully dissected out, the vessels ligated, the wound closed with sutures, dressed and bandaged. Not a sound from the patient, who is still lying in a painless sleep! The change of sentiment from incredulity and suspicious doubt, to belief and admiration, which took place in the minds of all those who were present that day, was well voiced by Dr. Warren, who exclaimed, as the patient was being carried away: "Gentlemen, this is no humbug!" That day's events recall to mind those familiar lines of Goldsmith, in which, describing the preacher of "The Deserted Village," he says:

"Truth from his lips prevailed with double sway,
And fools who came to scoff remained to pray!"

There is little to say further concerning the discovery of anæsthesia, which, from that day, became an established fact. Chloroform was introduced some two years later by Sir James Simpson, in England, and being somewhat pleasanter to inhale, is still preferred for short operations and for producing anæsthesia during labor, by many surgeons, although there is a certain element of danger connected with its administration, and it is not quite so safe for general use as ether.

It is undoubtedly true that Dr. Jackson, who was an eminent chemist, was familiar with the properties of sulphuric ether, as numerous other persons were, and had inhaled its vapors himself, before Morton had ever used it, but the evidence seems to show that he had not sufficiently the courage of his convictions to risk his professional reputation by publicly administering it to a human being. Morton, however, having satisfied himself of its safety and efficiency by numerous private trials, undertook this task, solely upon his own responsibility, risking not only the ridicule and abuse, but even the greater danger of criminal prosecution which a failure, involving injury or death to the patient, might have brought upon him.

It seems to me that the revival of the details of that unfortunate and bitter controversy between Jackson and Morton can add no lustre to the fame of either. I would rather that it should lie buried in their graves, and that for this priceless boon, for which mankind is in some measure indebted to them both, a grateful posterity should give to each his share of gratitude and glory. We who are now so accustomed to painless surgery that anæsthesia has long since ceased to excite even our wonder, can scarcely realize the bitter opposition, the obstinate hostility which for the first few years of its existence opposed its general use. Even the pulpit hurled powerful and eloquent anathemas against its advocates, declaring that pain, and particularly the pain of childbed, was the dispensation of a Divine Providence, and that it was sacrilege, an insult to the Almighty, to make this attempt at interference with His arrangements; and there were not wanting quotations from Scripture to sustain this view. But has not this ever been the history of each great step in the progress of the world? And, indeed, a wise conservatism, which carefully scrutinizes every new and unprecedented procedure, is especially needful in medicine and surgery, to protect humanity from ignorant and dangerous experimentation. It is wise counsel to the young physician, and indeed to physicians in general, which is found in those well known lines of Pope:

"Be not the first by whom the new is tried,
Nor yet the last to lay the old aside."

Neither Morton onr Jackson ever derived any pecuniary profit from their connection with the discovery of ether anæsthesia, although they were both honored by many scientific academies

and societies and received the medals and decorations of numerous foreign orders and governments. Morton died a poor man in 1868; Jackson became insane and died in 1880.

Upon the base of the dome of the new chamber of the House of Representatives in the Boston State House are inscribed the names of the selected fifty-three of Massachusetts' most distinguished citizens. These names have been selected in such a way that each shall either mark an epoch, or designate a man who has turned the course of events. There may be read the name of William Thomas Green Morton.

Above his grave in Mt. Auburn Cemetery stands a beautiful monument erected shortly after his death by physicians and citizens of Boston. Upon it is this inscription, written by Dr. Jacob Bigelow: "Inventor and revealer of anæsthetic inhalation. By whom pain in surgery was averted and annulled. Before whom, in all time, surgery and agony. Since whom science has controlled pain."

The surgery of today was born with anæsthesia, and America can boast of no greater glory than that of having given to the world that which has made painful surgery a thing of the past. While it is true that modern surgery was born with anæsthesia, that its wonderful achievements would be impossible without anæsthesia; anæsthesia alone, did not make this possible. Indeed, from a purely surgical point of view, leaving out of consideration for a moment the non-surgical use of anæsthesia, I believe that unsupported by the greatest of all surgical principles, asepsis, anæsthesia would have been rather a curse than a blessing to surgery. This may seem a startling proposition at first, but when we consider the frightful mortality which formerly attended even trifling operations, when we consider the terrible, and fatal epidemics of pyæmia, septicæmia, hospital gangrene and erysipelas, now almost unknown, but which many living surgeons can remember; and when we consider, further, the tremendous impetus which operative surgery received with anæsthesia, making many operations easy, which had previously seemed almost impossible, what would have been the surgical mortality of today, without asepis? The operations could still be performed—but what of the patients?

Aseptic surgery, which has grown up within my own memory, and with it the germ theory of disease, have not resulted from the discovery of any one man, but have gradually grown from the study of microörganisms and from the accumulated labors and observations of a large number of investigators. The most conspicuous names among these have been Louis Pasteur, Tyndall, Lister and Koch.

The study of the microörganisms of disease had its origin in the study of fermentation and putrefaction. The earliest recorded knowledge of microscopic life was the observation made by Anthony van Leeuwenhork, who in 1675 discovered by the aid of a lens, minute organisms moving in a drop of stagnant water. A few years later the same observer discovered the yeast fungus—although he was entirely unaware of its significance concerning the phenomena of fermentation.

Robert Boyle, a physician, wrote in 1676, in a work on pathology, the following sentence, the significance of which was not appreciated for nearly 200 years: "He that thoroughly understands the nature of ferments and fermentation shall probably be much better able than he that ignores them to give a fair account of divers diseases (as well fevers as others) which will perhaps be never properly understood without an insight into the doctrine of fermentation."

More than a hundred years passed before any scientific attempt was made to study the phenomena of microscopic life, although we find in many of the medical and surgical writing of the eighteenth century allusions to "invisible organisms" as the cause of contagious diseases and of the putrefaction of wounds. The belief in spontaneous generation was maintained for centuries and was only finally disposed of by the investigations and experiments of Pasteur and Tyndall. The earliest scientific effort to disprove this theory was by Francesco Redi, of Tuscany, in 1668. By a very simple experiment he demonstrated that maggots, which had always been believed to be generated by putrefying flesh, were really produced from the eggs of flies. He covered fresh meat with fine gauze and found that while it putrified, no maggots were produced in it. They were, however, found on the gauze where the flies had laid their eggs. The origin of maggots was thus explained, but the cause of putrefaction remained long undiscovered. The first actual demonstration that putrefaction of organic matter was caused not by air itself, but by organisms in the air, was made by Schwann, of Berlin, in 1837. He proved conclusively that flesh, and organic material heated to a degree incompatible with life and then protected from the air, or supplied only with air which had been sterilized (or filtered) would never putrefy. The researches and experiments of Louis Pasteur in France and John Tyndall in England gave the final death blow to the theory of spontaneous generation, demonstrating conclusively the true nature of fermentation and putrefaction and taught us the simple methods of sterilization now so familiar. In 1868 it was demonstrated that a piece of gauze would keep maggots from developing in a pot or flesh; it seems to us but a short step, but it took nearly two

hundred years to prove that a bit of absorbent cotton would keep the germs of fermentation from gaining entrance to a flask of boiled milk.

Other distinguished scientists, whose labors aided in the demonstration of the true principles of fermentation and putrefaction, were Appert, Gay, Lussac, Helmholtz, Liebig, Schroeder and Dusch. To those interested in the history of this subject, which we have not time to consider here in further detail, I would recommend as most interesting reading a collection of essays by John Tyndall, entitled "Floating Matter in the Air." During this time there had been a gradual improvement in the technique of microscopy and the study of microöorganisms was aided by the introduction of achromatic lenses and perfected by the discovery of the oil immersion lens. One of the earliest to appreciate the importance to medicine and surgery of this subject was the famous English surgeon, Spencer Wells. In 1864, in a paper read before the British Medical Association, he stated that "The recent experiments of Pasteur had all a very important bearing upon the development of purulent inflammation, and the whole class of diseases most fatal in hospitals and other crowded places. * * * * The influence of germs on the propagation of epidemic and contagious diseases has yet to be made out."

Spencer Wells, however, did not fully grasp the significance of his own words, and it remained for the genius of Joseph Lister, now Lord Lister, to take the first practical steps towards the establishment of antiseptic surgery. He began with the proposition that the infecting material of wounds was in the air, and that if the air and all that came into contact with the wound could be rendered antiseptic, by means of agents which were destructive of germ life, the wound would not decompose. To accomplish this the air is in the operating room was saturated with a spray of carbolic acid and all instruments and dressings were disinfected in carbolic solution.

Lister's first publications on this subject, which inauguarted this new era of surgery, were in the London Lancet in July and September, 1867. The first paper was entitled "A New Method of Treatment of Hernia in the Presence of Atmospheric Air;" and the second "On the Antiseptic Principle in the Practice of Surgery." The great principle announced by Lister, and generally known as "Listerism," has not since been shaken, although the practical details have been much modified and simplified. We now know that the air itself is not so much to be feared as the germs in the air fall by the force of gravity and are found rather on the skin of the patient, on the surgeon's hands, or on the instruments, ligatures and dressings. Our surgery today is aseptic rather than antiseptic. We know that if we thoroughly disinfect by scrubbing and the use of antiseptic solutions the skin around the operation wound, and the surgeon's hands, and if the instruments and dressings are sterilized by heat, we can keep our wound perfectly aseptic without touching it with any antiseptic solutions. The latter are only needed in already infected wounds. The most essential detail of asepsis consists in sterilization by heat, and with the exception of the patients' skin and the surgeon's hands, everything that comes into contact with the wound can be thus sterilized. Thus it is never necessary to have any antiseptic solutions, which are all more or less irritating, brought into contact with the wound itself. An aseptic wound surface, sterilized instruments, aseptic hands, sterilized sutures, ligatures and dressing materials and a dry wound; these are the essentials for the healing by first intention.

With the establishment of the new theory of wound treatment, and as the result of the same methods of investigation, came the development of the germ theory of infectious and contagious diseases and the discovery of specifc pathogenic germs. In 1873 Obermeier, of Berlin, announced the discovery of the germ of relapsing fever. In 1874 Hansen discovered the bacillus of leprosy. In 1876 Weigert invented his staining methods by which the study of microörganisms has been so much facilitated. In 1878 Robert Koch published his great work on traumatic infectious diseases. In 1879 Neisser discovered the gonococcus. Thus the work rapidly advanced until in 1882 Robert Koch, having previously announced his theory of attenuation of germ culture and protective innoculation, made the greatest discovery of all, the bacillus of tuberculosis. During all this time the venerable Louis Pasteur whose earlier investigations had done so much to establish the principles of the germ theory, was patiently working in his laboratory, experimenting on various infectious diseases of both men and animals. His investigations concerning the silk worm disease which for a time paralyzed the chief industry of the south of France; concerning splenic fever, chicken cholera and hydrophobia, have made his name the best known in the history of modern medicine.

Concerning the future treatment of germ diseases, we can only surmize. The theories of germ attenuation, of preventive inoculation, of artificially produced immunity and of germ therapy are still in their infancy. When, however, we consider the grand achievements which the last half of the century now drawing to its close, has witnessed, and when we consider the enormously increasing army of investigators all over the world, and the vast improvements in the

technique of laboratory methods, it is surely not rash to predict that the next century will witness the extinction of some of these diseases which we even now speak of as preventable. Our grandest possibilities surely lie in the department of preventive medicine.

A MUSICAL SYSTOLIC MURMUR OF UNUSUAL INTEREST.

A Clinical Lecture Delivered at the St. Paul City and County Hospital.

By Chas. Lyman Greene, M. D.

Clinical Professor of Medicine and Physical Diagnosis in the University of Minnesota,

St. Paul.

Ladies and Gentlemen:

The patient whom I will show you today has a somewhat romantic and curious history. This history indirectly bears upon the very interesting pathological state which brings him before us today.

He is a Polish exile of good family, who has sought an asylum in this country. Five years ago he had a severe attack of fever supposed to have been typhus, and he dates his present trouble from that illness. Incapacitated for the work which he had marked out for himself he has been forced to fall back upon his own infirmity as the means of earning a living, and goes from city to city and from clinic to clinic, offering himself as a clinical lesson, for a small fee. His little book of testimonials shows that he has been examined by a large number of the more prominent clinical teachers upon this North American continent. The newspapers have been filled with highly colored accounts concerning him, and he has not been spared by the X-ray men.

I first made his acquaintance at the time of the British Medical Society meeting in Montreal, last year, and find him today in a somewhat better condition than he was then.

It would seem from his account that a considerably diversity of opinion has been encountered by him in his travels among the diagnosticians. It will be all the more interesting, upon this account, for us to analyze his case today, and endeavor to form some conclusion as to the conditions present. His family history is negative. His past history is also negative save in regard to the typhus fever, which we have mentioned, and the fact that five and one-half years ago he received a stab wound over the left edge of the heart. Whether this latter matter has anything to do with his present trouble, it would be difficult to say.

INSPECTION.

The only thing evident in his general appearance as he stands before you is a slight cyanosis as shown in the color of the lips and nails and a slight duskiness of the skin best seen by those at some distance. If he is placed in a recumbent position with the head low, this cyanosis is somewhat deepened, but does not become extreme. If we look more carefully we may be able to see pulsation in his radials, temporals, carotids and over the femoral vessels.

Placing this glass slide over his lips, we are able to see a well marked capillary pulse, which is also evident upon closer inspection of the nails or upon the forehead after we have applied brisk friction to the skin. If we should put him through any violent exercise, we might hear him cough a hard, short, dry cough.

His visible apex beat, we note as being in the fifth interspace on the left side about half an inch to the left of the mammary line. Palpation confirms the result of inspection and also develops the fact that his pulse is a typical Corrigan pulse.

PERCUSSION.

The area found by percussion is extremely interesting and instructive. We find now that inspection and palpation misled us as to the real position of his apex, for we find that the left border is five and one-half inches from the mid-sternal line at the level of the nipple, its maximum distance being five and three-fourths inches, at a point a trifle below this level and that the actual apex is no less than three and three-fourths inches below the level of the nipple. The outline of the apex is well defined and extremely pointed, which argues well for the present condition of the heart muscle. The right border is one and seven-eighths inches to the right of the median line, if we accept only marked dullness. By deep percussion we find it carried out three-fourths of an inch further to the right. The upper border shows a curve over the aortic arch, which carries it no less than four inches above the junction of the mid-sternal and nipple lines. Without attempting to draw any conclusions from our present evidence let us pass at once to

AUSCULTATION.

Over the apex I hear two murmurs, one systolic and one purely diastolic. The systolic murmur is very loud and very musical, and it is this musical quality of the murmur which has given this man his notoriety. Following this murmur we find that it passes through the axilla and that it is to be heard distinctly under the left scapula. Passing then to the right we are astonished to find that it increases in intensity until it reaches its maximum at the left edge of the ensiform cartilage. We also find that the diastolic murmur at

the apex is carried to the right and becomes an intense diastolic murmur, which we may follow upwards along the left edge of the sternum, and find that it reaches its maximum in the aortic area, viz.:—At the right second interspace. Here we find also a systolic murmur, lacking the musical quality and high pitch of the apical murmur, and transmitted upwards and into the vessels of the neck. We hear it in both carotids, but much more distinctly on the left side. These are the only murmurs which I am able to detect at the present time, though the patient tells me that as many as six have been described by some of the clinicians who have looked him over.

I should have said previously, in describing the pulse, that there is a marked difference between the right and left pulse, the left being much the stronger.

Now let us attempt to interpret the signs as we have found them. You remember what I have so often said to you, that in dealing with heart murmurs of valvular origin, we are always to remember the very simple rule that nine out of ten murmurs belong to the hard worked left side of the heart. That with the first sound, viz.: with systole, we may have any one of four murmurs, or any combination of them. These are murmurs of mitral and tricuspid regurgitation and aortic and pulmonary obstruction (stenosis), that with the second sound we have also four murmurs, namely, the diastolic murmurs. These would be the reverse of our first four: pulmonary and aortic regurgitation, tricuspid or mitral stenosis. You will remember also, that the murmur of mitral stenosis (and the same would be true of tricuspid stenosis) is more often presystolic in time than diastolic but that it might be either. You will remember that the reason for this variability is easily understood. That the mere onflow of blood through an obstructed mitral or tricuspid may be insufficient to produce a murmur, but that when auricular contraction takes place, just before systole, the force of the current of blood is so increased as to produce a presystolic murmur.

I will also remind you of the fact that aortic lesions cause primarily a change in the left ventricle. Mitral disease on the other hand, primarily a change in the right ventricle, so that with aortic disease the left border is carried outward, and the heart's apex is found displaced markedly downward and to the left. In mitral disease on the other hand there is at first less displacement downward, but marked excursion of the right border, and when the left ventricle becomes involved we have more of a broadening of the heart and less of the pointed area, which is so marked a characteristic of aortic disease. Now in order to determine the point of origin of our murmurs, we have chiefly to bear in mind:

1st. Their time.
2nd. The point of maximum intensity.
3rd. The area of transmission.

Applying these rules to the case in hand, we find that our patient has a marked diastolic murmur with its maximum intensity in the aortic area. That it is transmitted downward along the left edge of the sternum to the ensiform cartilage. These are the characteristics of aortic regurgitation, and the Corrigan pulse, pulsation of the peripheral vessels and capillary pulse, with the character of the second sound, make it absolutely certain that this murmur is present. Furthermore, the outline of the left ventricle tends to conform this opinion.

We have also noted a systolic murmur higher in the aortic area, carried into the veins of the neck. The most common murmur answering to this description is that of aortic stenosis. Or perhaps more commonly a murmur due to roughening of the intima at the root of the aorta. Before concluding that we have to deal with aortic stenosis, we first must be satisfied that we are not listening to the same murmur which we heard at the apex, as we know that such a loud murmur might easily be transmitted to this point. We do hear the musical systolic here, but there is a second murmur which is quite unlike it. We can satisfy ourselves that it is not the same murmur by comparing the tone and pitch. It is distinctly softer and lower pitched. But if it were aortic stenosis it should be heard as plainly in one carotid as in the other. You will remember that we found it to be heard much more distinctly on the left side than on the right. This fact, together with the observation which we made concerning the area of dullness at the base of the heart over the aortic arch, and the fact that the left pulse is distinctly stronger than the right, leads us to the conclusion that we are dealing with aneurism of the arch of the aorta, and we are justified in concluding that this murmur is an aneurismal bruit, and that the dilatation involves the origin of the innominate artery of the right side, thus weakening the pulse as felt in the right subclavian, carotid and radial and interfering with the transmission of the bruit into the vessels of the right side of the neck.

We have disposed of two murmurs, both of aortic origin and we have now to consider the remarkable, musical systolic murmur, which is the basis of this man's livelihood. We heard this murmur distinctly at the apex, and we find it transmitted to the back through the axilla. These are the characteristics of the murmur of mitral regurgitation, but you will remember that we found that this murmur was heard still more perfectly at the left edge of the ensiform cartilage. This is more nearly the location in which we expect to hear murmurs of tricuspid regur-

gitation, and this has been the parting of the ways in the case of the various diagnosticians who have previously examined him. A large proportion have considered the murmur to be of this nature. I am firmly of the opinion, however, that it is mitral regurgitation, for the following reasons:

1st. That the murmur heard at the ensiform is unquestionably the same as that heard at the apex.

2nd. That this murmur as heard at the apex has the typical transmission to the axilla and back, of mitral regurgitation.

3rd. It is not probable that a tricuspid murmur could be so transmitted.

4th. It is a well known fact that where there is thickening of the anterior segment of the mitral valves, we may get the maximum intensity of the resulting murmur at the left edge of the sternum.

5th. That there is absolutely no competent evidence of a long continued tricuspid leakage. Such evidence would be found in marked dilatation of the jugulars with direct jugular systolic pulse if the valves were broken down, marked enlargement of the liver, and the various other evidences of back pressure in the general venous system. This man has not even jugular distention. He tells me, however, that he has marked pulsation of the retinal veins, and this, he states, has been considered to lend weight to the diagnosis of tricuspid regurgitation. In my opinion it would be of little value as evidence. He must have marked pulsation of the retinal arteries as a result of his aortic regurgitation. A coincident pulsation of the retinal veins is not at all uncommon, and is said to be present at times even in conditions of health. Sometimes the pulsation is only apparent and really due to the impulse imparted by the pulsating retinal arteries. The diastolic murmur heard at the apex may be due to mitral stenosis, but cannot be positively differentiated from a transmitted murmur of aortic regurgitation. Inasmuch as we have good reason, however, to believe that there is marked thickening of the mitral valves, it is quite proper to assume the probability of there being more or less stenosis. Such musical murmurs as the one present in this case are unusual, though most men seeing a large number of heart cases from time to time will have in mind several cases presenting this characteristic. I showed a case to the class two years ago which presented a quite remarkable musical murmur of aortic regurgitation, a condition much rarer than the same murmur in mitral insufficiency. A young lady at present under my observation has a musical mitral murmur with maximum intensity at the ensiform, but it is much less intense and less pure in tone than is this one. These murmurs may be due to a variety of causes. They are, as before stated, generally of mitral origin, and are frequently due to a thickening of the valves, which results in a tightly stretched, drumlike edge, over which the regurgitating current rushes with each systole. They have also been found associated with aberrant tendinous cords, and have in some instances been present when upon autopsy no adequate structural cause could be found.

One word regarding the tricuspid insufficiency. I have said that it seems to me to be improbable that this patient should have tricuspid insufficiency at the present time, but I would by no means say that he has not had tricuspid insufficiency in the past. On the contrary I should presume that if he take a severe cold, resulting in bronchitis or congestion of the lungs or underwent severe or prolonged muscular strain that he would necessarily have a tricuspid regurgitation.

It was Sibson, I think, who denominated the tricuspid valve the safety valve in lesions of the heart, and we know that three leaved valves are much weaker than those of two leaves.

Experiments have shown that before the mitral valve can be forced open by back pressure, the wall of the heart will rupture under the strain. The tricuspid on the other hand can easily be overcome. Hence it follows that if the victim of such a lesion as this is unfortunate enough to overdo and the weakened left heart is unable to carry on the additional work required, the resulting back flow in the pulmonary circulation, by throwing its burden upon the right ventricle, overcomes the weak tricuspid leaflets and establishes temporarily or permanently, as the case may be, tricuspid regurgitation.

In cases of emphysema we see the same thing. They frequently come into the hospital with tricuspid murmur, are put to bed for a couple of weeks and go out with no murmur. We will assume, therefore, that this case is one of well compensated mitral regurgitation, and aortic regurgitation with aneurism of the arch, and unproven, but probable, mitral stenosis.

As this individual asks for no directions as to treatment, our connection with the case stops at this point.

Wherever iodoform or any of the iodine compounds is applied as a dressing, the part should be inspected the next day, owing to the possibility of the occurrence of dermatitis. When the latter occurs it often gives rise to heightened temperature, and might lead to the belief that wound infection had taken place.—"Surgical Hints" in International Journal of Surgery.

ORIGINAL ARTICLES.

POST PARTUM HEMORRHAGE.*

By W. N. Kendrick, M. D., C. M.

Austin, Minn.

The definition of post partum hemorrhage is hemorrhage occurring after the birth of a child. The bleeding may come from lacerations and other conditions about the vulva, vagina or cervix or from the interior of the uterus.

In this paper I propose to consider only the latter, i. e., hemorrhage from the interior of the uterus and that from the placental site.

It is obvious that hemorrhage from this part cannot occur while the placenta is wholly attached, but may occur after incomplete or complete separation and before or after its expulsion. It may occur one or two days after the birth of a child but is then usually termed secondary hemorrhage and does not come within the intended scope of this paper.

ETIOLOGY.

The essential cause of post partum hemorrhage is inefficiency or absence of uterine contraction. This may be caused by conditions in and about the uterus, as follows:

1. A short and precipitous labor following which the uterus does not contract as well as if the labor had taken a more nearly normal course.
2. Again, in a tedious and long drawn labor the uterine muscle becomes exhausted.
3. By the distension of the uterus to great size by some cases of twins, hydramnios, etc.
4. Deficient muscular development as the pregnancy goes on.
5. Adhesion of the placenta or retention of parts of it, preventing the contraction necessary to the closing of the sinuses.
6. Fibroids and polypi acting in the same way.
7. Varicose degeneration of the parts.
8. Placenta prævia, the placenta being attached to the lower uterine segment which is not contractile in so great a degree as the upper segment.

From conditions without the uterus:

1. Hæmophilia is an obvious cause.
2. Albuminuria. The practitioner should think of post partum hemorrhage as well as eclampsia at the examination of the urine of every pregnant woman, as albuminurics are particularly liable to it: the reason it would seem being on account of the increased tension in the blood vessels together with the hydræmic state of the blood.
3. Anæsthesia, and especially the profound anæsthesia of operative obstetrics.
4. Meteorism may be mentioned.
5. Distended bladder is often an unlooked for cause. We think of it as a cause of weak pains in labor and its action is the same here.

PROGNOSIS.

The hemorrhage is usually more grave in cases where we get a history of post partum hemorrhage at previous labors if any, or in hemorrhage in other members of the same family.

The earlier it sets in or the greater in amount the more grave it is. Serum like or unclotted flooding usually portends imminent death. Hiccough, convulsions or dilatation of the pupil are bad.

Pain in the back means returning uterine activity and is of good omen.

SYMPTOMS.

The pulse is the herald of post partum hemorrhage and should be watched closely during and after the third stage of labor. It rises in frequency on the first indication of bleeding. The patient may express a wish for water, because she is thirsty; to be fanned because she is out of breath; or she may complain of ringing of the ears or darkness of the room. This means very little unless we are on the outlook for hemorrhage. Soon she becomes restless and tossing. You feel her pulse and find it steadily rising in frequency and it soon becomes thready and the skin cold and clammy. The abdomen is now distended where a few minutes ago you left it relaxed and flabby. The uterus instead of being small and hard about the size of a base-ball is indefinite or almost imperceptible in outline. On the first pressure blood gushes from the vulva or has already been doing so. Your woman is rapidly passing toward syncope and you are confronted with as serious a case as it is the fortune of the medical man to encounter, but which fortunately with a rational treatment thoroughly carried out should rarely prove fatal.

TREATMENT.

In the treatment of these cases the demeanor of the physician plays no small part, and Dr. Parvin expresses it well in his valuable book when he says: "If there is ever one time more than another in the obstetrician's life when he needs to be calm and collected and put forth prompt and intelligent action, it is when he is brought face to face with post partum hemorrhage. If he participates in the anxiety and alarm of the by-

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standers he will hesitate and falter in the instant use of necessary means, and fear becomes panic while the peril of the unfortunate patient is increased by every minute's delay, and by her loss of faith in him. But if, on the other hand, he is armed by that self-confidence which comes from knowledge, he inspires others with trust and they render prompt and wise obedience to his directions, and he doing the right thing at the right time and in the right way will generally have the unspeakable reward of saving a fellow being from swift death."

PROPHYLAXIS.

In all cases of pregnancy the doctor should be and I am glad to say is usually notified of the coming birth, and about its expected time. The first duty of the physician on being notified is to within a few days at least to visit his patient, where practicable, and from her obtain a full family and personal history and especially the history of previous labors, if any, in regard to hemorrhage. At this time obtain a sample of urine which should be tested for albumen, at least, and if he has got the case early examine the urine every two weeks during the sixth, seventh and eighth months and every week during the ninth month.

During the first and second stages of labor, if uterine inertia is coming on and it is necessary to stimulate the uterus, quinine is to be used in doses of from five to twenty grains.

An excellent routine practice in the third stage of labor and one which will prevent serious trouble later is:

1. As soon as the child is born give one drachm of fluid extract of ergot by the mouth or an equivalent dose of ergotine hypodermically a little later.

2. After the end of the second stage the uterus usually takes a rest for some minutes and then starts to contract slowly. The third or fourth pain is usually quite severe and comes on in about twenty minutes. The placenta may be forced out now, but if the pains are not very strong do not lose patience but give the placenta lots of time to separate. The placenta should never be removed unless there is some good reason. When it passes into the vagina, follow the uterus closely with the hand and keep it contracted if possible by gentle friction. Hold it or keep it contracted for one hour, and then if the pulse is below 100 and the uterus is contracting of itself you may leave the house.

If these measures should fail and the uterus is dilating and filling with blood in spite of you, then we must resort to other and stronger measures.

Just here it might be well to briefly consider the source of the bleeding and the natural means of checking it.

All the blood comes to the uterus from the aorta through three pairs of branches, viz: 1st, the uterine arteries, branches of the internal iliacs; 2d, two ovarian arteries that arise directly from the aorta just below the renals and opposite a point three inches above the umbilicus; 3d, two small branches from the deep epigastric running along the round ligament. The uterine arteries anastomose with each other and with the ovarian, and the ovarian with each other. The branches from the deep epigastric join those anastomoses on either side.

The return flow starts in the sinuses of the uterus and forms a plexus in the broad ligament of each side and divides into uterine and ovarian veins, the uterine emptying into the internal iliacs, the left ovarian into the left renal and the right ovarian into the vena cava. Two other branches return along the round ligament to the deep epigastric veins.

The uterus at the time of parturition may be divided into upper and lower uterine sements, separated distinctly by the contraction or retraction ring. The upper segment is composed of thick, strong muscle and is the part which supplies the expulsive force. The lower segment is thinner and not contractile in so great a degree and consists of about the lower four inches of the uterus and the dilated cervix.

The placenta is normally attached to the upper segment, but in placenta prævia wholly or partially to the lower segment.

The upper segment is divided into three muscular layers, external, middle and internal. The external and middle are arranged roughly longitudinally and circularly, the internal concentrically in bundles around the openings of the sinuses. On contraction of the uterus here as in any muscle the blood is forced along the vessels out of its substance and then the orbicular fasciculi close the mouth of the open sinuses, and after the expulsion of the placenta take on tetanic contraction which lasts for some time and which is the object we seek.

If severe hemorrhage commences before the expulsion of the placenta it is sufficient reason for its immediate removal and it should be done at once.

The guide to further treatment of post partum hemorrhage is the condition of the reflexes, as to whether they are active or our patient has so far gone that no reflex can be elicited.

If active the uterus will contract under a little friction and pressure to expell the clots, but possibly these may have to be removed by the hand, first made aseptic.

A cold, wet towel on the abdomen may assist somewhat in our effort to get the uterus to contract. If still contracting but not sufficient to control all the hemorrhage, a hot uterine douche at the temperature of 112° to 120°, always remembering first to annoint the vulva and vagina with vaseline to protect them, and then after starting the stream introduce the nozzle slowly to the fundus. The douche should be used in large amount and allowed to run slowly under easy pressure. These simple measures will in many cases be successful.

If the uterus still refuses to contract or if the hemorrhage has been severe from the first, with absence of reflexes, we have several methods advocated for the control of the hemorrhage till the patient rallies. Of these there are:

1. Uterine compression.
2. Forced anteflexion.
3. Forced retroflexion.
4. Fritsch's method.
5. Aortic compression.

The application of these methods is as follows:

Uterine Compression: Grasp the uterus through the abdominal wall, using friction and kneading and introduce the other hand into the fundus to provoke contraction.

Forced Anteflexion: Place two fingers in the posterior vaginal cul-de-sac, and with the other hand over the abdomen grasp the fundus and press both forward.

Forced Retroflexion: With the two internal fingers in the anterior cul-de-sac and the other on the anterior surface of the uterus press forward and downward.

Fritsch's Method: Close the labia majora and over them place a towel to prevent injury to the parts and make firm pressure to prevent inversion, and with the other hand over the abdomen grasp the fundus and approximate the hands. By this method we force the uterus into the pelvis making pressure upon the whole of its contents.

Aortic Compression: After the uterus is emptied of its contents the abdominal walls are so relaxed that they admit of pressure upon the aorta. Close the hand and depress the ulnar side into the abdomen well above the umbilicus till you feel the pulsations of the aorta and on it make firm pressure. It is necessary to get above the origin of the ovarian arteries to be successful in controlling the hemorrhage, and to change the point of pressure frequently on account of the sympathetic plexus about the arota.

Of these methods that of Fritsch stands first as regards both ease and effect.

Uterine compression with one hand in the uterus is little better than ordinary friction. Time is too valuable just now to stop and thoroughly cleanse the hands and a physician should think well before he dips his possibly unclean hands into the depths of the uterus and into the maternal blood. The danger of septicæmia is too great to be risked, especially when we have safer and more efficient methods.

Both forced antiflexion and retroflexion are objectionable on account of, 1st, the danger of infection, though not so great as in the last mentioned method is still to be thought of, especially as the pressure may have to be maintained over a somewhat long period, during which time the hand necessarily remains in the vagina.

Second. In practice I have found forced flexion hard to accomplish. We have not now the the uterus as body and cervix with a small canal, but with upper and lower segments with the cavities of both of approximately the same calibre, and the lower segment being thin and flabby and non-contractile is hard to maintain without leakage.

Third. In placenta prævia we have the placental site in the lower segment and we do not get the requisite pressure upon this part.

Aortic Compression: Remembering the point of origin of the ovarian arteries, we find to effectively stop all bleeding we must get above these arteries, which is with difficulty accomplished even when the abdominal walls are so relaxed as after the birth of a child.

Again the adherents of this method advise that the point of pressure must be changed frequently on account of the sympathetic plexus and the aorta, and it is plain that we cannot always keep above their origin.

The physiologists state that the venous system of the abdomen is sufficient to contain the whole amount of blood in the body, and we have now the abdominal circulation dilated on account of the withdrawal of the pressure of the enlarged uterus and thus the amount of blood in the venous system of the abdomen and plexus is no small amount. In aortic compression we are putting forth no effort to control hemorrhage from this source. If we do not get above the ovarian arteries we are simply cutting off a part of the circulation to prevent cerebral anæmia while the hemorrhage still goes on.

Fritsch's Method: This, I believe, is the ideal method for the following reasons:

1. It is simple and easy to accomplish.
2. It is immediate in its effect and will stop all hemorrhage from the uterus, vagina or vulva and from whatever cause.
3. It can be maintained for any length of time without injury to the parts.
4. There is absolutely no danger of infection and its does not require any preliminary cleansing of the hands or parts and therefore valuable time is saved to your patient.

5. By skillfully moving the hands any intelligent bystander may take the place of the physician while he attends to the general condition of the patient, should she need his care, all the time being fully aware that no bleeding is going on.

6. In hemorrhage from a severed limb, the first thing we think of is the tourniquet to be used until such time as the arteries can be ligatured. Here we have an analogous method, by pressure constricting the open mouths of the sinuses until the uterus beginning to contract applies to the vessels a living ligature.

Tamponing: Tamponing is an effective method but must needs be used after the critical period is past. It may be used to supplement any preceding method as a safeguard against further bleeding. Gauze is the best substance to use and not less than iodoform ten per cent. The end of the strip being taken in the end of a long forceps is introdced into the fundus so that it can be felt by the hand externally on the abdomen, and the uterus is packed closely from the fundus to the cervix, the gauze being folded like a fan. This must be supplemented by a light vaginal tampon and a "T" bandage. It should be removed in twenty-four hours, an antiseptic uterine douche given and the uterus against repacked if necessary. It acts not only by the pressure it exerts but is a constant stimulus to the uterus to contract.

Styptics: These are relics of bygone days. We would not think of pouring styptics over a rapidly bleeding external wound and neither should we think of it in a case of post partum hemorrhage because the source of bleeding is concealed. It is as useless in one as in the other.

Perchloride of iron is the substance most frequently used and is recommended in various strengths. One of the most frequently used formulæ is that of Barnes, one and one-half parts of the tincture to eight and one-half parts of water. In using this we are menacing our patient with the constant dangers:

First, of deep thrombosis and embolism which we cannot control; second, gangrenous endometritis is to be thought of; third, the mass of clots is an excellent culture medium for any germ that may happen to be present, and secondary infection is liable to occur.

Vinegar and turpentine have also been tried and must be placed in the same class.

Ice has been introduced into the uterus to cause contraction, but as we can never be sure of its cleanliness much less its sterility it is one of the methods that should be discarded.

General Condition: While our first object must be to arrest the hemorrhage yet we must not neglect the patient's general condition. If suffering from cerebral anæmia, a simple and efficient measure is raising the foot of the bed. Bandaging the limbs is often used for the same purpose.

If the heart is flagging, ether or strychnine hypodermically, or alcohol by the stomach during the crisis and digitalis later. These may be given alone or combined.

If the amount of blood lost is great and syncope seems imminent, rectal enemata of salt and water, given slowly and of large amount, will take the place of transfusion or sterile normal salt solution injected directly into the veins or cellular tissue. It is very rapidly absorbed and requires for its use only some water and a syringe and some salt if handy. Its simplicity and rapidity of performance and its good effect will always recommend it, for all that is required to keep the heart acting is sufficient fluid medium to fill its chambers.

THE INFLUENCE OF THE NERVOUS SYSTEM ON METABOLISM.*

By George C. Barton, M. D.

Minneapolis.

I have selected this subject because I believe it is one to which the profession has not given the attention it deserves, and because, in my judgment, it explains certain phenomena not well understood. Mills in his work "Animal Physiology," says: "This subject is of the utmost importance, and has not received the attention hitherto, in works on physiology, to which we believe it is entitled."

In the first place we have certain experimental demonstrations of this influence. Section of the nerves of bones is said to be followed by a diminution of their constituents, indicating an alteration in the metabolism. Section of the nerves supplying a cock's comb interferes with the growth of that appendage. Section of the spermatic nerves is followed by degeneration of the testicles. Section of the chorda tympani nerve changes the secretion of the submaxillary gland. Section of the sciatic nerve causes an trophy of the tissues to which this nerve is distributed. These are a few experimental demonstrations of what takes place in tissue when its nerve supply has been severed from its center; but this is sufficient to teach us this lesson, that while the blood may continue to carry to the tissue the food upon which it grows, that the cells of that tissue need something else besides the

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mere application of that food to the cell to keep their normal metabolism; and that this something else has been stopped by dividing its nerve.

We have again certain diseased conditions which illustrate very strikingly the same fact. When an intercostal nerve is injured or diseased, either at its center or at some place along its course, the disease known as herpes zoster may make its appearance and be confined to the distribution of the diseased nerve alone. Other nerves being diseased may produce a skin affection of some kind. In certain cerebral or spinal lesions bed sores make their appearance very rapidly, and this in spite of every precaution taken to prevent it. A diseased condition of certain nerve fibres, vaso-motor or otherwise, gives rise to an excess in the secretion of perspiration in the region to which such nerve fibres are distributed. It has been shown that unhealthy ulcers, which would not heal, were made to heal very rapidly by suturing together the divided ends of the nerve which supplied the part. These are a few of the many diseased conditions which demonstrate the influence of the nervous system on metabolism.

We have in diabetes, due to some nerve lesion, an illustration again of the influence of the nerve over the metabolism of the liver. Howel and Dreyer conclude an article in the "Annual of the Universal Medical Sciences" of 1895, as follows: "This experiment confirms the previous result in showing that the conversion of glycogen into sugar is under the direct control of the secretory fibres contained in the splanchnic nerve." Then we may conclude that these nerve fibres act upon that particular part of a liver cell which in its metabolism stores up glycogen, and stimulate that particular part of the action of the cell which converts glycogen into dextrose, and by reason of this excessive formation of dextrose and discharge of it into the blood we have a diabetic urine.

In another way is the influence of the nervous system over metabolism demonstrated, and that is in demonstrating the heat producing center. Increased formation of heat must be produced by increase in the katabolic process. Foster says: "In a number of experiments it has been shown that injuries to, such as those caused by puncture or galvanic cautery, or electrical stimulation of a limited portion of the more central portion of the brain, may give rise to great increase of the temperature of the body without producing other marked symptoms. The increase is shown by the increase of metabolism, increased production of carbonic acid, and increased consumption of oxygen as well as by direct calorimetric observation, to be due to an increased production of heat." The heart, although an automatically acting organ, will when the vagi nerves are divided, degenerate in its muscular structure. The vagi are called the inhibitory nerves of the heart, but by their action they influence the metabolism of the heart muscle cell. It is not enough that those cells be supplied by a sufficient quantity of good healthy blood; that food fails in its purpose unless the nerve power acts with it.

In dyspnœa, brought on, it may be, by the action of reduced hæmaglobin acting upon the respiratory center, we see the violent action of the respiratory muscles. What we learn then by these changes is that through the nervous system the changes which take place in tissue, whether that is increasing it in its activity or lessening its functional power, are brought about. How each particular cell is influenced by a nerve fibre we cannot say; indeed in many cells we cannot demonstrate that any nerve fibre ends in them. We say a patient is suffering from a functional disease when some particular organ or part of the body fails to perform in its normal way its special function, without our being able to demonstrate any organic change in the part as having taken place. It seems to me then in the light of physiological research we should be justified in saying that a functional disease is one in which the nerve power over the activity of the cells in such structure has been lessened or lost, and that in treating the condition our efforts should be directed not to the structures of the part, but to bringing about a greater nerve activity upon the part. In a "Digest of Metabolism Experiment," issued by the U. S. Department of Agriculture, we have among many other experiments reported the following case as illustrating the influence of the Weir Mitchell treatment upon metabolism. Upon a woman 1.66 metres tall was made by Bliebtren at the laboratory of the Physiological Institute in Bonn, in 1887, the following experiment: She had been ill for many years with an irritation of the spine, which caused hysteria. With great difficulty she could walk a few steps only. She spent most of the time in bed or lying on a couch. She ate very little and had a very marked nervous dyspepsia. Part of the spinal region was very tender, and the subject could not endure the light. She had no organic disease. The food, which was very abundant consisted of meat, milk, eggs, bread, potatoes, vegetables, butter, zwieback and cakes of some sort. No details of the daily food consumption are given by the author. The proteid of the food was estimated from Kœnig's tables. The nitrogen in the urine was determined. The urine was collected for several days, phenol being added as a preservative, and samples were taken for analysis. The nitrogen in the fæces was determined on four days, and the mean value, 7.57 per cent.

taken as representing the percentage of undigested proteid in the fæces during the whole period.

At the close of the experiment the patient was in good health and could walk several hours per day. The lameness in the back had disappeared. She had gained 15.48 kilograms in weight, and the author calculated that 7.414 kilograms of this was muscular tissue. The Weir Mitchell cure in this case was certainly beneficial.

Mental effects influence metabolism to a greater or less degree, as seen in great fear; it has frequently been said that "his fear paralyzed him." Many a man has felt his legs almost give way under him and his arms grow so weak, that to resist a most insignificant attack would be impossible. This is evidently brought about by an action through different nerves inhibiting the metabolism of the muscle cell. Again fear acts upon the salivary glands so that the mouth is made dry. In this case the secreting cells have through the efferent nerves going to the gland inhibited these cells in their action. Now this may have taken place by reason of the action of the vaso-constrictor nerve fibres acting upon the blood vessels and lessening the blood supply to the gland, and in that way lessening the secretion of saliva; but under the influence of belladonna the secretion of saliva will be stopped althought the blood supply is increased. This demonstrates at least that other nerve fibres besides the vaso-motor fibres act upon the secretion of the gland.

The normal metabolism in the stomach is interfered with by certain mental effects, as when eating a hearty meal some bad news is received, the digestion of the meal is stopped and the food probably vomited. This certainly teaches us that a mental impression acting through the efferent nerves of the stomach upon the gastric glands stops their secretion, and the food becomes an irritant to the stomach.

We have probably all of us at some time or other noted the striking change in the quantity of urine secreted under certain mental stimuli; and especially have we seen the enormous quantities of urine voided by hysterical women. Without a change produced by the metabolism of the secreting part of the kidney this excessive excretion of urine could not take place.

In our study of the influence of nerve force over metabolism, "it is of practical importance," says Mills, "to recognize that under great excitement unusual discharges from a nerve center may lead to unwonted functional activity; thus, under the stimulus of the occasion a man may in a boat race originate muscular contractions that he could not by the strongest efforts of his will call forth under other circumstances."

The insane or violently delirious will often show muscular strength far beyond their powers in a normal condition.

We may ask, of what value to us as practitioners of medicine are these demonstrations? In our eagerness to demonstrate as the cause of nearly all diseases some disease producing germ, we have probably not directed our investigations in other important directions so much as we ought. Also in the great desire in the profession for everybody to become a great surgeon, and to skillfully remove all diseased organs with the knife, we have left to quacks, with their "isms" and "pathies" the practice of means which undoubtedly are beneficial in the treatment of disease.

If, then, the nerves are so important to the metabolism of the different tissues of the body, it is important for us to understand how that nerve supply may be stimulated into a more vigorous action when the part shows by an interruption in its normal functions that something is wrong. The part itself may be all right and the nerve supply be at fault. This may be due to a changed condition of the nerve, or to the faulty metabolism of the nerve cell at its center. Electricity applied to the course of a nerve, when that nerve has failed to supply the normal stimulus to a muscle, owing to some central lesion, will excite the metabolism in the muscle, as shown by its contraction, and also by the want of atrophy and degeneration of the muscle. Old ulcers have been made to heal by the application of the electric stimulus to the nerve supplying the part. This stimulus may differ as widely from that which is the normal stimulus as it is possible for any two things to differ, and yet it proves the fact that a stimulus applied to a nerve does increase metabolism.

In the case just reported of the effects of the Weir Mitchell treatment we have a proof of another means of stimulating nerves and hastening or stimulating metabolism. The Weir Mitchell treatment, I presume you all understand, is simply massage with the giving of plenty of food. In massage you have a mechanical means of stimulating the nerve fibres to action. The osteopath calls it osteopathy, but "by any other name a rose would smell as sweet."

We are able to demonstrate by the use of a muscle nerve preparation that a mechanical stimulus applied to a nerve will produce a contraction of the muscle in the same manner that an electric stimulus will. In this case of Weir Mitchell's, there was used, no doubt, general massage so that the nerves supplying the digestive tract were stimulated, and in consequence there was increased metabolism in these organs producing an increased supply of digestive juices, which increased supply prepared for the blood an in-

creased supply of nourishment for the tissues, while the increased metabolism of the tissue was able to make use of this increased supply of food.

Outside of these artificial methods for stimulating metabolism, we have a series of phenomena which has not probably been very well understood by physicians, and which it seems to me is entirely explanable from a physiological standpoint. We have recognized certain results, but have denied the power, and justly, too, of the agent that was producing the result. At this point we have usually stopped without entering into a study of the phenomena which have given rise to said result. As physicians we are just as much to blame for not using an agent that has seemed of service in the cure of disease, or for not investigating and trying to understand it, as he would be for failing to remove a diseased appendix or studying the nature of appendicitis. We should be ashamed to acknowledge that we have been forced into a recognition of the influence of certain psychic phenomena on metabolism by quacks and those outside the regular profession; but such is the fact.

Then the third part of my subject which shows an influence on metabolism is what I will call the natural or normal stimulus. I also want to direct your attention to the uses that may be made of nature's own stimulus in the treatment of disease, for the time has certainly gone by when we can wrap ourselves up in our professional dignity and say that there was no disease when patients are reported cured by any of the many methods used which can only influence the diseased part through the central nervous system. We all know that it is a common belief among the laity that if they have no faith in their physician he can do them no good. What does that mean? It simply means that the laity have observed certain results, without any explanation for them, the same as the milk maid knew by common observation that she would not take small pox because she had had a sore on her hand, a fact which in Jenner's hands is made the instrument of saving thousands of lives. I believe that the unborn fœtus is so influenced in the metabolism of its tissue by the efferent nerves of the mother, giving rise to birth marks and other constitutional peculiarities.

We recognize in connection with the muscle fibres, especially the unstriated muscle fibre, when nerve and muscle are normal in their relation and function, a certain condition which is described as normal tone. Now that tone must be a condition of the muscle fibre due to the influence of the nerve impulse, for if the nerve is divided the muscle loses its tone. If then it acts upon a muscle fibre keeping a normal tone in the fibre, it is simply acting upon one form of cell keeping up a normal metabolism in that cell. I can see no reason for not applying the same theory to the other cells of the body. Then that which interferes in any way with the normal tone of a cell interferes with the metabolism of that cell. We have then, if this theory is correct, every tissue of the body bound to and influenced by the stimulus, or whatever you please to call it, flowing along efferent nerves from the central nervous system. Any interference with that stimulus would give rise to functional inactivity of the part, and any means which will in any way increase the flow of that stimulus will increase the activity of the cells. Can you, as a physician, by reason of the thing you give, or by reason of the suggestion you offer, cause the activity of the cells of the brain to so increase in their functional activity as to send to these inactive cells through these inactive nerves new power? This may be done by chemical changes produced by the drug given; or it may be done by the impression upon the higher parts of the brain acting upon nerve centers which supply the part. I also believe that it is not alone functional disease that is so influenced, but also that the organic changes in tissue may be so wrought upon by a stimulus from the central nervous system. A normal stimulus that the anabolic process is so much increased over the katabolic process that the diseased organ is reconstructed.

I have now briefly endeavored to show the influence of the nervous system over metabolism as shown by experiment, by disease and in mental phenomena. I have also spoken of the practical application of a knowledge of this influence. I believe it gives the true explanation of the cures reported by Mesmerism, the cure of king's evil by the laying on of the king's hands, spiritualism, Christian science and the dilutions and triurations of the homœopath. Simply effecting metabolism by a mind influence over the part through efferent nerves.

A PECULIAR CASE OF ECTROPION.

Both Lower Eyelids, After Years of Eversion, Restored by Operation.*

By Adolph Blitz, M. D.

Minneapolis.

It has been said "the eye is the window of the soul." It is a very beautiful idea, very prettily expressed. We can all testify to the fact that often the eyes have a wonderful influence in brightening a face, otherwise plain, so as to make

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it really attractive. On the other hand, there are instances where defective eyes mar the expression of a face whose features, barring the defective eyes, would be called beautiful.

But we must not forget that often there exist certain conditions of the parts immediately surrounding the eyes, which contribute materially towards the general effect upon the countenance as a whole and the eyes in particular.

Thus we find that large, well shaped, palpebral apertures, fringed heavily with long, evenly curved eyelashes add very much to the beauty of both eyes and face, while small, unevenly slit palpebræ, fringed with straggling, stunted, irregularly distributed ciliæ, will mar the luster of the eyes and detract considerably from the attractiveness of the prettiest face.

But there are two pathological conditions of the eyelids, that are more prone to disfigure a face than those above mentioned. The only similarity of the two affections is in their site, for otherwise the one is the direct opposite of the other, though both are equally detrimental to the eyes and to the facial expression.

Both diseases affect the edge of the eyelids. In the one, the free border of the eyelid is turned inward, bringing the ciliæ in direct contact with the eyeball. Soon the ends of the ciliæ wear off, and with every movement of the globe the stunted ends of the former scratch and harass the ocular conjunctiva and cornea, until the pain and irritation sometimes become unbearable.

This affection is known as entropion. It is not my intention to dwell on the peculiarities of this disease, I only mentioned the same, to bring out the characteristic differences between this and the affection I wish to bring to your notice, viz: the one known as ectropion.

In this affection, the free border of the eyelid, instead of turning inward, towards the globe, is turned in the reverse direction, outward and away from the eyeball, the inflamed palpebral conjunctiva often usurping the position belonging to the normal free border of the lid.

There are many causes that produce ectropion. Among others we may mention injuries, such as are produced from scalds, burns and various wounds on the external surface of the lid, or in the adjacent integument; the resulting cicatrization may produce ectropion.

In severe and long continued inflammatory conditions of the conjunctiva, as in purulent ophthalmia, and chronic trachoma, where the conjunctiva becomes swollen and hypertrophied and the cartilage relaxed, so that sometimes carelessness or failure to return the lid to its proper position after medication, will produce ectropion.

But some of the most frequent causes of this affection are excoriations and subsequent cicatrizations at the edge of the lid. The contraction of the integument goes steadily on; the edge of the lid becomes inflamed and swollen, gradually it rounds at the margin; the eyelashes are displaced; the punctum lachrymale is everted and often becomes entirely obliterated.

Those who have watched with some degree of interest the facial anamorphosis of an unfortunate suffering with ectropion, can readily appreciate the annoyance it causes. The irritated eyes, with their constantly moist, glistening, red bordered, fleshy looking eyelids, lend to the whole face a peculiarly staring aspect. This is generally still more intensified by the absence of the eyelashes, which are soon lost, the intense inflammatory process destroying their follicles. Here and there one may still be seen, sticking out, isolated and forlorn, reminding one of a forlorn hope on a desert island.

Sometimes several ciliæ are bunched at spots. These are either matted together, moistened by the thick, sticky, abnormal secretion, or where this is allowed to dry after mixing with the detached epithelium, unsightly scales are formed along the lid border, giving the eyes a grotesque, uncanny, uninviting and certainly an untidy appearance.

Most of these cases being chronic, exhibit little actual pain, but the sufferers are greatly annoyed by constant epiphora, the inability to close the lids during sleep and the unsightliness of their appearance on account of the red, fleshy looking lid borders.

Often the constant exposure of the globe produces conjunctival and corneal irritation, but it is sometimes surprising how little injury the latter suffers, as the patient learns early to protect the cornea by rolling the eyeball upwards under the immediate protection of the upper eyelid.

But after all, to the majority of patients, the incongruity of the cosmetic appearance is more annoying than the actual pathologic condition, especially if the patient be a female.

But with this we have nothing to do. Our aim it must be, not only to repair the anatomical deformity, but also to restore the disorganized physiological conditions. If eversion of the eyelid is the result of inflammatory action of the conjunctiva palpebræ, medication will often be sufficient to restore the everted eyelid to its proper position. Often a little judicious manipulation is found of great assistance.

But in cases of long standing, medication alone will be of little benefit, and the doctor who persists in doing so, only fools both himself and his patient, as he will accomplish nothing.

In chronic cases operative measures only can be successful. We should always select the quickest as well as the most effective remedies to benefit our patients.

In this connection the following case is of interest:

Bessie S——, age four and a half years, of Rushford, Minn., came under my care in February, 1881. She was suffering from a severe conjunctivitis which affected both eyes.

Under appropriate treatment during nearly six weeks the case progressed so favorably that at the end of that time the mother announced that she would stop further treatment and return home.

I naturally expostulated, stating that the child's eyes were not well enough; warning the mother of the tendency of this affection to relapses, and that mischief was sure to result unless the disease were entirely eradicated.

"The eyes look all right, and what is the use of more treatment when they look so clear?" she insisted.

But all my explanations and expostulations were of no avail; she took the child home and the case passed from my notice.

Some time in 1896 I saw the case again. Mrs. S—— and my little patient of fifteen years ago, now a young lady of twenty, came to my office for an examination of her eyes.

Astonished at the unsightly appearance of the intensely reddened eyelids, I asked Mrs. S— why she allowed the eyes to get into this extremely bad condition.

Mrs. S—— explained that, for a number of years after I treated the eyes, they seemed to be well. Then they became weak and sore again, just as I had predicted. She returned with the child to Minneapolis to have the eyes treated. As I was then absent from the city the case was placed in other hands.

Learning that the case was still in the care of an oculist, although they refrained from mentioning the name of the physician, I refused to state my opinion of the case and they left rather disappointed.

On August 27, 1897, the lady again presented herself at my office for relief, which so far she had failed to receive from any previous treatment, and placed herself under my care, having dismissed her physician.

On examination the case presented the following conditions:

In general appearance the two eyes vary only in minor points.

Appearance of the upper lids: Edges red, rounded at margin, although not much thickened; ciliæ absent, only here and there an isolated one, stunted and of unhealthy appearance. About three or four lines above the margin and running parallel with it, a crease is shown, that at first glance has the characteristic appearance of an old cicatrix. This led me to enquire if at any time an operation for entropion had been made. I was informed that no operation had ever been attempted.

Lower lids: Integument of lids almost entirely absorbed by the slow ulcerative process, which for years had been progressing, but at a snail's pace, at the conjunctival border. The marginal portion of the palpebral conjunctiva had been forced over and everted by the gradual shrinking of the integument and now formed the border of each eyelid, measuring fully one-fourth of an inch in width, extending along the entire length of the palpebral aperture.

These unnatural conjunctival borders having been exposed to atmospheric and other irritating influences for a number of years, exhibited the characteristic ravages of such exposure. Their surfaces presented a dark red, thickened, roughened appearance, with deeper creases at intervals.

Along the junction with the integument, at different points, were minute foci of ulceration, some close together, others separated by a narrow bridge of apparently unaffected but moist tissue.

ECTROPION OF MANY YEARS STANDING.

Along the entire dermo-conjunctival junction there was a constant secretion of moisture containing purulent elements, while the tears found an almost constant abiding place in the cul de sac, until partially relieved by the periodical overflow.

There were no ciliæ left at the dermo-conjunctival junction.

The shape of the aperture was very much altered, especially the right one, in which all adverse conditions seemed more intensified. The altered palpebral apertures gave the eyes a staring appearance that was very annoying to the patient.

But by far the most troublesome condition resulting from these structural changes was her inability to close the eyelids over the globe. During sleep the lids remained open, exposing almost half an inch of the ocular conjunctiva to atmospheric influences. The conjunctiva was irritated to a considerable extent, but the cornea had so far happily escaped injury from the inflammatory process.

Vision was impaired less than I expected, and was corrected later by

O. D.+ 1. D. Cyl. axis 30°.

O. S. +.75 D. Cyl. axis 90° for constant use.

The only treatment this case had received in all these years was the daily application of the yellow oxide of mercury ointment. The effect, of course, was nil.

The deformity had progressed, in its own slow but sure measure to the present status, in spite of the yellow oxide of mercury salve, combined with the otherwise masterly inactivity of the physician in charge of the case.

Her physical condition was somewhat below par. At first glance she appeared to be of a strumous diathesis, but I noticed no special signs to verify this.

My first aim was directed to building up and preparing the system for the contemplated operation. In this I succeeded, as also in reducing much of the conjunctival inflammation.

On October 6, 1897, I made the first operation at St. Barnabas Hospital, Dr. E. J. Brown kindly assisting me.

When the patient had been fully anæsthetized, the parts were properly sterilized and made ready for the operation.

Beginning with the right lower lid I made an incision, commencing at the everted lachrymal punctum and running the entire length of the dermo-conjunctival junction to the external commissure. I then dissected the integument below the lid for about an inch downward, detaching it from the tissues below, to allow its full retraction.

I then replaced the everted lid, thus returning the palpebral conjunctiva to its proper position, facing the globe. This, of course, resulted in depriving the entire lid of its integumental covering. I now made two incisions, the lower one commencing at the external commissure, the end of the first incision, and extending backward to the lower temporal region; the other starting fully three-fourths of an inch above and about that distance back of the external commissure, curving down and backward and running parallel with the lower, about five-eighths of an inch apart at the base, where its connection with the temporal region was maintained, narrowing to one-fourth of an inch where the two lines joined to form the apex. This narrow strip I dissected from the tissues below, then turning it at the base, placed it into the denuded space, with the apex near the inner canthus. Then the lower border of the strip was stitched to the skin below, the upper one to the newly replaced border, while the edges of the gaping wound, at the former site of the strip were united by sutures.

I took the strip of integument for transplantation from the region leading in a straight line backward from the first cut, instead of from the temporal region of the forehead, on account of the excessively hairy condition of the space available for transplantation, a continuation of the bushy brow occupying a portion of the space.

Still when I had completed the operation I was not satisfied with the appearance of the transplanted integument; its texture seemed more coarse than desirable. I therefore resolved to take the strip necessary for the left eyelid from the forehead region, bringing the incisions slightly forward to avoid as much of the hairy portion at the sides as possible.

With this change in view I immediately proceeded with the operation on the left lower eyelid, making the first incision in the same manner as I did in the right one, with this exception, that I dissected the strip of integument necessary to cover the lid from the temporal portion of the forehead instead of from the temporo-malar region.

After the sutures had been placed and the parts thoroughly cleansed, a moist bichloride dressing was applied, which was renewed as often as necessity demanded.

Most of the stitches were removed on the third day, the remainder the day following, but the moist dressing was continued until the healing process was completed.

The left eyelid did nicely and healed without an untoward symptom, but the right one did not do as well; fully one-third of the new graft, at the nasal end, sloughed away, leaving a contracted space much more shallow than the temporal portion.

A month later I rounded off and made smooth some of the small elevations resulting from the turning of the flaps.

The bichloride dressing was again used.

The left eyelid still continued to do well, the new tissue adapting itself nicely to its new position, but the right eyelid did not behave as well. That portion where the new integument had sloughed away continued to shrink, and I considered that part of the operation a failure.

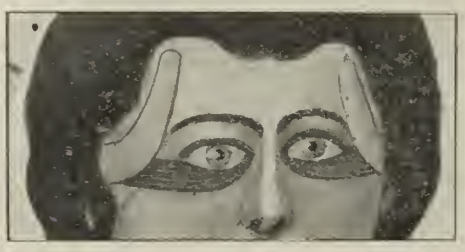
On December 15, 1897, I made the third operation on the right lower lid. As before I was kindly assisted by Dr. E. J. Brown.

The steps of this operation, while nearly identical with those of the first one (made on the left lower lid), differed from the former in several essential details.

I carried the first line of incision, the one at the dermo-conjunctival junction, back fully an inch in a straight line beyond the external canthus. Beginning the next incision parallel with, but about five-eighths of an inch above the end of the first one, I curved it somewhat while cutting upward, carried it the required length up on the temporal portion of the forehead, but far

enough forward to avoid including the portion that was more densely covered with hairs; then turning a blunt apex, cut downward, parallel with the line opposite, but maintaining the necessary width, and joined it with the straight incision below.

This strip of integument, when dissected from its present site, was wider and longer than the one transplanted into the left lower lid, and when transferred into its new position, fitted the wound perfectly smooth and even.



SHOWING THE PLAN OF THE OPERATION FOR REPLACING THE EVERTED EYE.

After the sutures were placed there was not a pucker or a wrinkle to need correction, nor was there any abrupt twist at the base, to interfere with the nutrition of the strip, while the wider base of the latter aided materially the nutrition of the transplanted piece.

As before the moist bichloride dressing was applied.

Three days later the stitches were removed. The result was highly satisfactory.

The process of repair, while slow, was in the main excellent, except, that again there was some sloughing, although only of a very small portion of the transplanted section, at the nasal end. The contraction that followed was very slight only, and did not detract from the general good effect of the operation, as you can see, for I present here the patient for inspection.

Before closing this paper, I cannot refrain from stating the two rules I invariably observe in my plastic operations.

In placing the sutures in all my plastic operations, I always observe two rules, which I consider absolutely necessary to insure perfect cosmetic results.

First. I place my sutures close together; not more than one-fourth of an inch apart.

Second. The cut edges of the wound, in stitching, are brought in perfect apposition, but only just touching one another closely. This ensures even circulation and the least possible amount of interference with the nutrition of the parts; promotes rapid union, and results, as a rule, in producing a smooth, even surface. The line of demarcation is inconspicuous. This in time may become almost entirely obliterated, or at most, leave only a slightly perceptible line of union.

Whenever, in plastic operations, stitches are drawn too tightly, the cut edges either lap, or both turn inward, making a grooved or furrowed union. Besides, the tight sutures strangulate the parts and therefore interfere with the circulation and nutrition, thus retarding the healing process.

SHOWING RESULT OF THE OPERATION AT THE PRESENT TIME.

Tight sutures are also liable to cut out, leaving, at intervals, depressions along the course of the newly formed connective tissue, which, to the careful surgeon, must appear as a constant reminder of bungling rather than of truly scientific or skillful work.

608 Nicollet Ave.

Dr. J. L. Morse, writing in the Boston Medical and Surgical Journal, concludes, from a study of thirty-seven fatal cases of cirrhosis of the liver, that it is a comparatively rare disease. It is the result, in the vast majority of cases, of the abuse of alcohol. Alcohol may cause either an increase or a diminution in the size of the liver. Both are due to the abnormal development of connective tissue. Why hypertrophy results in one case and atrophy in another is at present unknown. All forms have the same symptoms. There is no regularity in the relative development of these symptoms. The sequence, however, varies to a certain extent in the different forms. Portal congestion plays a less important part in the development of these symptoms than is generally supposed. Many of the associated lesions are of the same nature as those in the liver and are due to the same cause.

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TETANUS AND ITS ANTITOXIN.

The triumphant success of the antitoxin treatment of diphtheria has naturally aroused the expectation that the method pursued in one disease should be applied to others. To the laity, who watch the progress of medical science keenly, but not always intelligently, it is unaccountable that the plan of treatment successfully applied to diphtheria cannot be made to cure other acute maladies, and medical science is blamed for its shortcomings in this regard. Even among medical men themselves there is some surprise that serum therapy has not made more progress, forgetting the fact that although vaccination is more than one hundred years old it remains today the only disease against which protective inoculations are generally made.

Next to diphtheria antitoxin, probably the serum that has been most used is that directed against tetanus. First brought to the notice of the profession in 1891 by Tissoni and Cattani, this method of treatment has now been extensively tried, with the result that it cannot be said to have shown a high degree of efficacy. One of the latest reports that has been made includes 167 cases with 54 deaths, a mortality of about 39.5 per cent. These are unselected cases. Exclude cases that died of intercurrent diseases, within twenty-four hours after treatment was begun and those in which treatment was deferred until late in the attack, and the mortality is reduced to 34.5 per cent. The mortality of tetanus without antitoxin treatment is estimated at about sixty per cent., forty per cent. in mild cases and eighty per cent. in severe cases. The best that could be claimed then would be a reduction of the mortality by about twenty or twenty-five per cent. under antitoxine treatment. When it is remembered that the statistics of tetanus untreated by antitoxin include all kinds of cases, and that it may be presumed that the report of those treated by the serum will contain an undue proportion of successful cases, it must be admitted that the success of antitoxin has not been demonstrated, and that the hopes that were aroused by the earlier announcements of results have not been realized.

It is possible that the method of treatment may be so modified as to insure greater success. For one thing it is claimed that the dosage of the serum has hitherto been too small. It seems that the strength of antitoxin has been miscalculated and in some cases exaggerated from forty to seventy times. Then it is known that the preparations in use have not been of uniform strength. According to Behring, not less than five hundred units should be injected as the initial dose. The serum put on the market last spring by the Massachusetts State Board of Health was of a strength of from but one-half to one unit per cubic centimetre. The dose of this serum then would be at least a pint, a very unwieldy amount of fluid to give subcutaneously, particularly as it is declared to be essential to success that the injection should be made into a vein. The objection of bulk may be overcome by the fact that Behring has prepared the remedy in the form of a dried powder of which each gram contains one hundred units; this is the strongest preparation of the remedy put on the market and the five gram powder containing the dose may be injected in comparatively small bulk.

One of the obstacles to the successful use of tetanus antitoxin is the fact that the dose required increases rapidly with the lapse of time after the introduction of the poison. So true is

this that it is probable the best field for the use of the serum will prove to be immunization before the development of symptoms in cases where the introduction of the tetanus bacillus or its spores into a wound is specially feared. This would be a use similar to that of the preventive inoculations for rabies and would be indicated in cases of penetrating and ragged wounds contaminated by soil, particularly those occurring in regions where tetanus prevails. For the purpose of prophylaxis but a small dose of the serum, from ten to twenty cubic centimetres, is needed, and this of course would be combined with local treatment directed to the destruction of the germ in situ. In this connection it must be remembered that the spores of tetanus are but little affected by ordinary solutions of the germicides usually employed, and resist immersion in a bichloride of mercury solution 1-1000 for three hours, while a five per cent. solution of carbolic acid will destroy them only after fifteen hours contact. A nitrate of silver solution, however, of the strength of one-tenth of one per cent. will destroy them in five minutes, while iodine preparations, such as Gram's or Lugol's solutions are the most effective chemical agents that can be used, acting at once upon the bacillus itself and upon the toxin which it produces.

A NEW MEDICAL JOURNAL.

The medical literature of the Northwest has been augmented by the appearance in October of "The Albert Lea Medical Journal," a monthly periodical devoted to the professional interests not only of Southern Minnesota but of all the neighboring territory. The editor, Dr. H. H. Wilcox, is so well known that he needs no introduction to the medical public of the Northwest, and his new journal may be trusted to speak for itself if succeeding numbers keep up the promise with which it has begun. Attractive in its outside appearance it is bright and newsy within, containing a number of good original papers, crisp editorial paragraphs dealing with the questions of the hour, news items of interest to the profession and selections from current medical literature, making a whole which the medical reader will find no less entertaining than instruction. Success to the Albert Lea Medical Journal!

BOOK NOTICES.

A Clinical Text-Book of Medical Diagnosis. By Oswald Vierordt, M. D., Professor of Medicine at the University of Heidelberg, etc. Authorized Translation with Additions by Francis H. Stuart, C. M., M. D., Member of the Medical Society of the County of Kings, New York; etc. Fourth American Edition from the Fifth German. Revised and Enlarged. Illustrated. Phila: W. B. Saunders, 1898. (Price, $4.00).

Vierordt's work is of particular value to the English reader because it looks at the subject of diagnosis through German eyes and presents some points of difference from similar works by English or American authors. The present edition has been somewhat enlarged and changes have been made, particularly in the parts relating to the examination of gastric digestion and of the nervous system. The author has purposely omitted all mention of the Roentgen rays, because they have not as yet been applied practically to purposes of diagnosis in internal medicine.

Elements of Histology. By E. Klein, M. D., F. R. S., Lecturer on General Anatomy and Physiology, and J. S. Edkins, M. A., M. B., Joint Lecturer and Demonstrator of Physiology in the Medical School of St. Bartholomew's Hospital, London. Illustrated. Revised and Enlarged Edition. Phila: Lea Brothers & Co. (Price, $2.00).

This attractive work has become a standard for the use of students, who will gladly welcome the new edition, which contains a description of recent advances in histology, chiefly in the nervous system, where the discoveries in structure introduced by the method of Golgi have wrought a wonderful advance in this branch of knowledge.

Klein's work is remarkable for its concise, clear cut and plain descriptions, stated in a business-like way that assures the reader of no waste of time in getting at essential matters. The illustrations indispensable to a work of this kind are numerous and clear, many of them being microphotographs of unusual excellence.

A Text-Book of Materia Medica, Therapeutics and Pharmacology. By George Frank Butler, Ph. G., M. D., Professor of Materia Medica and Clinical Medicine in the College of Physicians and Surgeons, Medical Department of the University of Illinois, etc. Second Edition, Revised. Phila.: W. B. Saunders, 1898. (Price, $4.00).

The plan of arrangement of this work is to classify drugs according to their therapeutic re-

lations, bringing together in one large class what the author terms "disease remedies," in which are found digestants, fats and oils, acids, alkalies, bitters, etc., while in another large class, termed "symptom remedies," are placed antispasmodics, antipyretics, anæsthetics, etc., putting topical remedies, such as caustics, vesicants, etc., by themselves. This description of individual durgs, which makes up the body of the work, is preceded by a section on pharmacology, the closing chapter being devoted to the subject of prescriptions, followed by the indispensable index.

The work is a very full and complete one, including a full description of the source, properties, therapeutics and doseage of all drugs that are at all likely to be used by the general practitioner, the author purposely excluding from mention drugs that are obsolete or new ones whose worth is unproven. There is an interesting chapter upon serum therapy and the protoneucleins receive a good deal of attention.

NOTES.

Osteopathy and Swedish Massage.

We published in the last issue of the Lancet the report of the State Board of Medical Examiners, in which attention was called to the plans of the osteopaths of Minnesota, as well as to the peculiar practice of a Chicago concern teaching osteopathy.

We dare say that some of the readers of the Lancet do not know what this new science is, and there may be some who wonder at their financial success, if not, indeed, at a certain degree of success in the treatment of some forms of disease. The best answer in each case may be found in what a well-known St. Paul physician recently said on the subject. He characterized their work as half poor Swedish movement and massage, and half humbug, their appeal to the imagination of many persons does an effectual work, but it is only their poor massage that has a positive value. Their success is not without its lesson to all medical men, and this lesson is the value of a much neglected science, that is, the science of the Swedish movement and massage. There are few physicians of note in Europe, and especially in Sweden, who do not make frequent use of this science, sending their patients to the institutes that exist everywhere. Many physicians in this country also, and not a few in the Twin Cities, know the value of this treatment, and use it in all appropriate cases. A successful institute exists in Minneapolis, and its card appears in our advertising columns. Its director, Mr. Harper, has gained the confidence of all the physicians who have sent patients to him, or had him give their patients home treatment, and we commend him to the readers of the Lancet, believing that he will give entire satisfaction in any case he undertakes. His improved massage is especially to be commended, and when one compares his work, done under the direction of a competent physician, we wonder that such a poor imitation of it, passing under such a misleading term as osteopathy, can find patrons.

Three Cases of Diabetes Mellitus Treated with Benzosol.

By N. B. Aspinall, M. D.

About the first of April, 1898, Dr. Martin Vaughn, of Plymouth, brought to my office a sample of urine for analysis. It was found to be acid in reaction, specific gravity 1.040 with a very large proportion of sugar. Dr. Vaughn gave me the following history of the case:

J. H., male; 48 years; had been under the care of another physician for two years prior to this time. An examination of the urine was supposed to have been made, but upon inquiry it was found that the bottle, containing about eight ounces, had been placed upon a shelf and allowed to stand for twenty-four hours; at the expiration of this time no sugar reaction having been obtained by this test, the attending physician concluded that the urine was normal, and informed the patient that he was suffering from nothing more than a slight attack of diabetes insipidus, and that he would have him well in a very short time. As was to be expected, the patient, instead of improving, grew steadily worse, and eventually passed into the hands of Dr. Vaughn, who brought the case to my notice as stated. Upon personal examination I found him suffering from all of the classical symptoms of diabetes mellitus, viz: polyuria, with very frequent urination; great thirst, many quarts of water being consumed daily; progressive emanciation and loss of strength; decided dryness of skin with a generalized pruritus, etc., etc. At my suggestion the patient was placed upon a treatment of opium, ergotin, belladonna, gentian, etc., with strict dietetic and hygienic restrictions. Upon this treatment the patient gained a little strength, the specific gravity of the urine fell to 1.032, with a corresponding decrease in the amount of sugar excreted. About Dec. 1 Dr. Vaughn moved from Plymouth to Winnemac and the patient came to me for treatment. At this time my attention was called to the literature on Benzosol (Benzoate of Guaiacol) as a remedy for the control of sugar elaboration in diabetes, and as I was favorably impressed by the various clinical reports, I decided to give the drug a trial in this case. I prescribed Benzosol in 5 grain doses every four hours while awake;

also a bitter tonic before each meal. Under this treatment the patient rapidly improved in general health and increased steadily in weight. The urine decreased in quantity, the specific gravity gradually receding to 1.020, and the sugar decreased progressively until it entirely disappeared. An examination of the urine at the present time shows a secretion normal in amount, sp. gr. 1.020, and not even a trace of sugar. The patient considers himself entirely well, in which opinion I am inclined to concur.

Case 2. Mr. E. B. Similar in all respects to case above related, except that the Benzosol treatment was commenced as soon as the patient came under my care. The results were equally prompt and satisfactory, and today the patient passes a normal amount of urine of a specific gravity of 1.020.

Case 3. Mrs. G.; widow; 50 years; has now been under my treatment for two months for the same disease. Benzosol, 5 grains, 4 times a day, is bringing about rapid improvement, and I hope and expect to soon discharge her in the same good condition as are Cases 1 and 2.

It is, of course, needless for me, gentlemen, to advert to the necessity of directing your diabetic patients to avoid all carbo-hydrate food stuffs, and also to carry out to the letter your hygienic instructions. In addition to this I would certainly recommend a trial of Benzosol in every case of this disease, especially in view of the results obtained in the cases of the three patients mentioned, the particulars of which you know, and with all of whom you are personally acquainted.—American Therapist, June, 1898.

Sanmetto.

J. S. Jordan, M. D., of Indianapolis, Ind., writing, says: "I have been using Sanmetto for a number of years, and with unvarying good results. In case of prostatitis, prostatorrhœa, I find it one of the most valuable acquisitions to our Materia Medica. In irritable conditions of the neck of the bladder, so frequent among females, Sanmetto has proven a God-send. I can also heartily recommend it as the very best aphrodisiac I have ever used."

Milk Infection.

"I have just had an opportunity of seeing the wonderful value of Imperial Granum in Milk Infection. I ordered the baby to be fed on Imperial Granum, prepared with pure water only, increasing by one teaspoonful the quantity of Imperial Granum directed to be used when prepared with milk. An immediate improvement and most satisfactory recovery of the case was the result."—— —— M. D.

To The Imperial Granum Co.,
New Haven, Conn.

Standard in the Profession.

Bent Creek, Appomattox Co., Va.,
August 31, 1898.

Battle & Co.—
Gentlemen:

Enclosed find 25 cents in stamps. Please send me sample bottle 12-ounce of your "Ecthol" and oblige,

E. S. Vawter, M. D.

P. S. I am well acquainted with your preparations, Papine, Bromidia and Iodia, and use them in all cases for which they are specified. They are now standard remedies with the profession, and give satisfaction whenever used. I would recommend them to all physicians not acquainted with their potency.

Neurosine vs. Epilepsy.

"I have been using Neurosine in my practice for some time in all Nervous Disorders with the happiest effect. I regard it as the Very Best Preparation for that dreadful malady known as Epilepsy. Physicians can prescribe it with greatest confidence in all nervous troubles."

Geo. R. Duncan, M. D.,
Fall Branch, Tenn.

LECTURES AND ADDRESSES.

AN OPENING ADDRESS.

Delivered at the Medical Department of Hamline University, October 3, 1898.

By H. J. O'Brien, M. D.

St. Paul.

During the last quarter of the present century the advancement of medicine and surgery has been marked, and while the effort toward the relief of diseases and correction of deformity is not new, the methods by which this relief is obtained have in many ways been revolutionized.

In medicine the establishment upon a firm basis of the germ theory has naturally led to more exact diagnoses and the separation of many diseases heretofore considered identical; and while medical teachers have for a number of years maintained that many if not all diseased states are due to specific microörganisms or their products, it is comparatively recently that this theory was capable of being demonstrated as a fact, and as a result the accuracy with which diseases of the alimentary, respiratory and circulatory system can be determined at the present day is marvelous.

Bacteriological examination of secretions and dejecta from the beginning to the end of the alimentary canal can now be obtained. Cultures from the fauces and throat may be obtained at will, and as many diseased conditions of the throat cannot be separated without a study of these microörganisms, we may now claim a means of early differentiation, such as the angina of scarlatina from that of diphtheria, and the angina of diphtheria from that of follicular tonsilitis. Then again many cases of doubtful typhoid fever are made plain by microscopic study of the dejecta, as well as of the blood. Incipient pulmonary tuberculosis is commonly first diagnosed by a microscopic discovery of the bacillus tuberculosis in the sputum. This means much for our patients and the community at large.

The perfection of instruments used in auscultation, as the stethoscope and later the phonendoscope, make possible the differentiation of diseased states of the heart and circulatory apparatus long the cause of much confusion.

As we become more proficient in diagnosis and knowledge of the bacterial cause of disability, the treatment of individual disease has of necessity undergone a change, hence the serum treatment of diseases supplants, or at least is a powerful adjunct to the former drug treatment of many diseases. There is a marked endeavor of late on the part of the profession toward specific treatment for specific diseases.

Drugs, together with their preparation, dosage and administration are rapidly being brought into the domain of exactness; the "shotgun" prescription is losing caste, and rational and specific medication is being more generally used. The extended studies of the effect of drugs upon the nervous and circulatory apparatus, as disclosed by experiment on the lower animals, has contributed much toward the proper method of drug administration.

In surgery today we more fully appreciate the fact that cleanly surroundings, cleanly surgeons, instruments and assistants make possible the exploration of any part of the human body with impunity. It is only a few years since the surgeon approached the abdominal cavity with the greatest reluctance, and injury or disease of its contained viscera was practically one's death warrant; today, however, not only the abdominal but the cranial and thoracic cavities, together with their contents, are attacked successfully by the surgeon as occasion demands. Neither is it long since surgeons, in operating upon the head, were careful not to touch the brain, and yet today we push exploring needles into the brain in any direction and to any depth considered necessary. The explorations and operations of today, while often of great extent, do not cause as much suffering as minor operations formerly did, as we now have the blessings of anæsthesia abolishing all pain.

We are learning, and more clearly understanding each day, that general and personal hygiene has much to do with the control of disease and recovery from surgical operations; therefore we recognize and teach the doctrine of preventive medicine as exemplified in the improved construction of our hospitals, more careful training of nurses, the efforts of the physician in the prevention of contagion, and the battle of the surgeon in the prevention of infection or inoculation of wound surfaces. It is not only the duty of the physician to take cognizance of advances in medicine, but to practise preventive medicine in all its ramifications, and he who fails in this duty is false to his profession and false to his fellowmen. It may not be amiss to call attention to the fact that by far the greatest beneficiary of the advancement in medicine and surgery is the laity, the pleasant, agreeable but often unappreciative laity.

This is not only an age of advancement, however: it is an age of severe struggle for ordinary existence, of sharp competition, of fads and specialties. How absurd and impossible it would seem for us to attempt to practise medicine as did the physician in former days. Then the family physician, next to the clergyman, was the

true friend and counselor; his fee was left in an envelope on the mantel, or placed conveniently near his hat and gloves. There was no squabbling about fees, and physicians were not underbidding each other like a couple of hucksters at market. Yet this is the way medicine was practised successfully for years, impossible as it may now seem to us. We must admit that abuses have crept into the medical profession of late; prominent among them is the contract and lodge doctor, a species but lately developed in all its hideousness. Dispensary abuses were unknown in former days; then dispensaries were maintained for the benefit of the unfortunate poor, not to gratify the medical politician in his greed for a large number of "cases," be they rich or poor, properly or improperly handled. This is considered quite legitimate now, and the evil no doubt will continue to grow while countenanced by the profession; and so long as he can point to a large dispensary following, he will have dupes to sound his praise, subscribe and collect money, not as they fondly but foolishly imagine for the benefit of the poor, but in reality for the advancement and aggrandizement of the modern dispensary octopus.

The dispensary, and even hospital abuses, have grown in the last few years to such an extent that a man in any of our large cities, although not at all an object of charity, may obtain medical and surgical attention for himself and entire family free of cost. Medical periodicals are overburdened with contributions and editorials on dispensary management. As a consequence of these abuses our young men experience the greatest difficulty in obtaining a foothold in the practice of legitimate medicine unless admitted to the "inner circle" of these institutions. As is well known, the sustenance of the recent graduate is the "emergency call" and that is denied him by the modern dispensary and hospital service.

There is also far too little room now for the old family practitioner, bless him; even though he did give ill tasting drugs, he inspired confidence in the sick, imparted cheerfulness to the sick room and comfort to well nigh broken hearts, in a manner that is not always best replaced by the cold scientific dealer in germs and mixer of serum. Do not for a moment understand me as decrying the advancement of the purely scientific side of the practice of medicine. I glory in it and will aid it day and night, but it does seem to me that a happy combination of the old and new methods would more nearly approach the ideal.

It may be because of the overcrowding of the profession, the admission of improper candidates, necessary changes in business methods or it may be the habit of the nineteenth century. Whatever the cause, so-called business methods are being introduced, a spirit of commercialism is seeking entrance to the profession, and the question of how much good can be done to our fellowmen is resolving itself into the question of how much money can be made in medicine?

There are as we all recognize legitimate specialties in the medical profession, branches of medicine the general practitioner does not do justice to, but these branches or departments formerly were, and I believe today should be, handled by men of experience and special training. In place of this it is rapidly becoming the fashion for young men with little or no experience in general medicine and surgery to pick out one branch, and practise it as a specialty; to divide up medicine and surgery into such small particles that the ordinary man with a family before his children reach their majority, commonly has an intimate and expensive knowledge of the subdivision of medicine and surgery, as expounded and practised by the enthusiastic young specialist.

Because of these tendencies in the profession we should watch well that we do not go to extremes, and that as we colonize in the large buildings of our cities we do not engage in the game of "send the fool farther" as our patients are trotted about from one specialist to another. The specialist is entitled to recognition and his following, as is the general practitioner, but they both owe a duty to their patients that should not be forgotten.

Medicine is spoken of as a noble profession, and it is when not debased by unworthy members. The relief of suffering, the restoration of the ill to health, either by medicine or the knife, cannot be too highly lauded. It is an exacting profession that requires all one's time, all one's best efforts to do it justice; a profession in which the day's work is never done, and as we look about us, we commonly see the old, gray haired man toiling day and night, just as the young man but recently released from college.

Candidates for the degree of doctor of medicine in many ways deserve much sympathy. It is a hard study, takes many years, is somewhat expensive, and after the degree is obtained the struggle but begins. To the gentlemen who are about to enter upon their studies I would first extend my sympathy, but so long as they persist in their present choice of a profession, I see no better way for them to obtain the requisite knowledge, than by attendance in this University. Everything necessary for a thorough medical education, is to be found in the Medical Department of Hamline University. Her faculty is experienced and earnest, her laboratories are well equipped, she offers facilities for clinical work unsurpassed in the Northwest.

You must bear in mind however that it rests largely with the individual student what use he makes of these opportunities. You are no longer children to be scolded or punished for non-attendance or inattention to efforts in your behalf, but may simply be advised and directed, and save for the few broad general rules made necessary for the conduct of the University as a whole, you will be left largely to yourselves. Your success both in college and later in the practice of medicine depends upon the use you make of the facilities now offered you.

I would urge upon you the necessity of prompt and regular attendance at didactic and clinic lectures, laboratory work, and the most careful dissection; don't see how many parts you can dispose of in one term, but see how many parts you can learn. Anatomy, and later surgery, cannot be understood or successfully practised without most careful study and dissection in the anatomical room.

When your course has been completed, and you have passed successfully from the awful presence of the "green room," I would urge upon you the advantage of obtaining a hospital appointment. No matter how poor you are, what hurry you are in to become established in practice, even though your sweetheart has waited for you, lo! these many years, still I urge upon you, obtain a hospital appointment if at all possible. One year at any of the hospitals of the Twin Cities will develop in you a habit of observation, of touch, and a knack of handling patients, that can only be obtained by actual practice and under the guidance of experienced men. At a conservative estimate, a hospital service will be worth the first five years of private practice to you, and believe me, the year profitably spent in a hospital will never be a source of regret either to yourselves or your patients.

If I have seemed at all severe in the criticism of certain modes and manners that are creeping into our profession, it is because of the love and respect I have for that profession as a calling profound, grand and exalting; urging us to investigate and combat disease and injury, to lift up the fever stricken son, restore the injured father to his family, and the chubby, red lipped babe to a loving mother's arms.

In wounds of the head, always inspect the scalp carefully before applying a dressing. If parasites are present they may convey infection, and the irritation caused by their presence may cause the patient, especially if young, to disturb the dressings. If present, it is best to shave the head. If this is not permitted kerosine will kill them very rapidly; after a thorough application of this, wash off with green soap and water, then with sterile water alone.—Surgical Hints from International Journal of Surgery.

ORIGINAL ARTICLES.

THE VALUE OF COLLECTING THE URINE SEPARATELY FROM THE KIDNEYS IN THE DIFFERENTIAL DIAGNOSIS OF DISEASES OF THE URINARY TRACT.*

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Chicago.

An accurate diagnosis must precede rational treatment. It is this fact, so long recognized, that constantly urges the scientific physician to renewed efforts in his study of the nature of disease, and of the means of detecting its presence.

This fact applies to every department of medicine: to the ophthalmologist as well as to the gynæcologist; to the laryngologist as well as to the neurologist. But, if this be essential to the ophthalmologist who relieves a distressing headache by the correction of an error of refraction, how much more necessary is it to the surgeon who attempts to deal with an organ whose function is absolutely essential to the life and well being of its possessor.

The kidney was, until comparatively recent years, entirely outside the range of the surgeon's knife, but now, owing to improved means of diagnosis and technique of operating, it is daily handled, manipulated, incised, resected or removed almost with impunity.

Much time and labor have been spent, with a fruitful harvest too, in studying the variations in the urine in diseases of the urinary tract, but what would be thought of the ophthalmologist who attempted to correct errors of refraction by examining simply binocular vision?

The urine as voided from the bladder is not a simple fluid, the product of a single organ, but a mixed product of two organs, either one or both of which may be the seat of disease. Hence it is no longer sufficient that we examine the mixed urine of a patient, but it is now necessary that we examine the urines in order to correctly determine the location and extent of the disease.

The surgeon, perhaps, rather than the interne, has more frequently and forcibly felt the need of some method of collecting the urine from each kidney separately, as he often meets with unilateral affections and has to deal with the kidneys in a more radical manner.

*Read by invitation before the Minnesota Academy of Medicine, Oct. 5, 1898.

The instrument which I have the honor of presenting to you this evening, has already been described and illustrated twice in the current literature (Journal American Medical Association, January 29, 1898; Medicine, April, 1898); but I wish briefly to again direct your attention to its construction and the principles underlying its working.

It will be remembered that the ureters leading from the kidneys open into the base of the bladder, one either side of the midline.

It occurred to me to raise the base of the bladder into a longitudinal fold passing midway between the ureteral openings, so as to form of the bladder two small lateral pouches into each of which should enter an ureter.

By placing the end of a separate catheter into each of the little pouches or pockets, one could draw off the urine as fast as it escaped from the ureters, into separate vials right and left respectively, without intermixture.

Without going into detail, the longitudinal fold, or septum, is produced by a suitably formed lever introduced into the vagina in the female or the rectum in the male.

Two metal catheters, enclosed in a common sheath, are introduced into the bladder as a single instrument, when each is rotated about its longitudinal axis until the inner end dips down into the little pouch either side of the mid-septum. A rubber bulb aspirates the air from two small vials, attached by rubber tubing to the distal end of the right and left catheter respectively.

The urine now as fast as it escapes from the ureters passes at once into the catheters and thence into the vials, that from the right kidney into the right vial, that from the left kidney into the left vial.

Let us leave for the moment the technique and consider what may be learned by the use of this instrument. If urine appears in each vial, it is evident at once that the patient possesses two kidneys. The only exception to this would be in the case of a horse shoe kidney with two ureters, or a single conglomerate kidney with a double or bifurcated ureter, anomalies of great rarity. Individuals with but a single kidney are not so uncommon.

This would not be so important were it not for the fact that such persons are more liable to kidney disease which brings them to the hands of the surgeon. When one kidney is about to become the subject of a surgical operation, the knowledge that the patient possesses a second kidney is of the greatest value. After sufficient urines have been collected, they should be carefully analyzed to detect any differences there may be between them. In making such analysis, it is always well to proceed in a definite order so that comparative results may be obtained.

The plan adopted by me is the following: Take the reaction at once, as secondary changes may occur quite rapidly after the urine is drawn. While it has been generally supposed that in non-septic states the reaction of the urine is dependent upon general conditions, such, however, is not absolutely the case. I have several times found the reaction to differ on the two sides in a manner only to be explained by local conditions, and this with kidneys excreting apparently normal urine.

The most marked difference was in a case of uric acid calculus of the left kidney. The urine from the right side was absolutely neutral, while that from the left side, collected at the same time, was very strongly acid. Such marked differences can certainly only be due to local causes, but further observations, of similar cases, are necessary to form diagnostic deductions. It is always advisable to compare the reaction of urine taken directly from the kidneys with that of a specimen taken from the bladder immediately before.

If the reaction of urine passed from the bladder is neutral or alkaline, while that taken directly from the kidneys is acid, it is very evident the change has been effected by local conditions within the bladder and a point in diagnosis is established.

After taking the reaction, we carefully measure the amount collected from each kidney in the time specified. While, of course, the amount of urine passed varies considerably, even in health, still we may accept as a standard for comparison the statement that an individual of 63 kilos weight will pass one c. c. of urine per minute, containing two per cent. of urea. Thus, on an average, we should be able to collect in twenty minutes' time, twenty c. c. of urine, ten c. c. from each kidney; or, in thirty minutes, thirty c. c., fifteen c. c. from each kidney.

This, however, as stated, may vary considerably. For instance, in one young woman, highly nervous and bedridden, but seven c. c. were collected in thirty minutes, three c. c. from the right kidney; four c. c. from the left; while in another woman, in twenty minutes there were obtained thirty-five c. c. from the right kidney, and twenty-one c. c. from the left, or fifty-six c. c. in all. There was nothing abnormal about the urine.

In a few cases the introduction of the instrument has appeared to cause a temporary partial suppression of the flow. The drinking, by the patient, of a glass of hot water, has quickly started a freer flow.

The urine drops into the vials just as it escapes from the ureters. This, it should be remembered, is not in a continuous but an in-

termittent flow, three to six drops every ten to twenty or more seconds. Nor do the two kidneys always act synchronously. The flow for a short time may be faster from one side than from the other. Thus, I have seen the amount in ten to fifteen minutes two to three times as much in one vial as in the opposite one, but the examination continued for thirty minutes, the amounts have become equal. Hence, the examination should continue from twenty to thirty minutes in order to judge comparatively the activity of the two organs.

After measuring the amount passed by each kidney, the urines are placed in the centrifuge which, for the purpose of comparative results, should always be rotated a definite length of time at a definite speed. The precipitates may now be examined microscopically and cover glass preparations stained for tubercle bacilli and other bacteria. Similarities or differences between the two sides will readily declare in favor of a bilateral or unilateral condition.

We now estimate the amount of urea present, and, for this purpose, the hypobromite method and Doremus apparatus are sufficient for comparative clinical results. The percentage of urea, when taken in connection with the amount of urine passed, and the length of time over which the examination extended, gives us the "functional capacity" of each kidney.

A healthy individual should pass 0.016 c. c. of urine per minute per kilo of weight, containing two per cent. of urea or 0.008 c. c. of urine from each kidney. This, it should be remembered, applies to individuals in a state of health, and on full diet. Those below par and on deficient diet, may excrete a much smaller amount of solids without there being any disease of the kidney present.

To obtain the "functional capacity" of each kidney, we divide the amount in c. c.'s collected from each by the time occupied in collecting it, and this by the weight in kilos. The quotient multiplied by the percentage of urea found, gives us the work being done by each kidney per minute per kilo. This amount compared with the normal standard (two per cent. of .008 for each kidney, or two per cent. of .016 for both) gives us the relative amount of work done, which may be reduced to a simple fraction such as one-half, two-thirds, etc., of the normal.

We next proceed to examine the filtered urine for albumen, sugar, etc. In disease, such as tuberculosis, calculus, etc., of one kidney, it is quite common to find a trace of albumen in the urine coming from the healthy kidney, which disappears upon recovery, or removal of the diseased kidney.

We may summarize the plan of analysis thus:

Take reaction.

Note color and transparency.

Measure quantity.

Centrifugalize.

Examine sediment microscopically and bacteriologically.

Estimate percentage of urea.

Test for albumen, sugar, etc.

If this plan be followed, we shall have a concise statement from which we may judge the pathologic condition and functional capacity of each kidney.

It is always well to compare the analysis of urine taken directly from the kidneys with that passed from the bladder, thus differentiating pathologic processes of the bladder from those of the kidneys.

To return now for a moment to the technique of using the instrument: The patient should lie supine, on a flat table with the hips as high as the shoulders, the thighs and legs flexed, and the feet resting comfortably on the table. An anæsthetic is, ordinarily, unnecessary as the examination is not particularly painful. However, in those who are so nervous that no amount of manipulation will be permitted without resistance, or in the hysterical, or in those with hypersensitive urethræ, or inflamed bladders, it is better to use an anæsthetic. This guards against injury to the bladder by the patient's movements, and the production of vesical hemorrhage by the spasmodic action of the bladder on the instrument. In about fifty examinations, six only have required an anæsthetic.

If there are pathologic products in the urine, the bladder should always be thoroughly irrigated with sterilized water.

The closed catheter, sterilized, warmed and slightly lubricated, with the forked piece properly attached, is introduced into the bladder in the same manner as an ordinary sound. In the male, a finger in the rectum will often assist in making the curve. The instrument should be held strictly in the midline. The lever passed through the fork is now introduced into the vagina in the female, or the rectum in the male.

In introducing it in the male, follow the hollow of the sacrum. It should be passed strictly in the midline. Fix the lever by passing the pin through the perforation. Rotate the catheters about their longitudinal axes, until the tips point downwards and outwards, and the little spiral spring will lock. This should be done very slowly and carefully, as the bladder is a delicate organ, and should always be handled gently.

If very sensitive, the bladder may be left filled with water during the rotation, in which case a piece of rubber tubing must be placed over the ends of the catheters to prevent the

escape of the water. Now slide the large spiral spring in the notches on the under side of the lever, to raise the inner end of the lever between the diverging ends of the catheters. Do not use enough pressure here to be painful. Irrigate through the straight tips to be sure both catheters are free. Close the straight tips with the rubber tubing, connect with the vials and these in turn with the exhaust bulb. The instrument should be maintained accurately in the midline, and the catheter should incline gently upward and outwards. The bulb should never be worked vigorously, but only with the greatest gentleness.

As soon as the catheters and rubber tubing leading to the vials become filled, it is seldom necessary to use the bulb as the urine usually flows by siphonage. After irrigating, the catheters and tubes remain filled with the water used; hence, it is necessary to wait until this fluid has been displaced by urine before timing the flow. The fluid, which has accumulated in the vials up to this time must be discarded.

Do not be impatient, the urine is often excreted very slowly by the kidneys, and one must wait until it comes down.

In considering an instrument of this kind for the first time, it is natural that doubts should arise as to its reliability, particularly the septum which subdivides the bladder. Its use in a number of cases where there was but a single kidney, as well as where there was a marked unilateral hæmaturia or pyuria, has demonstrated the completeness of the septum. After a considerable use of the instrument, I can speak with confidence of its results.

It is not claimed that it is suitable in all cases, or that it takes the place of all other instruments, but, like other instruments of precision, it has its limitations. For instance, it would not be suitable in some fungus growths of the bladder that bleed upon touch; in vesical calculus; contracted or distorted bladders; excessively enlarged prostates, etc., but such cases form but a small minority of those wherein its use is desirable. It does not usurp nor supplant the cystoscope in its proper field, but has an advantage over it in simplicity, and in the fact that it collects the urines for analysis.

In order to present the foregoing in a more concrete form, I will very briefly detail some results obtained in actual cases by the use of this instrument. First illustrating the method of determining "functional capacity" of each kidney:

Mrs. H., age 39, sent to me on account of frequent urination, vague pains in back, etc., under the supposition that some kidney or bladder trouble existed.

Patient's weight	62 kilos,	
Time of examination	25 minutes,	
Amount collected	R	L
	11 c. c.	14 c. c.
Reaction,	Acid,	Acid,
Color and transparency	Amber, clear;	Amber, clear,
Microscopical Ex.	Negative,	Negative,
Urea	1.25 per cent,	1.55 per cent,
Albumen, Sugar.	None,	None,
"Functional Capacity"		
	.55	.87
Found according to above formula		Both .71

There was nothing abnormal about this patient's urines except the diminished amount of urea. It is a noticeable fact that the right kidney which excreted the smaller quantity of urine also contained the lesser percentage of urea. Another case illustrating this same point is:

Mrs. X.

Weight	60 kilos,	
Time	20 minutes,	
Quantity	R	L
	35 c. c.	21 c. c.
Reaction	Neutral,	Neutral,
Color	Clear, watery,	Clear, watery,
Microscopic	Negative,	Negative,
Urea	.4 per cent,	.25 per cent,
Albumen	None,	None,
"Functional Capacity"	.725	.273
	Both .5	

While the quantity of urine is large, the urea is very low. The smaller quantity again contains the lesser percentage of urea. I have noticed this a number of times, but have no explanation, at present, to offer.

Mr. H., age 37, with unmistakable suppurative disease of right kidney and cystitis, was examined to determine the state of left kidney:

Weight	55 kilos,	
Time	20 minutes,	
Quantity	R	L
	None,	14 c. c.
Reaction		Acid,
Color		Amber, clear,
Microscopic		Very few leucocytes, epithelial cells and cylindroids,
Urea		2.3 per cent,
Albumen		Trace,
"Functional Capacity"		1.82

The left kidney here is doing all the work, or the work of two kidneys. Operation demonstrated the right kidney destroyed by suppurative and tubercular processes.

An interesting case is that of Mrs. S. She had a large abscess in the region of the right kidney. She was in an extremely reduced and deplorable condition. Dr. Henrotin opened and drained the abscess through the loin, fearing to do more at the time on account of her low condition. She rapidly regained her health, but

there persisted a suppurating fistula. A few months later she returned to Dr. Henrotin to be relieved of the troublesome fistula. Thinking it originated from the kidney, a nephrectomy was contemplated, but, before undertaking it, through the kindness of Dr. Henrotin, I was asked to examine her to determine the condition of the left kidney.

Imagine our surprise when, at the examination, we found all the urine coming from the right side. The examination was repeated three different times and always with the same result. It is needless to add a nephrectomy was not done.

Mr. T., aged 36 years, had always been a healthy, strong man. One day while urinating in the light, he accidentally noticed that his urine was very dark in color. There were no subjective symptoms. He consulted his physician, who found that his urine contained a large amount of blood. As the source of the hemorrhage could not be located, through the kindness of Drs. Hooper and Wetherla, I was asked to examine him with my instrument. The result was a beautiful demonstration of the reliability of the instrument. The urine which came from the left kidney was heavily loaded with blood; while that from the right kidney was perfectly clear and normal in every way.

As a single drop of blood will visibly contaminate a considerable amount of urine, it is certain here that the septum formed in the bladder was perfect, as the slightest intermixture would have been apparent at once.

A most interesting case is that of Mrs. E., aged 33 years. About two years ago she was suffering from a train of symptoms which were considered due to a very movable right kidney. She was advised to have the kidney fixed by operation, and the operation was done by a most excellent surgeon with an ideal operative result. Her symptoms, however, were not relieved, and, shortly after getting up, she began having attacks of pain in the epigastric or right hypochondriac region, extending through into the right loin, and down the side of the abdomen. The spells were always accompanied by vomiting, and lasted several days. After a number of examinations the attacks were pronounced hysterical and nothing done. Her physician then sent her to me for examination. Upon using the instrument, I was much surprised to find that no urine came from the right side. That from the left side was normal. The examination was repeated in a couple of days with the same result. She then told me that another surgeon had catheterized the ureters by Kelley's method, and, although a catheter was left in the right ureter for ten hours, nothing but a few drops of bloody fluid was obtained.

This case shows that the fact of a kidney being felt from without, and thus supposed to exist, is no evidence that it is excreting any urine. Here an apparently normal kidney had been seen and handled, hence no possible question of its existence; still it excreted no urine. It is not known whether it excreted any urine before the nephropexy or not, as no examination was made. I am at a loss to explain why this kidney produces no urine, but cannot help associating this fact with her attacks. I would like much to explore this kidney, but, as yet, have not had an opportunity of doing so. It is one of the most interesting cases I have examined.

The last case I wish to mention as showing the value of collecting the urines separately from the kidneys is that of Mrs. S., age 40. About a year and a half ago she began to have increased frequency of urination. The trouble increased until she was urinating every 15 to 20 minutes, day and night.

Obtaining no relief from her local physicians, she came to Chicago and consulted an eminent gynæcologist, who curetted the uterus, performed Alexander's operation to correct a posterior displacement, repaired the perineum and removed some hemorrhoids, in hopes of relieving a reflex vesical irritation.

No relief following, the urethra was dilated, the interior of the bladder inspected and local applications made. Still no improvement followed. An expert on urinary diseases was called in consultation. No definite conclusion was reached, or, at least, none expressed, and the patient was sent home with the statement that the left kidney was probably diseased, possibly tubercular.

Upon her return home her temperature ranged from 104° to 105.5° F. This subsided under rest and general treatment, and her general health improved considerably; but the urinary symptoms continued as bad as ever.

I was now asked to make an examination with my instrument to see if a correct diagnosis could be made. The patient was so extremely nervous and sensitive about the urethra and bladder that chloroform had to be administered. She could not even bear the introduction of a catheter for irrigating purposes. Result of examination:

Weight	55 kilos,	
Time	15 minutes,	
Quantity	R	L
	None,	13 c. c.
Reaction	Acid,	
Color	Amber, slightly cloudy,	

Microscopic.....Small number of red blood cells, no casts or pus, no tubercle bacilli, or other bacteria.
Urea.....2 per cent,
Albumen.....Small Amount,
"Functional Capacity".....1.96

As is seen, no urine came from the right side, but the left kidney was doing the work of two kidneys, 1.96 "functional capacity." The urine from this kidney was practically normal. The blood came from the bladder, and was caused by the patient straining just as the instrument was being turned.

Let us compare this analysis with that of urine taken from the bladder before the examination:

Time.....Unknown, consequently,
Quantity.....Immaterial,
Reaction.....Acid,
Color.....Pale, slightly milkish,
Microscopic.....Pus cells, single and in large groups or masses; no blood; no tubercle bacilli; numerous beautiful chains of streptococci.
Urea.....1 per cent,
Albumen.....Small amount.

We notice first that the percentage of urea is twice as great in the urine drawn directly from the kidney as in that taken from the bladder. This is due to the anæsthetic, which always concentrates the urine.

Next we find in the urine from the bladder pus and strepococci. In that from the kidney, none. Hence we have a slight cystitis due to the streptococcus undoubtedly introduced from without.

But this is not sufficient to explain her symptoms. We find no urine coming from the right side, but all from the left. Let us see what the physical examination shows:

Left kidney easily palpated, normal in shape and slightly enlarged; right kidney, at first could not be felt, but, upon making deep efforts under the anæsthetic, a small hard, contracted mass was finally felt, which could be displaced up and down from the region of the kidney. It was evidently the contracted, hardened remains of the right kidney, without functional capacity. I think we were justified now in making the following diagnosis:

Chronic disease of right kidney, leading to its destruction as a functional organ.

The vesical symptoms were irradiation symptoms of the diseased kidney.

The bladder subsequently became infected with the streptococcus from without.

Left kidney, subject of functional hypertrophy. As to the cause of the disease of the right kidney, I would say probably tubercular.

Israel (Deutsch. Med. Woch. 1898, XXIV., 443) has emphasized the fact that in primary renal tuberculosis, which is most commonly unilateral, this irradiation of symptoms to the bladder is the first and most prominent symptom in twenty-five per cent. of the cases, and that it may exist for a long time, even for years.

I reported a case in the Journal of the American Medical Association, Aug. 20, 1898, where it existed for fifteen years, and until a tuberculous right kidney was removed.

These are but a few cases taken from my list, but illustrate some of the facts which may be learned by studying the urine separately from each kidney.

In conclusion, I will state that the object of this paper has not been to enter into theoretical explanations, but to call your attention to some observed facts.

While the kidneys have a common function, namely, the production of urine, I think enough has been demonstrated to convince you that they are not to be studied as a single organ but as two separate and distinct organs, either one of which may become the seat of pathologic processes, independent of the other.

Each kidney must be studied and treated by itself.

CHRONIC HICCOUGH.

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Chicago.

Hiccough may be defined as a clonic spasm of the diaphragm by which a column of air is forced against a more or less unprepared glottis, that is one in which the vocal cords are approximated. Some writers on physiology say that the glottis is closed, but it is evident from the varying pitch of the sound produced in this spasm that the position of the cords is not always the same.

The diagnosis of hiccough is not at all difficult. The characteristic signs when present always indicate the sharp, sudden contraction of the diaphragm. But there has always been a question in my mind as to whether the phenomena of hiccough were not also associated with a spasm of certain laryngeal muscles. A case once came under my observation of chorea in which there were spasms of the diaphragm, and a sudden inspiration, but the peculiar picture of hiccough was not present. We are taught that the sudden descent of the diaphragm and inspiration "surprises" the glottis, so to speak, and the column of air strikes the moderately closed

vocal cords with the production of the characteristic sound. It would seem that occasionally at least the spasm might occur with an open glottis, and thus the air pass directly into the larynx, but as a matter of fact this never occurs in cases of true hiccough. In the case which I shall describe, at no time, and by no manœuvre could the glottic click be eliminated from the sound of the hiccough. Thus if the patient were expiring or making a deep sound with expiration, and the spasm occurred, there was always the same sound of the air against the closed or partly closed glottis. This was but momentary; as soon as the spasm was over the cords returned to their normal position in the production of the sound. This leads me to think that instead of the larynx being "surprised" by the spasm of the diaphragm, there is a spasm of the larynx coincident with that of the diaphragm, and that both of these elements are present in the production of hiccough.

There need be little question as to diagnosis if we remember that hiccough is an inspiratory act, and that it is always accompanied by a sudden protrusion of the hypogastrium.

Thompson (Reference Hand-book of the Medical Sciences, Vol. III., p. 648) divides cases of hiccough into five groups:

1. Those in which it is a transient, neurotic disturbance.

2. As a continued disorder in nervous and hysterical persons without obvious anatomical lesion.

3. Due to definite anatomical lesions, relating to the diaphragm or phrenic nerves. Gross disease of the central nervous system ought also to be included in this group.

4. As a reflex disturbance from disease of the liver, bile passages, stomach, larynx, and possibly the genital organs.

5. As a symptom of advancing general grave disease, such as cholera, typhoid, dysentery, etc.

It is apparent that the significance of the affection varies greatly as it is caused by or associated with different conditions. Its extreme gravity when appearing in the asthenic states of fevers has long been recognized by clinicians. Chronic hiccough belongs to the rare affections; it is but unfrequently observed, and has been rarely mentioned in the literature.

A man 47 years old recently came under my observation who had suffered from hiccough for years. His family history is good and free from neurotic heredity. He enjoyed excellent health in youth, was hearty, of a sanguine temperament and very active. Has never had syphilis.

His first attack of hiccough occurred when he was twenty years old. He can give no cause for the attack. It lasted about one week, and then ceased. The second attack occurred seven years later. The following table gives the various attacks:

First	Age 20	7 days
Second	Age 27	5 days
Third	Age 30	10 days
Fourth	Age 38	7 days
Fifth	Age 41	7 days.

After the fifth attack his recollection is not so clear, but he thinks they occurred about each year until he was forty-six with a duration of from five to ten days. During the last two years they have been much more frequent. During the first half of this period they came on about once each month, but during the last year they have been almost continuous. He thinks the longest period of freedom has been eight days.

In 1891 he had an attack of influenza, which was followed by marked impairment of digestion and the symptoms of catarrhal gastritis. Within the last two years the stomachic disturbance has been greatly aggravated.

During the early years of the affection there was no impairment of the general health, but during the past two years he has lost thirty-five pounds in weight. The spasms have always been painless, but of late with the prolonged attacks there is soreness at the margin of the ribs corresponding to the attachment of the diaphragm.

The hiccoughs are fairly regular, usually numbering about fifteen or twenty to the minute. They are entirely beyond the control of the will. He is able to stop them by titillating the fauces until he vomits. It requires more than a feeling of nausea; some of the contents of the stomach must be brought up each time. This is usually some mucus, with whatever remains of undigested food may be in the stomach. He says it is almost impossible for him to sleep unless he resorts to this method of stopping the spasm. If he lies down, and sleeps without stopping the spasms they will continue all night, but once stopped they commonly do not return until he gets on his feet in the morning.

He has been treated with antispasmodics, nervines, tonics, etc., in many cases with temporary relief, but the disorder has always recurred.

Since he has been under the care of his present physician, the urine has been scanty, high colored, of high specific gravity and markedly acid reaction. It has never contained formed constituents, albumen nor sugar.

Apparently the stomach is not much dilated, though a careful study of its position is not easy owing to the spasms of the diaphragm. The liver and other abdominal organs are of normal size and position. Heart and lungs normal.

There are no signs of organic disease of the nervous system. Coördination is good. The knee-jerks increased, but not abnormal. The pupil-

lary reflexes are present. A careful examination was made for the stigmata of hysteria. The patient presents none of the ordinary mental states seen in that disorder. The fields of vision are of normal extent, and there is no inversion of color perception. There is no anæsthesia or hyperæsthesia.

Regarding the diagnosis in this case, there is little doubt but what it falls in the second group of Thompson's classification, in which the disorder appears in neurotic and hysterical persons, without obvious anatomical lesion. It is a condition frequently observed in hysteria, though in this case none of the common signs of hysteria were present.

Regarding the treatment of the affection but little has been added to our knowledge since the days of Romberg, who said that we must attend to the "indicatio causalis." He recommended opium where the disorder was dependent on exhausting discharges. Counter irritation over the upper cervical region was also recommended. Suggestive therapeutics were not left out of his system when he says: "The reflex action must be overcome by mental influences."

Dr. H. T. Patrick, of Chicago, has told me of a case which had lasted seven years that was cured by large doses of ipecac.

The popular notion that mental emotion or fright was efficacious in the disorder is evidently reflected in the heroic treatment of Cruveilhier (Révue Médicale, 1824, Vol. II.), who treated two cases of violent singultus by having the patients held in a chair, the head bent backward and a quart of water poured in a stream down the throat. To increase the energy of the pharyngeal contractions the water was allowed to fall on the nares, which induced cough, a violent concussion of the respiratory muscles, and threatened suffocation. In one case the hiccough at once ceased, but the other required a repetition of the treatment for permanent relief.

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MODERN SURGERY AND THE MICROBE. REFERENCE TO RECENT ADVANCES AND LITERATURE.*

By Franklin Staples, M. D.

Winona, Minn.

It is justly claimed that the changes and improvements which have been made in practical surgery of late years have been largely due to discoveries and advances in the science of bacteriology. One distinguished American surgeon has declared as follows: "At this time surgical pathology has almost become synonymous with surgical bacteriology;" and again: Recent advances in surgical pathology have laid the foundations for the wonderful achievements of modern surgery."[1] Another affirms that the elimination of the accidental disturbances of repair caused by wound infection has lowered the percentage of mortality following amputations of the extremities more than one half.[2] The same authority concludes, moreover, that the time has come when the principle underlying antiseptic surgery has ceased to be the subject of serious controversy. This latter conclusion would be very satisfactory if only it were absolutely true: but unfortunately there seem to be enough doubters still remaining to render a minority report possible on the question of antiseptic surgery.

Referring to such as constitute this minority and object to antisepsis in surgical practice, Dr. A. G. Gerster, of New York, in the preface of his work, "Aseptic and Antiseptic Surgery," says: "The author does not attempt to prove each of his statements to the satisfaction of those who look but see not." This observation suggests the fact that in medicine and surgery, as in other things, there have always been those who have seemed to be either unable or unwilling either to look or to see.

As to comparative results of surgical procedures before and since the advent of asepticism, practitioners whose experience covers time in both periods are best able to determine. With such there seems to be on the part of the great majority an agreement of opinion, and that altogether in favor of asepticism in surgical practice; and furthermore, that this for the most part is necessarily secured by the use of antiseptics.

It is not alone in the fact that the chances of life for the patient are seen to be far better in cases of capital operations done under good asepticism than they otherwise would be, but what is daily observed in minor surgery also affords evidence of the great advantage of aseptic methods. Formerly in cases, for instance, of lacerated and crushed fingers and hands from coupling railway cars, the choice at best was between loss of the part by amputation, or deformity and more or less disuse, resulting not only from the injury, but largely from inflammation, suppuration and imperfect or non-union, this from attempts at healing by granulation rather than by direct union. At present the practice is, if circulation and innervation are not completely destroyed in the part, to thoroughly clean, trim

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[1]Prof Nicholas Senn, in "Surgical Bacteriology."

[2]Prof. A. G. Gerster, in "Aseptic and Antiseptic Surgery."

and adjust the lacerated tissues, cover with antiseptic gauze and impervious protective material, secure immobility, rest and even temperature, and expect good union of bone and soft tissues, and in time a useful member. Of course intelligent election in surgical procedures in different cases has its importance, but this may now be exercised in view of results made possible by the use of modern means and methods in aseptic surgery.

As belonging to modern requirements in aseptic surgery, much has been learned in late years and the future seems to promise much more. In order to avoid microbic infection of wounds at the time of operating, we have learned something of what the operating room should be; that all dust making material can have no place. As essential to this we understand the advantage of a clean, uncovered floor, of plain walls, plain metal, polished wood or glass furniture; of suitable dishes and trays for solutions, and for holding instruments and material when in use. We have learned the use of hot water and hot air as germicides, and how much it means to care for the condition of instruments, hands and the bodies and clothing of operators and attendants, in order that all things may be aseptic at the time of work. Something has been learned concerning the necessary temperature of the operating room, especially when one of the greater cavities of the body is to be opened. We have learned something about the necessary character and condition of suture material for use in different parts, and how to make and keep the same aseptic. Something is now understood concerning proper solutions for irrigating septic wounds, of different compositions for use in different parts and conditions. We have learned the value of the trained nurse, trained as to what constitutes asepsis of person, clothing and all surroundings. The standard of cleanliness and purity in all things has been elevated by the study of asepticism in what pertains to modern surgery.

Notwithstanding the experience and the resulting convictions of the greater medical world, physicians and surgeons are found who place themselves either actively or passively in opposition to existing methods in antiseptic surgery. Honest and candid opposition may not be condemned. It may be an aid to true advancement by inducing more diligent and more thoughtful investigation. But many persons are willing to condemn the whole of a thing because of the discovery of errors in some of its parts, and a verdict is pronounced before there has been time for correction of the minor error. Others, without sufficient knowledge to enable them either to make discoveries or to appreciate the worth of what others have made, are found to oppose because of their natural disposition to be on the negative side of things.

But a prominent opponent to antiseptic methods in surgery has arisen who may not properly be assigned to any particular class of objectors. The eminent English gynæcologist, Lawson Tait, loudly declares his opposition to all things to which the name of Lister or the term Listerism in any way may apply. In a letter a short time since to the editor of the Medical Record, of New York, he has the following words: "I discovered early in my career the failure of this so-called antiseptic craze." Again he says: "During these years I did all of my work on plain soap and water, having abandoned every trace of the absurdities of Listerism twenty years before." To be entirely consistent it would seem that Mr. Tait should also deny the usefulness of soap in surgical practice, since this is an article of universal use in securing asepsis. It would be hard, however, to deny the distinguished gynæcologist, in his extensive practice, this his only means of defense against the invasion of the army of microbes.

Modern improvements in surgical means and methods which have resulted from discoveries in bacteriology have acquired great importance, not only because old operations may now be done more successfully and with quicker and better results, but because new fields have been opened and a great number of life saving operations in abdominal, thoracic and brain surgery, which before could not have been safely attempted, have been rendered possible and practicable; and of no less importance is the fact that our means of diagnosis have been greatly increased.

Among the many examples of possible relief and cure of destructive diseases by means and methods now at the surgeon's disposal, two or three may be mentioned as illustrative.

In abdominal surgery we may now approach and excise malignant growths which involve parts of the large or small intestine or other abdominal organs, and by antiseptic management often prevent a further infection or return of the disease. We may remove joint extremities and other parts of bone and other tissues which have been invaded and partially destroyed by the bacillus of tubercle; and in further preventive treatment, our present knowledge of the nature of the specific germ enables us now to proceed more intelligently than formerly, and the prospect appears to be that the "serum therapy" for use in tuberculosis will be so perfected as to become valuable. Koch's later experiments and the resulting improvement in his tuberculin is thought by many to warrant this conclusion. The controversial literature which has appeared during the past year or two concerning the

value or want of value of Koch's and other kinds of tuberculin, makes quite an interesting chapter in the recent history of the progress of medicine and surgery. No one should fail to read and profit by the discussion of the subect which has occurred between Drs. De Lancy Rochester, of Buffalo, N. Y., and Paul Paquin, of St. Louis, published in the Journal of the American Medical Association, beginning with the number for July 10, 1897.

Dr. Carl Fisch, of St. Louis, in a paper to the Mississippi Valley Medical Association, in October, 1897, gave a full account of the facts known at the time concerning the antitoxic and bacteriocidal properties of the serum of horses treated with Koch's new tuberculin. This carefully considered paper notes the failures and shows at length the difficulties experienced in establishing a serotherapy in tuberculosis, speaks hopefully for the future and says: "Whoever talks about the limits of serotherapy confesses that he does not know or will not understand its origin."[1] An editorial in the April number of the Charlotte (N. C.) Medical Journal notices some points in the article of Dr. Fisch, and concludes as follows: "It is true that the antitoxic value as expressed in ordinary antitoxic units is small, yet it is to be hoped that this may be increased as the various steps in its preparation are better understood. Very gratifying, too, seem the results obtained in its practical application for the cure of consumption. When these results are compared with those obtained from the use of tuberculin T. R., the conclusion is inevitable that a signal advance has been made in the treatment of tuberculosis, and that the serum treatment will finally triumph in this disease is more than a possibility."

These notes from what has appeared of late as reported from the observations of a few of our best bacteriologists, pathologists and surgeons, may show to some extent the work done and the present status of serum therapy in tuberculosis. Many who deny the efficacy of attenuated cultures of pathogenic bacteria when used in advanced stages of the disease, admit the possibility of effecting a cure and of securing immunity in the incipient stage, before destructive changes in the tissues have taken place.

Surgeon General Sternberg, after quoting from reports of experiments of Schiess-Bey and Kartulis (1893) in Egypt, of Escherich and Klebs (1892) in Germany, and others whose statistics gave favorable results from the use of Koch's tuberculin in tuberculosis in man, gives the final conclusion of Paquin (1895) in the U. S. on the serum treatment of tuberculosis, which is as follows: "Sero-therapy, with the adjunct treatment, promises better success than ever before obtained. I do not designate this serum as a cure or a specific, but a valuable new remedy."[1] The adjunct treatment for tuberculosis here noticed, when properly chosen, has relation to the microbic character of the disease in two principle ways. First, the use of such remedies and articles of nutrition as tend to increase vitality and tone in the tissues enables them to better resist the encroachment and destructive action of bacteria. This is the immunity which belongs to a condition of health. It is in this way that climatic influence may aid in promoting such physiological action as will prevent tubercular development. Secondly, it is because of their germicidal effects that preparations of creosote, chloride of gold and soda, and emulsions of petroleum, etc., are beneficial.

W. Watson Cheyne, the eminent London surgeon, has repeatedly declared his adherence to the practice of antiseptic surgery, and has never failed to show the reasons for his belief and practice. The following brief extracts are from his address to the Section of Pathology of the British Medical Association, at the Montreal meeting in September, 1897. Speaking of the great changes in the study of pathology made in the last quarter of a century, he says: "Today it is the etiologic side of pathology which occupies our attention, and deservedly so." In this he refers to the place of bacteria as the causative factor in pathologic conditions, and he further observes: "The most striking and important advance has been made in the growth of the great science of bacteriology." After giving a sketch of the history of advances made and practical advantages gained by work in the field of bacteriology, he remarks as follows: "A very remarkable thing in connection with these advances, especially in experimental pathology, is the enormous direct practical benefit which has already resulted to the human race; and it is sufficient answer to the antivivisectionists who oppose the use of intelligence, observation and experiment, to point to the saving of human life and the relief of suffering which have taken place in the last few years. Since Pasteur's experiments on spontaneous generation were published, remarkable results have been attained in treatment as the results of experimental pathology."

The course and teaching of Lawson Tait is in strange contrast with that of W. Watson Cheyne, who in giving his experience and the results of his observation, gives to Lister his proper place as a pioneer in opening the great field of bacteriological pathology, and especially in bringing to light the first of the means and methods of practical antiseptic surgery. He

[1]Journal of the American Medical Association, Oct. 30, 1897.

[1]Dr. Paul Paquin: "Antitubercle Serum," Journal American Medical Association, Vol. XXIV, 1895, p. 344.

gives an outline of the history of Lister's work and points to the difficulties which he at first encountered. He says: "When I became house surgeon to Lord Lister in 1876, objections of all kinds were urged against the theory on which Listerism was based, some denying the existence of bacteria at all, others maintaining the theory that organisms were always present in healthy tissues, and others denying that they had anything to do with the disease."[1] He further observes that these objections led him to take up bacteriology as a study. He alludes to the difficulties in the work, which were greater then than now, and gives an account of the progressive steps in bringing the work to the present practical status. He gives an account of Koch's work on infective diseases of wounds, of Metchnikoff's work on phagocytosis, and speaks of this work as "leading to many researches which have given to bacteriology its present position." He notices the work of Cohnheim and his observations, and of Pasteur in his beginning to test the theory of spontaneous generation, and among other things concerning the work of Pasteur, he alludes to his experimental work in inoculating cattle against anthrax.

Dr. Cheyne further observes: "I might enumerate many other instances of direct benefit from pathologic research, such as the advances in the treatment of tubercular diseases of bones and joints, as the results of better knowledge of the nature and distribution of the disease, the treatment of appendicitis and diseases of the appendix, and the more complete operations for cancer following further study of the mode of the spread of the disease."

In some other diseases which are characterized by microbic infection, and which have importance in both medicine and surgery, the means of cure and of securing immunity by antitoxins seem to have advanced to a greater perfection. Diphtheria may be mentioned as illustrative of this class. Others are known in which surgery has a greater interest in a practical way. In this connection what has appeared in the antitoxin treatment of tetanus may be noted. Enough is now established to render the part of bacteriology in surgical pathology the most important of all; and the surgeon or physician who neglects or refuses to obtain practical knowledge of what is understood and in use, and raises his voice in opposition, might as well go back to the Middle Ages, assume the role of Paracelsus, burn the works not only of his predecessors but of his cotemporaries, and content himself with a place in the rear ranks of the advanced medical profession of today.

[1]Address at the annual meeting of the British Medical Association, Sept., 1897. Journal American Medical Association, Oct. 9, 1897.

PNEUMOTOMY.*

By C. H. Mayo, M. D.

Rochester, Minn.

Reports of cases of removal of foreign bodies and drainage of abscess and gangrene of the lung by pneumotomy are growing in frequency as the operation is more generally applied to the relief of these otherwise almost hopeless conditions.

There are a few points of interest which must of necessity be considered in making a diagnosis or operation. The two pleural cavities do not communicate and are only in contact at one point behind the upper border of the second bone of the sternum.

The lungs rise in the neck one and one half inches above the first rib; each lung is divided into two lobes by a deep fissure which begins about three inches from the upper posterior border and extends down and forward nearly to the bottom of the lung in front. The right upper lobe is divided into two by a short, deep fissure, the lower half forming the middle lobe of the right lung. The root of the lung is a little above its middle on its inner side at which point they are connected with the heart and trachea. The root is formed by the bronchial tube, pulmonary artery and veins, bronchial arteries and veins, pulmonary plexus of nerves, lymph and bronchial glands and areolar tissue, all enclosed by a reflection of the pleura.

The bronchial arteries supplied from the aorta are the nutrient vessels of the lung and follow the posterior wall of all the bronchi and are entirely separate from the pulmonary aërating system. The lung does not fill the pleural space, which explains the absence of dyspnœa in some cases of large abscess or effusion and permits compensatory use of other portions of the lung.

Abscesses of the lung are diffuse or circumscribed and occur as acute or secondary following directly upon pneumonia, foreign body, aspiration of vomit, empyema and gun shot wound or injury to the chest.

Secondary abscesses of the lung are more often diffuse and due to pyæmic conditions causing septic emboli and infarctions, as in sinus phlebitis, otitis media, uterine sepsis, tuberculosis, etc.

The signs and symptoms of abscess consist of a localized and unnatural area of dullness, changes in the respiratory murmur, increased

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fremitus and bronchial whisper, with increased vocal resonance and are proved to exist by exploration with a large aspirating needle. If they rupture into a bronchus, there is expectoration of offensive greenish or dark colored sputum, with a changing area of dullness and signs of a cavity.

The microscope discloses septic microorganisms or tubercle bacilli in the sputum. The constitutional symptoms are similar to abscess in general, chills, fever, sweating, loss of appetite with emaciation.

Gangrene occurs in two forms, diffuse and circumscribed, and is usually located in the lower lobe with septic microbes always present. The history, the presence of cough, pain, rapid respiration, expectoration of pus with necrotic tissue, foul odor of the breath, with chills, fever and rapid pulse all aid in making a differential diagnosis.

Hydatid cysts of the lung, while rare in this country form ten per cent. of all hydatid cases. They are of slow formation, having the general effect of a solid growth but lacking in the septic properties of abscess or gangrene. The aspirating needle and microscopical examination of withdrawn fluid for ecchinococcus hooklets confirms a probable diagnosis.

Pneumotomy for foreign body at the present time is seldom applied excepting when abscess has formed.

The operation of pneumotomy is made in two steps, first, opening of the chest wall, and second, incision of the lung. At times it is performed in two periods, depending upon the judgment of the operator as to the ability of the patient to bear the pulmonary part of the operation, or the lack of adhesions of the pleura at the point selected for the incision may necessitate delay.

Fenger's method of proving the presence of adhesions is to insert an aspirating needle deeply into the chest at the point selected for incision, and if the needle movement is but slight and with that of the chest adhesions are probably present; if the needle moves freely with respiration the lung is probably free from the chest wall.

The thoracic operation requires the resection of portions of from one to five ribs, which may be rapidly removed by rib cutters or ronguer forceps.

When the pleural adhesions are firm the incision may be continued in to lung tissue. If the abscess is deeply situated the aspirating needle, grooved director, small blunt forceps or Paquelin cautery may be used in effecting drainage. The abscess once opened may be drained by gauze with rubber drainage tube.

In cases where the pleura is not adherent and the thoracic opening admits the surgeon to the general pleural cavity, the costal pleura may be stitched to the pleura of the lung at the margin of the wound as suggested by Godlee, and opening the lung at once if necessary, or if delay is possible to pack the wound a few days for firm adhesions to form and make the lung incision a secondary operation. This avoids to a large extent complicating the condition with an empyema. Should infection of the general pleura occur immediate drainage is indicated. Many elaborate trap door incisions of the thorax are described for exploring lung tissue, one of the best by Mc F. Gaston, who makes a trap door incision of the entire chest wall in depth, three to five ribs in width, turning the flap forward, the costal cartilages acting as a hinge.

The cases under consideration are more or less acute, as a rule secondary to other prostrating diseases, and these patients will not stand the prolonged operations made for the radical cure of chronic empyema.

The operation of necessity must be that method which after careful localization can be made quickly and safely, and the sacrifice of a portion of the ribs is of no consequence as compared with the loss of time. Should free hemorrhage occur the lung wound must be deeply tamponed by gauze, and a drainage tube used a few days later upon its removal.

If drainage is efficient irrigation is unnecessary, and in case of ruptured abscess is dangerous from the fluids flowing into the bronchi. In conclusion, I will briefly report three illustrative cases:

Case I. Mrs. D., aged thirty-nine years, a very fleshy lady, with whom pneumonia of the left lung terminated in gangrene. Operation: resection of a portion of two ribs in the axillary line. No adhesions. Drainage of a large abscess of gangrenous lung tissue. Death from exhaustion on the third day.

Case II. C. N., aged twenty-five. Abscess of left lung, lower lobe, following a tubercular pleurisy, cavity communicated with bronchus. Operation in posterior axillary line. Adhesions present. Drainage for three weeks. Primarily great improvement, was followed by death from general tuberculosis in five months.

Case III. Mrs. E., aged thirty-eight years. Tubercle bacilli were found in the sputum. Abscess of left lung, which had ruptured into bronchus; abscess had followed prolonged drainage for empyema. Operation: Drainage in anterior axillary line after resection of the portions of three ribs. Firm adhesions of pleural surfaces present. The lung was incised and drainage maintained for three weeks. Recovery, with great and continued gain in general health.

THE COUNTRY DOCTOR AND ASEPTIC SURGERY.*

By P. A. Walling, M. D.

Park Rapids, Minn.

That surgery has in the last decade made great strides toward perfection perhaps none realize more than the thinking country physician. That many diagnoses are made with clearness and precision, which were only a few years ago obscure or doubtful is perhaps better appreciated by the city or hospital practitioner, but it is also realized fully by the alert country doctor.

Within the memory of my practice, all abdominal inflammations that were characterized by the usual sudden onset, pain, high temperature and tympanites were grouped together as one disease, and disposed of, generally by the undertaker, as "inflammation of the bowels." The abdominal cavity must under no circumstances be opened, and if by any accident the bowel was perforated, and the contents however small escaped, the case was considered as hopeless as though the heart had been punctured or the meninges exposed to the air.

To the city or hospital surgeon all this has been changed; with modern knowledge of cleanliness, for which asepsis is but another term, the abdomen may be opened with as much impunity as a felon may be lanced; tumors and other morbid or septic material may be removed from the brain or spinal cord, and even the deeper recesses of the nerve centers may be exposed, and a recovery so far from being doubtful may be confidently expected.

Rules for asepsis, rules for disinfection, rules for this and rules for that are published without stint and almost without number, and it seems as though a wayfaring man though a fool could not err therein. This last expression is from the Holy Scriptures, and that is perhaps what makes it sound so new to most of you, and it makes me think of one more circumstance also from the same book, and that is what Haman remarked. After he had been honored far above everybody else and above what he deserved, he said: "All this availeth me nothing so long as I see Mordica the Jew sitting at the king's gate."

I only change that to read: "All these rules and directions for asepsis and preparation avail me nothing when I am called to make a hurried operation that will not admit of a moment's delay and see a bed bug roosting on the head of the bed."

All the rules for asepsis, directions for cleaning the hands, washing the parts and getting rêady for an operation are all right and as necessary to the success of an operation as can well be imagined, but I trow very few of those who insist on thorough asepsis realize if they know what the average frontier practitioner has to contend with.

It is the object of this very imperfect paper to note some of the points where we succeed without any preparation and where a typical city man would fail.

I will try in the first place to draw a pen picture of an average frontier country home: The house is usually built of logs without a foundation and covered with boards, shingles or shakes. The walls are unplastered and usually covered with bedding or newspapers and are absolutely unclean, generally filled with dust and garrisoned by cimex lectularius or pulex irritans, which Conkey defines as two too well known insects. Floors are of loose boards and above are generally open, while the lower floor is usually lined with paper to keep out the cold, and this paper is often saturated with water from a dirty mop or worse with the excretions of children who are often untaught in the ways of civilized decency. Personally the people correspond with their surroundings. Their washing is done carelessly, often without boiling, bodies are unbathed except perhaps the male members bathe during the log driving season, the same as a pioneer western man dies with his boots on, dogs and cats lie under or upon the beds, and fleas, et cetera, are a seemingly large part of the population.

Absolute ignorance of the simplest sanitary principles and seeming inability to comprehend what cleanliness is render requests for clean water and clean towels inert. In asking for the foregoing articles I have had a wash dish brought to me with a rim of dirt at the water line, two or three rags drawn in at the bottom and a towel at the sight of which a printer would die of envy. These people are poor, they are not really to blame for this condition for they are driven to seek the barest necessities of life in the northwestern wilds, and were long since obliged to be satisfied with what in its simplest form would support life.

This class of people have many accidents and raise many children; they are frequently ten to thirty miles from any place where cleanliness is at all observed, and if not so it is often an impossibility to have them removed at all.

I will give you one instance of surgery under almost the identical circumstances enumerated above:

A young man was driving a log measuring about 500 feet through the woods one afternoon, when, he being on the load, it tipped, throwing him to the ground and pinning one leg between

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the log and the binding pole on the hard frozen ground. He was picked up and taken to the house, where I found him a little after dark, lying on the floor with a compound fracture of both bones just above the ankle joint.

A small kerosene lamp afforded all the light, and an examination revealed a very serious condition under any circumstances and made infinitely more so by the surroundings.

Should I amputate? seemed the only question, and had I been ready I believe that leg would have gone to the boneyard before morning. I was not prepared without going eight miles for help and more instruments, and so decided to try to save it. I asked for cloth for bandages and was supplied with those which your dry goods men here in the city would hate to own once belonged to them.

I had plenty of carbolic acid and bichloride of mercury and made appropriate solutions of each and drew that leg into position and dressed it in a fracture box and bandages with a liberal supply of both antiseptics, and left him late at night comparatively easy.

Do not ask me if any pus accumulated in this wound or I shall be obliged to lower my dignity and descend to slang. I visited that case every other day for about four weeks, not trusting any one else to dress it and often found puddles of pus an inch in depth alongside of the wound. At each visit I dressed and cleaned it up, taking my own bandages after the first visit, and had the satisfaction of saving the foot, and though it is united in rather bad shape, he walks about as well as ever. With the five dollars and the chicken I received for this work, I made a meal and with the balance bought more antiseptics for the next case.

In such cases as these, so far removed and under such circumstances, cleanliness is not to be considered; for if you touch anything you only raise a dust and bring it, if possible, into more septic conditions. Do not clean the dirt from under your finger nails, but cover it down with a little oil; do not wash your hands for they are no doubt dirty enough now; do not scrub down the walls or the floor for if you let the denizens of this territory alone they will come nearer letting you alone.

When we studied medicine Dr. Julius F. Miner told us the first surgeons were not those who could make a successful job when they had all the modern appliances and surroundings, but the man who, when far away from patent splints could with his jack knife and a fence rail make the aparatus that would properly secure a fracture.

A man to practice surgery in the country may, if he likes, learn all there is of modern methods and all the details of asepsis; but if he thinks he must have all these things at hand for every case he will oftener find he is without resources than otherwise. I do not wish to be understood as ridiculing modern asepsis or modern methods. On the other hand I consider the advance of the last ten years as wonderful beyond comparison, and the good it has accomplished and the lives it has saved will never be known; but what I wish to say to the country practitioner is, because you cannot have and use all the modern improvements do not be discouraged, but do the best possible under the circumstances, and if you succeed—well—if you do not, the fault lies not with you.

The Uses and Dose of Apomorphine.—Dr. Robert H. Babcock corrects from his own intimate personal knowledge of this drug many erroneous impressions current concerning it. Patients, he says, can tolerate very much larger doses than is commonly supposed, and by the mouth as much as two grains at a single dose may be given without nauseating. It is more apt to cause emesis when taken in the morning before breakfast.

The combination of a small dose of apomorphine, however, with other nauseating expectorants increases their efficacy. Dr. Babcock says that its effects are so satisfactory and it is so easily administered in pill or capsule, when for any reason it is not desirable to prescribe a syrup, that it has become his favorite remedy and main reliance in the treatment of both acute and chronic bronchitis. Combined with codeine or morphine, troublesome cough can be allayed without at the same time arresting bronchial secretion; indeed, the sputum will be increased, while at the same time the cough is muderated in violence and frequency.

The author's usual dose, administered by the mouth, appears to be about a fifth or a quarter of a grain, up to one-half, and sometimes to one grain, every three or four hours. In the case of a nursing baby a sixtieth of a grain every four hours in syrup of wild cherry bark was given with great effect in constant dry cough. The author calls special attention to the necessity of obtaining pure apomorphine (and recommends Merck's), as he has seen the soporific and other effects of morphine induced by impure specimen's. It must not be prescribed in mixture with potassium iodide.—Gaillard's Medical Journal.

Males are five times more likely to die of alcoholism, four times more likely to commit suicide, and three times as likely to be killed by accident.

Northwestern Lancet.

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SELLING PATIENTS TO SPECIALISTS.

The title of this article is prophetic of what would be the inevitable result of the general adoption of a recommendation by Dr. Melville Black, of Denver, who in a paper in the Colorado Medical Journal argues in favor of the payment of a fee by the specialist to the general practitioner for cases referred.

It is to be regretted that the original article is not at hand, but as quoted by the Medical Record, Dr. Black argues as follows:

"The general practitioner is called upon to render every kind of medical and surgical service. If he sees fit to send certain cases to a specialist, he displays a magnanimity unparalleled in other fields of labor. We will admit that in many instances his training and equipment are inadequate in some of the departments now presided over by specialists. The advancement of medicine and surgery has made it difficult for any one man to keep abreast of the entire field. He frequently recognizes that his knowledge in some one department is deficient, and being honest, he confesses his ignorance and sends the patient to a specialist. Again in his anxiety for the welfare of his patient he may make several visits in the endeavor to cause the latter to consult the specialist, or may lose valuable time in going with him to the specialist. In any event he expends a certain amount of his time for which the patient will not compensate him. The patient and his family have long looked upon him as their friend and medical adviser. They never think of paying him for aught except actual professional service. They would not consider such services professional, and he would gain their displeasure if he were to present his bill for the same. In case he has treated the patient for a few days, he would better erase any and all such charges for professional services from his books, because the patient considers that he has received no benefit from this treatment; that his physician did not understand his case or he would not have sent him to some one else. Therefore if this bill is presented no attention is paid to it, and if payment is pressed, the next time a physician is needed some one else is called in. Now, who is to compensate this physician? There is but one answer—the specialist. If the specialist does not pay him for the time he has expended, no one else does. The specialist can easily learn from the patient the extent of the services rendered by the physician. The latter then should be compensated accordingly."

The Record's comments upon this are principally in the way of pointing out the difficulties of the arrangement proposed and the reasons why there is sometimes friction between specialists and general practitioners. The New York Medical Journal, discussing the question, thinks that the patient should pay for services rendered by the general practitioner before the specialist was called in. It goes on to say that there is too much turning over cases to the specialist and advocates instead that the general practitioner should keep general charge of the case and call the specialist in as a consultant. In those cases where the patient asks the general practitioner simply to recommend a specialist the Record thinks that "no fees accrue, for the practitioner has rendered no definite medical services." The Journal says: "The selection of a specialist, is however, in itself a valuable service to the patient, and under certain circumstances, we think, it ought not to be rendered without recom-

pense." Neither journal seems to be at all startled by the proposal or to think it objectionable per se.

In a letter to the New York Medical Journal of October 29, Dr. C. L. Greene of St. Paul, strongly condems Dr. Black's proposal and expresses surprise that the Journal had not rebuked it. One point alone that he makes is enough to condemn the proposition, that is that the fee from the specialist to the general practitioner would need to be given secretly, since the patient, if he knew of the transaction, would feel little confidence in "the specialist who purchased him and would have lost all regard for the family physician who sold him." This is plain language, but it just suits the case, and as the proposition came originally from the west it is fitting that it should be repudiated there, however little condemnation it may have found in the east.

The adoption of Dr. Black's suggestion could not fail to lead to the most deplorable and pernicious results. There are doubtless cases such as he describes where the general practitioner in turning over a patient to a specialist loses his pay for work already done, and for the specialist to share his fee with the general practitioner in such cases only would perhaps do no great harm, but who can promise that the practice would end there? Once let the profession sanction such transactions and the inevitable result would be specialists competing with one another and offering a large percentage of the fee as an inducement to have patients referred, and general practitioners with that consideration before their mind in deciding first whether to refer the patient at all and second to whom to refer him. Unless human nature among medical men were no longer human nature the mercenary consideration must affect the judgment. It happens every day that patients are advised to take prolonged and expensive courses of treatment or to have important operations performed where the man who gives the advice gets the fee and the advice given is more or less influenced by the consideration of the fee. The wise patient goes first to a general practitioner and on his recommendation only takes the special course of treatment or submits to the operation at the hands of the specialist, for the wise patient knows that the general practitioner's opinion is disinterested and not given with the prospect of a big fee dazzling his judgment. If now under Dr. Black's plan the general practitioner is to share the fee with the specialist the poor patient will stand a small chance of getting disinterested advice anywhere.

Dr. Black's arguments will not be universally admitted to be sound. If the general practitioner has attended a case he is entitled to pay for what he has done and he usually gets paid whether he afterwards calls in a specialist or not. If he does not get his pay it is his own fault and there is no excuse for getting the specialist to collect his fee. For the patient to object to paying because the doctor did not or could not complete the cure would be unreasonable and should not be allowed for a minute. The man who was afraid to send in his bill under such circumstances, should, to be consistent, send in no bill for fatal cases, but should make some arrangement for collecting the money through the undertaker. In cases where the family physician is asked merely to recommend a specialist most medical men would not care to make a charge, but if one did let him do it openly and not collect from the specialist behind the patient's back.

A word upon this subject is timely. There is more of this buying and selling of patients going on secretly than is generally known. In more than one direction in this neighborhood have offers been made by specialists to hand back to the general practitioner a percentage of the fee from cases referred for operation. Medical men should unite in condemning this unholy bargaining; they must crush it at the start or they will live to regret a lost opportunity to save the profession from degradation.

When an anæsthetic must be given just after a hearty meal it is advised that the stomach be washed out first. To give an emetic at such a time often interferes with the administration of the anæsthetic.

CORRESPONDENCE.

A NOTE OF WARNING.

I am an enthusiastic advocate of chloroform as an anæsthetic because I have used it for twenty-five years with perfect satisfaction and be-

cause I believe that when properly used it is the safest and best anæsthetic. It has been administered for me many times to patients who had loud heart murmurs and to others who had serious kidney lesions, and with such gratifying results that I do not hesitate to advise a patient suffering from either of these conditions to take it when for any reason a surgical operation is imperative.

From 1882 to 1886 in a very extensive emergency surgical practice I used chloroform exclusively as an anæsthetic and with perfect satisfaction. We then gave it on a towel or in an ether inhaler, and used quantities of it that would frighten me now. In two instances during that time I used ether at the earnest solicitation of my consultants, who said they were so afraid of chloroform that they could scarcely stay in the room to say nothing of taking part in the operation. During those years Dr. Ames and I were about the only ones in Minneapolis who had the temerity to use chloroform. In 1886 I began to attend clinics in Germany and found that they were using chloroform almost exclusively, but that they used about as much of the anæsthetic for one dozen patients as I did for one. Their methods were a revelation to me. The result was that I brought some Esmarch's inhalers home with me and also brought a German dentist with me who was a skilled anæsthetist.

This gentleman gave the anæsthetic many times for me and for my friends during the year he remained in America.

Today a very large majority of the profession in Minneapolis use chloroform, and almost every doctor in the city carries an Esmarch inhaler in his bag.

My two colleagues who were afraid of chloroform are now earnest advocates of it, and three or four years ago when I was called upon to operate upon a member of the family of one of them, chloroform was the anæsthetic and he administered it himself.

If there is any one point well established in the matter of anæsthetics it is that chloroform is a safe and satisfactory anæsthetic in children. Yet within the past two years the death of two children from chloroform has been reported in Minneapolis. In both of these cases cocaine had been tried, and it failing, chloroform was resorted to.

The note of warning I wish to sound is that cocaine and chloroform make a deadly combination that should be avoided. I have no means of knowing whether a combination of cocaine with ether would be any safer, but experience and observation have taught me to be more afraid of cocaine than of all the others combined.

James E. Moore.

Minneapolis, Oct. 20, 1898.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D. Secretary.

Annual meeting, Wednesday evening, October 5, 1898, at the Hotel Ryan, St. Paul, the President, Dr. J. W. Chamberlin, in the chair.

The annual election resulted in the choice of the following officers: President, Dr. C. G. Weston, of Minneapolis; Vice-President, Dr. C. Eugene Riggs, of St. Paul; Secretary-Treasurer, Dr. R. O. Beard, of Minneapolis; Executive Committee, Drs. L. A. Nippert, A. J. Gillette and J. L. Rothrock; Governing Board, Drs. H. M. Bracker, Talbot Jones, A. B. Ancker, H. B. Sweetser and J. W. Bell.

Dr. M. L. Harris, of Chicago, read a paper entitled "The Value of Collecting Urine Separately from the Two Kidneys in the Differential Diagnosis of Diseases of the Urinary Organs."

The discussion was opened by Dr. C. A. Wheaton, of St. Paul. He said that he had nothing but commendation to offer upon Dr. Harris' method. He had been introduced to the instrument at Denver, and he considered it a great improvement upon Dr. Kelly's method of collecting urine from the two kidneys. He had used the instrument once since that time with great satisfaction.

Dr. F. A. Dunsmoor, of Minneapolis, congratulated Dr. Harris upon the invention of his instrument, which he considered as notable as that of Dr. Murphy's, by which intestinal anastomosis had been secured.

Dr. J. E. Moore, of Minneapolis, said that while he had not previously seen the instrument, he was much interested in its exhibition and in the story of its work.

Dr. J. H. Dunn, of Minneapolis, applauded the character and uses of the instrument; he said that he should look forward to its use with interest. He had found Dr. Kelly's method of catheterization of the ureters in women easy. He thought that the number of cases in which separate examination of the product of the kidneys was desirable had been over-rated, and that much damage might be done by catheterization of the ureters.

Dr. Strickler, of New Ulm, said that during two weeks spent in Chicago he had heard much in approval of the instrument, and that he had come to Minneapolis for the sake of seeing it demonstrated by Dr. Harris and had been well repaid.

Dr. Sarles, of Sparta, said that he had once

used the instrument, and with complete success.

Dr. Harris closed the discussion. He said that the instrument had its limitations. In such cases as those of enlarged prostate or vesical calculus it was inapplicable. He could not agree that the field of its use was a small one. The more it had been used by himself and by his friends, the greater had been the range of information secured by its use. He referred again to cases illustrating this fact.

The use of the instrument was free from the danger of catheterization, which had been that of sepsis. Dr. Kelly, himself, had admitted that he had infected the ureter.

Hitherto pain had been our only leading symptom, and often a misleading one. How often under its guidance has a kidney been operated upon for stone, etc., only to be found normal. Disease of one kidney does not mean disease of both, and the method he had described was opening up a large field of inquiry in this regard.

A report upon a case of brain tumor, successfully removed, was made by Drs. Riggs, Dunning and Wheaton.

Dr. C. E. Riggs, of St. Paul, stated that in last July he was called to see a confrere, from a neighboring city, who had, two or three days previously, suffered from a repeated twitching of the left foot and limb. Sensation was not involved. The reflexes were not affected. The left limb was weak and had lately been defective in the execution of involuntary movements. The patient returned home, having been informed that little treatment was indicated, but that an operation might prove desirable. He grew rapidly worse; and, in Dr. Rigg's absence, Dr. Dunning was sent for, and an operation was advised, in which advice he had concurred. The operation was done before his return home.

Dr. A. W. Dunning, of St. Paul, continued the report, stating that he found marked loss of motor power in both the left leg and arm; in the leg, motivity was reduced to but slight possibility of movement. The reflexes were exaggerated. Sensation was unimpaired. The diagnosis lay between tumor and abscess. The temperature did not range above 99.6.

In a few days the patient came to St. Paul for operation. He was seen with Dr. C. A. Wheaton, and the operation was done on Sept. 3. He had suggested that the lesion would be found at the summit of the fissure of Rolando, and described the method of determining the location for operation.

Dr. C. A. Wheaton, of St. Paul, exhibited the tumor and a photograph of it. He described the method of operation by means of a horseshoe bone flap. The dural vessels bled freely. The dura was split and a portion of the tumor was uncovered, lying at the upper end of the fissure of Rolando on the right side. The tumor was lifted by the handle of the scalpel and found to be distinctly pedunculated; the opening through the bone had to be enlarged with bone forceps at the toe of the horseshoe, in order to enucleate the tumor. It was impossible to fully close the dura at the foot of the horseshoe. Anticipating that the tumor had arisen in the cortical tissue, he had looked to see permanent impairment of the action of the foot center. The tumor weighed seven drachms. The wound was packed with gauze to check the severe hemorrhage, and the wound closed. Severe headache, and a high temperature, the first evening, followed the operation; but the fever declined rapidly, and had not been much above normal since. Three days later the patient was again anæsthetized; a few stitches were removed, the bone flap lifted, the gauze removed and the wound again closed. Recovery had been uninterrupted until a few days since, when the patient complained of a disagreeable noise in the head. Examination of the wound showed a slight infection of the scalp wound and some accumulation of serous fluid, which was drained out, whereupon the noise ceased. For three weeks after the operation no improvement of motor conditions occurred; but from that time on a gradual gain had been observed and he anticipated ultimate recovery.

He reported another case of a patient, thirty years of age, in whom aphasia was present, and in whom some Jacksonian spells had occurred. Dr. Sweeney, who had called him to see this case, learned that, at three years of age, the patient had suffered a severe fall. Dr. Sweeney recommended an operation for a tumor believed to exist in the left cortex, involving the speech center. The same method of operation was resorted to as that related above, and an arachnoid cyst was discovered covering the surface of the left cortex. It was drained and the wound closed. Leakage persisted, and, after some time, pus appeared. The patient was more or less delirious and difficult to control. He was anæsthetized, a button of bone was removed, and through and through drainage was made. He improved for a time, but later, the epileptiform seizures returned. The wound was still purulent and was again opened and thoroughly packed. His condition improved, and the epileptic seizures diminished: he returned home, but small abscesses continued to appear and the epileptic attacks coincidently reappeared. Dr. Wheaton did not anticipate further improvement.

He referred to still another case, sent to him by Drs. Riggs and Dunning, in which the symptoms suggested a lesion similarly located, but in

which operation did not discover any neoplasm which could be treated surgically. His condition nevertheless improved, and a plate of bone was left out with the idea of relieving pressure.

Dr. Riggs stated that in the last case he had counselled against an operation, in any hope of removing a lesion, since the patient exhibited disturbance of the sense of smell, and he did not believe the lesion could be reached; but that he had advised the operation for the relief of symptoms, a hope which the sequel approved.

Dr. W. A. Jones, of Minneapolis, said that it was a very gratifying thing to locate and sometimes to remove a brain tumor. It was comparatively an easy thing to do this, when the lesion was present in the motor area. He had seen such growths removed and cysts drained with temporary success, but usually with recurrent symptoms. He referred to several cases with such a history. It was presumably justifiable to seek the prolongation of life by this means; but little more, unless the tumor proved to be a simple one, could be expected.

Dr. Arthur Sweeney, of St. Paul, said that he agreed in part with Dr. Jones, but that granting the correctness of his view, he still believed that operation should be attempted. It was impossible to determine the character or the possibility of removal of a tumor until after operation; but it should be undertaken with the certainty that no other treatment is available and that the operation can do no greater harm than is involved without its possible aid.

Dr. J. E. Moore, of Minneapolis, agreed with the last speaker. In one of the cases to which Dr. Jones had referred, in which he himself had operated, much good had been done. The continued convulsive attacks from which the patient had suffered had been at once relieved; he had lived in comparative comfort for a year, had arranged his business affairs, and again presented himself, and insisted upon a repetition of the operation for a recurrent growth. Following the first operation, a severe secondary hemorrhage had occurred, but the second operation was uncomplicated. The patient, however, while in delirium, tore off his dressings, infected the wound and in a few days died. Nevertheless, Dr. Moore considered that the prolongation of the patient's life had justified the first and the attempt at a second operation.

MISCELLANY.

THE NOVEMBER MAGAZINES.

Harper's Monthly has for its special features four illustrated articles on war subjects, the most important being by Archibald R. Colquhoun on "Eastward Expansion of the United States." Sidney Whitman writes a delightful article on "Bismarck."

The number contains also Part II. of "The Span o' Life," by William McLennan and J. N. McIlwraith, illustrated by F. de Myrbach; "Sun-Down's Higher Self," written and illustrated by Frederick Remington; "Pancho's Happy Family," by Henrietta Dana Skinner; "Sally," the eighth of the "Old Chester Tales," by Margaret Deland, illustrated by Howard Pyle; "A Reprisal," written and illustrated by H. W. McVickar; and the conclusion of "An Angel in a Web," by Julian Ralph, illustrated by W. T. Smedley. The Drawer opens with The Lady of Lions, by Wilmot Price, illustrated by W. A. Rogers, and contains skits by Albert Lee, Oliver Herford, and John Kendrick Bangs.

The Atlantic Monthly has for its "leader" an article by David Starr Jordan on "Colonial Lessons of Alaska," in which Dr. Jordan shows that we have little to boast of in our treatment of that country which is merely a colony, and he naturally concludes that Imperialism is a dangerous policy. Hamilton W. Mabie writes of "The Intellectual Movement in Our West," showing that the west has done more than the East did in the same number of years, and that our progress has been simply creditable to us. The other principal articles of the issue are "The Navy in the War With Spain," by Ira Nelson Hollis; "Psychology and Art," by Hugo Münsterberg; "Confessions of Three School Superintendents;" and "Unpublished Letters of Carlyle."

The Review of Reviews excels all other monthly publications in its treatment of current topics, and it has handled the recent war with unusual fulness. "The Nicaragua Canal in the Light of Present Politics," by Prof. L. M. Keasbey, is one of its best contributions in the current war discussion, but this is only one of many good things in the November issue.

Lippincott has a fine short story by Mrs. Burton Harrison, which is the best that has ever appeared in the magazine, and which would make a good sized volume. In addition to this novel, there is a fine table of contents, one which will bear comparison with the best of our excellent monthlies.

The Living Age appears in a new dress, which is a marked improvement. This magazine seems to publish in almost every one of its weekly issues, matter that no well informed person can afford not to read; but perhaps we cannot do better than to refer our readers to its advertisement which appears in another column or to advise them to send for the publishers' prospectus, which shows what a compendium of good things this journal has been for the past year, and promises to be for the next.

The Outlook, with its monthly magazine number, is also worthy of special notice at this season when one is making up his reading for a new year. It promises for next year special series of articles by George Kennan, Theodore Roosevelt, Charles B. Spahr, Lyman Abbott, Thomas Wentworth Higginson, Hamilton W. Mabie, and others; and these writers will treat of subjects that we are all absorbingly interested in.

NOTES.

CHLOROSIS.

In the minds of many persons anæmia and chlorosis are one and the same thing, but strictly speaking chlorosis is but a variety of the larger class of affections that goes by the name anæmia, a term which may be applied either to a reduction of the whole amount of the blood, its corpuscles alone or of certain of the more important constituents, such as albumin and hæmoglobin. There are a great many forms of anæmia, from the simple, it might be called the mechanical form due to hemorrhage to the complicated pernicious anæmia, with its extraordinary diminution in the number of red blood corpuscles, their irregularity of size and the relative increase in the amount of hæmoglobin.

Chlorosis on the other hand is an anæmia of simple form, occurring in young girls, and distinguished by the marked diminution in the relative amount of hæmoglobin present in the blood, while the number of red blood corpuscles may remain normal or nearly so. While the underlying cause is unknown there are many factors which as is well known contribute to the development of the disease. Among the most prominent of these factors is poor and insufficient food, overwork, confinement in close, dark rooms, with no sunshine, and absence of proper exercise in the fresh air. The wearing of tight corsets and much going up and down stairs are also regarded as contributing frequently to the development of the disease.

It follows that chlorosis is to be found in particular wherever girls and young women are huddled together in improper hygienic surroundings. Hence it is from factories, shops and girls' schools that the majority of the cases come, the last particularly in the newly settled and rapidly growing cities of the West, where the predominance of young married couples means an excess of children in proportion to the total population and a consequent overcrowding of the schools.

If cases of chlorosis must be numerous it is fortunate that medicine furnishes for the disease a specific, one almost as sure as quinine in malaria. This specific is iron. But there are many forms of iron in materia medica, and the value of different preparations varies greatly. For children, medical authorities agree that there is nothing better than the combination of iron and manganese. Here is a case illustrating its use:

A —, a girl of eight years, with good family history and herself previously healthy, while attending school began to "run down," lost her appetite, became languid, pale and thin, lost her ambition in school and could hardly be induced to go out of doors to play. Examination showed a waxy white skin, pale lips and almost white gums, flabby muscles, dark circles under the eyes, but no sign of organic trouble except a soft blowing sound at the base of the heart during systole. The diagnosis of chlorosis was inevitable. The treatment advised was removal from school, regular out of door exercise and for medicine the Liquor Mangano-Ferri Peptonatus (Gude), a teaspoonful in milk three times a day. At the end of a week when the case reported according to instructions a decided improvement was manifest, before the month was gone the circles had disappeared from the eyes and the color was returning, and in two months the child was ready to go back to school, although the remedy was continued somewhat longer as a precaution.

ANOTHER ACHIEVEMENT IN MODERN PHARMACY.

By Ferdinand King, M. D., Ph. G.

The application of remedial agents by means of ointments, for both local and constitutional effects, is among the oldest practices known to civilization. Ointments doubtless antedate the written history of the science of medicine, for we read of the mode and manner of their preparation and application for the relief of disease in the oldest accessible literature. The works of Esculapius, Hippocrates, Galen and other ancient authorities contain frequent references to this form of medication.

Until within a comparatively recent period, hog's lard (the fat of Sus scrofa) has been the basis of all medicinal ointments. The base, however, has always been objectionable for the reason that ointments thus prepared are greasy, soggy and altogether inelegant. Furthermore, when applied to lesions, they encourage the

propagation and growth of many forms of dangerous microörganisms. On this account the ointment of the ancient pharmacist has been almost discarded by up-to-date physicians and surgeons, who have due regard for asepsis. This applies more particularly to the treatment of traumatic lesions, where "cleanliness is next to godliness."

Many physicians who have been in the habit of employing ointments in their practice have long felt the need of an ointment suitable for general use, and free from the objections just enumerated. This want has certainly been supplied by the manufacturers of unguentine, who have succeeded in producing an unobjectionable product in which purified petrolatum is the base. Unguentine occupies a middle ground between ointments and cerates, and partakes of the medicinal action of both. But it is not greasy, like an ointment, nor is it hard like a cerate. It is emollient without being greasy; it has "body" without being too hard. No form of bacteria can live in unguentine. When applied to a wound or other lesion, it forms a thin film, (resembling rubber protective) which totally excludes the atmosphere and prevents bacterial invasion. Its power in this respect is greatly enhanced by the carbolic acid and ichthyol which enter its composition. Unguentine also possesses astringent properties which are due to the presence in its formula of alum, from which all irritating elements have been removed.

I have had quite an extensive clinical experience with unguentine and it has proven eminently successful in every respect. A few cases taken at random from the records of my venereal service, at the hospital dispensary, will demonstrate my method of using unguentine, in that special line of work.

Case 1. J. H. B.—Swede, 22 years of age, waiter at Waldorf Hotel. First visit to clinic December 3, 1895. Had phymosis, with concealed chancroid behind the glans penis and almost encircling the organ. Glands in both groins were swollen and painful. Circumcision was done by the usual method; care being taken to avoid inoculation of the freshly wounded tissues with chancroidal discharge. The chancroidal ulcer was immediately cauterized with nitric acid, the prepucial wound was stitched and a dressing of unguentine applied over the cauterized surface, as well as the circumcision wound. Patient was instructed to apply unguentine freely to the enlarged glands twice a day. December 4 the stitches were removed and the unguentine dressing renewed. There had been no pus, nor was there at any stage of the treatment. On the 15th of December the patient reported himself doing well, excepting a little tenderness in his left groin.

Case 2.—L. C. J., barber, 26 years of age. First visit to dispensary November 5. Had a true hard chancre, situated on the glans penis midway between the meatus and corona. Noticed it first three days before the time of his first visit. There was a decided tenderness in left groin. The chancre was thoroughly cleansed with mercury bichloride 1-1000, cauterized with nitric acid, and finally dressed with unguentine. Patient was instructed to renew the dressing every other day, without any attempt at washing the sore. This latter direction was to prevent the possibilty of his destroying or interfering with any newly-forming "scab." At the end of one week the sore was well. As soon as the lesion disappeared the patient ceased taking the constitutional treatment which had been prescribed for him, hence he returned to the clinic a month later with local evidences of secondary syphilis. His belly was covered with "copper splotches," and he had a sore throat. He was again put upon "mixed treatment," and instructed to apply unguentine freely over his belly. In a few days the "copper splotches" had disappeared, his throat got well, and we soon lost sight of the patient.

Case 3.—Mrs. C. P., age 52. Mother of eight children. Varicose ulcer 1½x2 inches located on tibia. It was carefully cleaned with castile soap, hydrogen peroxide was freely applied, the entire surface was carefully dried, after which the unguentine dressing was applied on lint. At the time of her next visit, two days later, there was a marked change in the appearance of the sore. It was perfectly clean, the edges of the lesion had taken on a healthy appearance, and new granulations had sprung up. The same dressing was again applied, and was repeated at subsequent visits. At the end of six weeks the ulcer was entirely cured. When this case first came under treatment patient complained of much pain and tenderness in the affected limb; this immediately disappeared under the soothing effects of unguentine.

Results equally as good as those here reported have been secured in all cases where this new dressing has been employed. As a tampon, I have found it superior to glycerine, ichthyol or any other of the many agents heretofore employed for that purpose. It not only softens up the parts, but it also heals any existing ulceration on the walls of the vagina, thus serving a double purpose. It also promptly relieves hyperæsthesia here and elsewhere. As an application for the relief of psoriasis it has no equal.

I have had occasion to discuss unguentine with many physicians in this city, and I find that they are a unit in its endorsement.—Medical World.

The External Use of Salicylic Acid.

A point of much importance which has been overlooked in the use of salicylates in the treatment of rheumatic and neuralgic conditions is the external application of the remedy. The efficacy of this procedure is at once apparent to the practical and progressive physician, since thereby he can apply the drug directly to the part affected, so that the greatest quantity is absorbed where it is most needed. Furthermore irritable stomach and sensitive nerves can be entirely avoided.

Some of the most eminent French physicians have ascertained by extensive clinical experimentation that the salicylates and especially the salicylate of sodium dissolved and used as a liniment, when applied to the fleshy part of the thigh where the skin is of a delicate texture, are rapidly absorbed and slowly eliminated, thus securing the full potency and value of the remedy with the least disturbance and irritation to the alimentary tract.

The internal administration of any one of the Tongaline preparations as indicated, given at short intervals, and each dose washed down with plenty of hot water as hot as the patient can bear it, may be supplemented by the local application of Tongaline Liquid. In this manner the therapeutic effects not only of the salicylate of sodium but of the other ingredients of Tongaline are felt very promptly and to such an extent that the acute pains of rheumatism and neuralgia are quickly allayed and the patient enabled thereby to obtain refreshing and tranquil sleep, while the strong eliminative action of Tongaline by being used both internally and externally speedily induces the desired results.

Food and Teeth.

George W. Williams, D. D. S., of Richmond, Indiana, one of the leading dentists of that state and a popular writer on dental subjects, in a recent article says:—"Many of the prepared foods sold for children are destitute of the qualities necessary to form sound and painless bones and teeth, and there is a great difference in growing up with fine grained, well glazed teeth in comparison with having the brittle, chalky teeth we commonly see. Diet is of the first importance in promoting the upbuilding of the bony system, and incidentally we would state that as a food for this purpose there is nothing that will equal 'Imperial Granum.' It is a pure, unsweetened food, made from the most nutritious portions of the finest growths of wheat. No derogatory word has ever been uttered by the medical or dental professions against Imperial Granum and its bone-building qualities. Perhaps the most important period in childhood is when the first set of teeth are erupting. It has been calculated that one child in ten has its life destroyed in consequence of diseases which have their origin at this time. Thus it is evident that children should be watchfully cared for, and I believe that besides those who die from diseases readily traced to irritation during the eruption of the first teeth, a number are the victims of diseases superinduced by general neglect of the mouth and the consequent tooth decay and improper mastication of food."

The Fluctuating Temperature in Tuberculosis.

"The fluctuating temperature that constantly attends the tuberculous conditions is attributable to the disorganizing influence of the tubercle bacillus upon the nerve tissues, especially the medulla. This condition is usually described as reflex. Rational relief is found in that agent which encourages the hasty return of normal vitality to the nervous system and one which serves to establish a uniform heat genesis. I have found that Angier's Petroleum Emulsion admirably meets these requirements."

Sanmetto in Urethritis, Cystitis, Prostatic Enlargement and Enuresis.

I gladly write my opinion of Sanmetto. For two years it has given results which are perfectly satisfactory. Have had equal success with it in urethritis, cystitis and prostatic enlargement, and phenomenal success when using it for incontinence of urine, both in children and old people. If in medicines we have specifics, then Sanmetto I regard as one in enuresis.

C. M. Harris, M. D.

Bourbon, Ind.

A PURE WATER.

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The Indian Medical Springs water is a positive preventive for typhoid fever, if used exclusively. Also a cure for rheumatism, kidney disease, eczema and all of the allied diseases of the bladder and stomach. It acts especially upon the gastric juices of the stomach, aiding the assimilation of the food, and producing new blood, which no medicine will do.

The Indian Medical Spring Water is sold as low as any other water. For prices, etc., call upon, or write to

THE INDIAN MEDICAL SPRING WATER CO.,
404 Masonic Temple, Minneapolis.

LECTURES AND ADDRESSES.

HOSPITAL CLINICAL RECORDS.

An Address Delivered to the Minnesota Academy of Medicine, November 2, 1898, by C. G. Weston, M. D., President of the Academy.

Gentlemen of the Academy: I wish to thank you for the action taken at the last meeting in naming me as your President, and assure you of my thorough appreciation of the honor. With your coöperation I hope for a successful year, and this leads to the thought, "What makes a successful meeting?"

The first essential, I should say, is a good attendance. The founders of this association appreciated the importance of this factor, and endeavored to provide for it in all ways, even by going to the extent of imposing the penalty of loss of membership for absence from four consecutive meetings without the presentation of a good and sufficient excuse therefor. Better than this, however, they decided upon a program for the meeting that would prove attractive to all. In a society composed of members of the profession representing every specialty as well as general practice, it is not to be expected that the literary offering at any individual meeting will prove equally interesting to all, but the social feature of a good supper, with the opportunity afforded for the promotion of the feeling of general good fellowship, is one in the enjoyment of which we are all specialists, and in the participation of which we all contribute with equal willingness. Perhaps the latter remark does not apply with the same truth to the next feature of a good meeting, viz: the presentation of good papers. The Academy of Medicine of Minnesota includes in its membership the leaders of medical thought and progress and the exemplars of medical and surgical practice in this state, and is exclusive to the extent of making the presentation of a creditable thesis a requisite for admission. Our Secretary-Treasurer, however, occasionally experiences difficulty in providing for this part of the program, which can only be accounted for upon the supposition that our members are very busy men and have not always the time to devote to literary work.

A good discussion is of equal if not of greater value than a good paper, for it presents the advantage of the results of a larger observation and, when participated in by many experts, tends to correct the errors of individualism or adds weight by corroborative evidence to the conclusions of the writer.

I am sure that all enjoyed the masterly paper of Dr. Harris, of Chicago, presented at our last meeting, and the opportunity of listening to the personal presentation of articles of original thinkers from other portions of the country, is an attractive feature to be remembered and taken advantage of when opportunity offers.

The presentation of pathological specimens and the reports of cases is another feature possessing possibilities not fully realized. Many specimens of the greatest interest are shown in the course of a year, but many others fail to reach the meetings, partly through the thoughtlessness of the possessor, and occasionally from the trouble necessarily involved in their transportation or preservation.

Speaking of the reports of cases brings me to the subject to which I wish to invite your attention for a few minutes this evening, viz: The Clinical Records of Hospitals.

Most hospitals, I presume, make some attempt at keeping a record of the histories of the patients treated, but there are few, in this vicinity, at least, where anything like a complete clinical record is taken, and in many none is preserved. The bedside notes of the nurse form the principal memorandum, and these are destroyed as soon as the patient is discharged.

All progressive physicians, whether engaged in private practice alone or also in hospital work, admit the value of case taking, and the reason that more do not practise it is for lack of time, or, possibly, from the great dislike that many have for clerical work. It is apparent that it is to hospitals that we must look for the material to be used in the study of disease upon a large scale, and it is to them that we go for accurate reports of the clinical history of disease. Many times, however, the physician who enters upon the study of a series of cases from the records of the hospital finds that he must call upon his memory or his imagination for the details, and many an interesting paper fails to materialize when the author comes to scan the records that are to furnish him with facts or statistics to prove his theories.

Hospitals receiving the free service of physicians upon their staffs should furnish such facilities for the proper study of the cases as their means will allow, and the staffs owe it to themselves and to the profession at large to avail themselves of the opportunities afforded them for recording and preserving for future study and reference the results of their work.

It cannot be expected that the physician will devote his time to clerical work, but, if the hospital furnishes him with a man for the purpose in the person of a hospital interne, it is his duty to see that the interne properly performs his work in this particular, as much as in his care of the patient in the matter of treatment. The visiting physician should dictate to the interne at the bedside the notes of a physical examination.

or should at least revise those made by the interne before they are incorporated into the records. No graduate fresh from a medical school is competent to make these examinations with accuracy, for, if he were, the need for hospital work upon his part would be largely wanting, and the value of any record depends upon the accuracy and truthfulness of the facts recorded. But very little time is necessary if the physician dictates as he examines, and perhaps the fact that the results of his examination are to be put down in black and white, may cause him to exercise more care in the same than would otherwise be the case, and a direct benefit to the patient thereby result; or, in the other event, the physician himself be saved the chagrin of the exposure of an inexcusable mistake in diagnosis in the case of a subsequent post mortem examination.

In addition to the dictation of the physical examination, a general oversight of the clinical records by the physician is essential if the best results are to be obtained. The interne soon learns whether the physician in charge of the cases consults the records, and, if no interest is manifested in this quarter, his own enthusiasm soon wanes and the result is disappointing. I am aware that the value of the record depends quite largely upon the caliber of the man who takes it, and this leads me to say a word upon the subject of hospital internes in general. The two methods employed in the selection of these officers are by competitive examination and by direct appointment upon recommendations. The competitive examination, especially if conducted in writing, may determine who is the best student and who is possessed of the most theoretical knowledge, but it does not indicate who will make the best hospital interne. A practical man having an average amount of ability and a large amount of willingness to work, is much to be preferred to the man whose chief qualification is his ability to acquire book knowledge.

Professors of medical schools in their recommendations too often fail to take into consideration the natural adaptability of the men that they recommend, but are guided wholly by the rank they have attained in the particular branch of their teaching. Again, personal favoritism, or political or other influence secures the place for a very inferior man. Many very good men of the graduates do not apply for the positions beause of the latter fact, and others are so anxious to get into practice and reap a pecuniary reward from their three or four years of study, that they cannot spare the time for a hospital position, which, instead of being looked upon as an essential to a proper equipment for the practice of medicine, is considered an extra, to be desired, perhaps, but not of sufficient value to be worth the year's time necessary for its realization. A couple of years of private practice changes their views, but the opportunity has gone by. Few men who take the positions fully appreciate the actual value to them of the hospital training, or realize the importance of making the most of their opportunities.

I am sure that hospital superintendents desire to secure the very best material possible for hospital internes and are ready to avail themselves of all sources of information for that purpose, but what they need more than anything else is the active coöperation of the visiting staff in keeping the internes up to their best work after their appointment. Judicious praise for good work and equally judicious censure for poor, will do much to raise the average of results, and the knowledge that this praise or censure will inevitably follow, will have a most gratifying effect upon this branch of hospital work. Inasmuch as the work of the interne is done almost wholly for and under the direction of the visiting staff, it follows that the latter should be responsible for its faithful performance, and that they should promptly bring to the notice of the hospital authorities any disregard of orders or neglect of duties.

It has been objected by some that although in charitable institutions it may be possible to keep a complete record of the clinical history of the case, such completeness of detail is not feasible when private patients are to be considered. I believe, however, that with the employment of a little tact upon the part of the interne, with the assistance of the physician in charge, in securing answers to questions that the patient may hesitate to give to any but his own medical adviser, it will be possible to have records kept with as full particulars and of equal value with those institutions of a purely eleemosynary character. Physicians admit the advantage of case taking in private practice, and should certainly not object to a more complete record of cases represented by this portion of the practice, when the irksome part of the work is done by others. The comparison of disease and of results in this class of patients with those occurring in municipal hospitals, where so many of the patients are drawn from that portion of the community who are improperly clothed or fed, or who are enervated by habits of dissipation, will prove of interest and have a distinct value.

It has been with a view to correct some of the faults in our present methods of keeping records at the Minneapolis City Hospital that I have gotten out the blanks that I show you tonight. They represent the results of the study of the methods employed at a number of institutions in the east, revised for our purpose, and containing many additions considered an advantage. That they are perfection is not claimed, but they are an advance on our present methods and will furnish a basis for future improvements.

ORIGINAL ARTICLES.

MEDICAL EXPERT TESTIMONY.*

By James H. Dunn, M. D.

Minneapolis.

During my professional life, I have heard much ill of medical experts and their testimony. This is far from surprising, since during the same period it has been quite the vogue to criticize, denounce and almost vilify every factor, individual and collective, in modern society. It is rather the absence of any defense of this much scolded wight and his ways that is to me striking, for as a rule the ordinary subject of criticism finds partisan eulogy pari passu with the violence of his denunciation. I do not remember to have heard a word in defense of medical experts—hence this effort to say a word for the under dog.

Doubtless the expert witness and his testimony, like all things human, is very far from perfect; doubtless is even a righteous subject for reform. Yet it does not follow that all this tattle against him is true, nor that the plans suggested by reformers are sure cures for his real and assumed failings.

We are told that judges are impatient and sceptical of expert testimony. We observe that attorneys scoff at it when it runs counter to their desires, and the medical profession is constantly importuned on every public occasion by certain of its members, with the plea that we are being mortified, humiliated and wounded in our dignity by this debauched and degenerate medical relative. It has always appeared to me that these critics, and especially the latter, protest too much. The medical critics are surely unnecessarily shocked, and one must always fear lest a too vulnerable dignity may not be over genuine. I have no knowledge of legal practice, but for twenty years have occasionally been an onlooker and witness in court, especially in personal injury cases, and to my legally untutored mind, the proceedings have seemed very interesting fights before a referee, in which every actor, judge, attorneys, jury, witnesses, spectators and all appeared bristling with human foibles, affording one of the choicest fields for the study of human nature. Ignorance, prejudice, vanity, disingenuousness and every other human failing crop out all along the line, and if we were to believe the attorneys, even his honor, the judge, exhibits in a minor degree some of the defects of the humanity around him. Each attorney has his theory of attack or defense. He carefully selects his witnesses with reference to his theory. If he finds one whose facts do not suit his case, he avoids him. He carefully review his witnesses and if possible by suggestion and preparation gets them to believe a slightly modified state of facts. Some witnesses are too ignorant to be very reliable, possibly others willfully lie, and some of them more or less unconsciously stretch the truth. It is a very ancient observation of great authority, that all men are liars. According to Herbert Spencer: "Complete truthfulness is one of the rarest virtues. Even those who regard themselves as absolutely truthful, are daily guilty of over-statements and under-statements. Exaggeration is almost universal. The perpetual use of the word 'very,' where the occasion does not call for it, shows how widely diffused and confirmed is the habit of misrepresentation, and this habit sometimes goes along with the loudest denunciation of falsehood. After much vehement talk about veracity, will come utterly unveracious accounts of things and people, accounts made unveracious by the use of emphatic words where ordinary words alone are warranted, pictures the outlines of which are correct, but the shade and shadows are doubly and trebly too strong."*

Indeed in matters of much complexity most men must of necessity be liars or reserve opinions, and to reserve opinions is rarely the attribute of experts who indeed in the absence of opinions, would stand confessed non-experts, and find their occupation gone. It is presumably the province of jurisprudence to sift and weigh this testimony. Now when medical facts enter into a case, experts are called. It is indeed rarely, if ever, that the problem which they are called, not to solve, but to aid the court in solving, is capable of a mathematically exact solution, even by the very elect of the medical profession. It is usually one upon which a very great variety of opinions would be held by the most able clinicians.

Perhaps the worst trouble with the medical expert witness is that he is at once more or less removed from his usual habit as a practitioner. At the bedside the best doctor attends chiefly to the practical, indulges but little in prognostics, and then as much as possible in glittering generalities. In court he is carried into infinite theoretical possibilities which would make any sick room a bedlam, and any doctor a "bogyman." The questions which the lawyers wish to decide are for the most part quite different from the questions which the clinician has to deal with at the bedside. In court it is desired to decide "Is the criminal irresponsibly insane?" In practice it is rather "Is the patient so insane

*Read in the Section of Surgery of the Minnesota State Medical Society, June 16, 1898.

*Principles of Ethics, p. 400, par. 156.

as to require restraint, and what treatment and management is best for him?" In court, "What dire effects may result in the future to this injured person, and will he entirely recover and never get worse from certain injuries and be able to pursue his usual occupation?" In the clinic, "What is the matter; what is to be done for his good?" perhaps, incidentally, "is his injury dangerous or will he get well." In the clinic, the more definite present and action. In court, speculation as to many things which no one can tell with any great degree of accuracy. A man's many scars having healed, the doctor says he is well. He does not sit down and debate upon the possibility of scars undergoing cancerous degeneration. In court the man is not there to get well, but to get damages. He is curious to know all the possible results of his injury. Upon these propositions, no ten medical men, if allowed to excercise their views without conference, could be found who could give exactly the same opinion in detail, especially with the very meagre personal knowledge of the case upon which medical experts usually act. The best that could be gotten out of the situation would be ten opinions more or less divergent, according to the nature of the problem and the experience and observation of the observers. Of course ten men might get together and agree upon a common opinion gotten at like all such compromises, in many different ways: by the give and take of compromise; by winning over opponents by obstinacy; by force of character, and all the ways by which men lead and follow. This would appear tantamount to trying a very important part of the case outside of court, not by judge and jury but by medical conference. Those medical men who have always most loudly deplored the humiliation of the profession by medical expert testimony, usually appear to feel when they go into court that they and they alone ought to try to settle at least the medical aspect of it. Those medical men who most loudly cry for reform of medical testimony, frequently have little judicial temper, and would as a rule make the most unfair medical jurors. Under the present system each side selects its expert witnesses on the same lines as its other witnesses. The attorney goes out, puts his theory before medical men, influences them as much as possible, by suggestion, leading the prospective witnesses to form and express opinions upon an ex parte statement of the case, and if he gives what he wants, takes it. If not, he passes on until sooner or later from the numerous population of doctors of all varieties he is pretty sure to get nearly what he wants. In the meantime his adversary has done likewise. Now these so-called expert witnesses differ in no respect from other witnesses, save that the facts upon which they are to testify are much more complex. Instead of mere matters of perception, memory, sight, hearing, etc., come a multitude of inductive and deductive reasonings, observation, experience, probabilities, etc., etc. It is after all but a matter of degree.

In the one class of witnesses as in the other there are great differences in intelligence, in honesty, in reliability, in accuracy, in fact in every human faculty; in the one case as in the other the law has established rules and methods of testing the relative weight and value of the testimony, and the jury is supposed to decide the case. Now if expert testimony is less reliable than other testimony, the fault is with the legal rather than with the medical profession.

As a matter of fact, medical expert testimony is all right. Its quality is quite on a par with that of other testimony. The trouble is simply that it is too intricate for the attorneys, the jury and the judges to follow. It wanders off into fields which neither fully understand. It would appear like courting sorrow for the medical profession to weep and feel scandalized over the inability of the legal machinery to collect and purify its medical facts, while a large and learned profession stands ready to furnish them, provided they can properly handle and weigh and understand them. Does the ordinary witness go out and kick himself and pity the court because some of the testimony has been ignorant and prejudiced, or in his judgment false? The attorneys are unable to expose the ignorance or unfairness of the bad expert and even more helpless in fully utilizing the good experts. Court, attorneys and jury are simply beyond their depth. The first is apt to be bored; the second wander, or fall back on general principles, and the latter believes what it wants to, a course which it apparently often chooses whether experts play a part or not. Indeed expert testimony is often bad, frequently contradictory, sometimes nearly or entirely useless, yet a candid review of many and varied cases under the writer's observation, fails to convince him that, with perhaps some rare exceptions, it is very largely or frequently responsible for gross miscarriages of justice.

It is said that men testify who are not really experts, but that is very much a matter of opinion. I have known men to give opinions in matters in which I would not value their judgment worth a halfpenny. But it is just to say that popularly these opinions were rated quite on a par with my own, and I know of no system of selecting experts which would exclude them with any certainty. A law has been proposed for enactment which leaves the selection to the trial judge. While I have the greatest respect for the bench, I am not aware that judges have any special instinct for selecting experts. As a

matter of fact they often choose very light timber for their physicians, and sometimes hold rather curious notions about medicine. Excellent judges have been known to repose singular faith in very arrant quacks, even of the coarse and ignorant variety.

It may presumably be assumed that the medical profession is on the whole the best judge of the qualifications of its own members, but the selection of experts by the profession is quite as impracticable. First, there are different schools and factions in medicine, and no general organization as with the bar. In the second place, the selection by vote of the whole profession would soon degenerate into a sort of political arrangement, in which expediency and general availability would largely replace strict regard for expert qualifications. As medical experts are now secured mainly by private interest, each side attempts to get the strongest available men. Of course when a lawyer has a very bad or crooked case he may not be able to secure a reputable expert and may be driven by necessity to get a bad man, but one may be sure the other side will not fail to get the best of experts.

As I think over the important cases which I have heard the most severely criticized, I must admit that the medical men engaged included the best local authorities, and the others whom I would not regard as very competent, were men of sufficient popular repute that no method of selection yet proposed would be likely to exclude them with much certainty. Besides some of the most notoriously contradictory testimony which it has ever been my fortune to hear has been given by the most special—the very elite of the specialists.

The plan above referred to aims to regulate the fees of the expert. One often hears from the critics of the $300 per diem, etc., of experts, with the insinuation that the price greatly influences the quality of the testimony. In the first place, one may largely discount these fees, as we may doctor's incomes of which we so often hear, but which we so rarely see. Physicians manage to keep very poor for men who according to repute receive from twenty thousand dollars upwards per year. I have been confidentially informed that many practitioners, some of them pretty poor, receive this princely income. In Minnesota $100 per day is a rare expert fee, $50 being above the average, and when more is paid, the recipient's time and loss of business is usually worth it. But I dare assert without fear of successful contradiction, that if it were a capital offense for an expert to receive a cent directly or indirectly for expert testimony, that opinions would differ none the less markedly. Doubtless a large per diem renders professional men more ready and even anxious to give expert testimony, but one has little knowledge of human nature who does not know that doctors will be found, who, when not too busy, from friendship, vanity and many other motives, would testify and hold opinions quite as peculiar as those of the present system. Differences of opinion among experts are due to many causes; under the present system doubtless the chief cause is that being partisans, each witness emphasizes and gives his own side all the facts that might be truthfully said in its favor, well knowing that the other side will do likewise. Naturally this often makes the two stories appear very conflicting, when as a matter of fact, if the cross examination had been skillfully conducted, the two opinions are not so fundamentally different after all. Sometimes the testimony is given upon hypothetical questions which in no way touch the actual case at all, and the answers though perfectly logical and honest may have no real bearing on the case at issue, except to befog the jury. The fault is with the legal machinery and not with the expert. In fact the hypothetical question is from a medical standpoint about the only burning shame in expert testimony, for which the medical profession is itself to blame. Men who would refuse to diagnosticate and prescribe by mail, readily consent to answer hypothetical questions which are grossly absurd and clinically perfectly impossible. If the medical profession were to refuse to answer all such absurd questions, and testify only to their actual knowledge of the case in hand, giving their reasons for their opinions just as in consultation at the bedside, many of the most absurdly ridiculous disagreements would be removed. It is when experts go to guessing what might follow from some absurd and fanciful general inferences, that they sometimes do justice injury, though for the most part their hypothetical questions are used by the defense to make expert testimony so ridiculous and contradictory, that as a rule it is entirely neutralized. As long as experts stick to personally secured data in the specific cases, their opinions, it is true, may vary, but they are not likely to be plain comedy.

Next to the hypothetical question, the reliance of some experts upon books and journals, even hurried and garbled extracts, rather than upon actual experience for opinions, is responsible for much disagreement and nonsensical testimony. Of course this is tantamount to saying most experts are in fact and of their own experience not experts at all.

How often do we find experts, who instead of studying and observing the case in hand, make a run for the library, and read up a case just as some hypochondriacs read themselves into imaginary diseases by reading the almanac and "Family Physician." Such experts find

authority for almost any sort of case which their attorneys may have suggested. However, we meet just such practitioners at the bedside, always full of what they recently read in the "Medical Advertiser," or of the reports of Bostervitch, but quite empty of sense and experience. Nor is this species of expert and practitioner more frequent in the lower or middle strata of the profession than in the upper. It is among those of much pretention and among the ranks of the superfine specialists that he is most likely to be met—among the over strained.

The expert is said to be a partisan hired to work for his side, but this accusation is far from so terrible as it first appears. Most men are partisans, and other things being equal, as between an open partisan and a star chamber partisan, the former is by far greatly to be desired. The vast majority of medico-legal questions admit of a great variety of views; often much may be said pro and con; no method could be devised to more thoroughly ventilate such propositions than to allow one person to say all that could truthfully be said for and another to follow by all that may truthfully be said against it. In my experience this is crudely just what does occur under the present system. Medical witnesses do not more often perjure themselves than other witnesses, perhaps less often.

Some are scandalized at the divergence and contradictory character of medical expert testimony. Now in the first place, when candidly studied, expert testimony is not, in my opinion, as contradictory as is usually supposed. I have seen a sneer pass over attorneys' and physicians' faces when a witness gave the only answer that any but a fool or liar could give to some hypothetical nonsense, yet after cross examination this witness did not materially differ from the witnesses opposed. But ask these sneering gentlemen what the opposed witness swore to, and as a rule they will show that they never took the trouble to weigh the testimony as a whole but have picked out this unfair sample of an answer to a hypothetical question, and whispered that "Dr. so-and-so is a nice fellow; he testified to this and that monstrous proposition," while as a matter of fact, he did nothing of the kind. They having constructed the proposition and applied his answer to it, which has often demonstrated to my mind that those who complain most of medical expert testimony, show the least ability to be non-partisan and judicial in temper.

Believing that the chief defects of medical testimony are more largely due to the inability of courts to appreciate, apply and intelligently scrutinize it, than any inability of the medical profession to supply a just and true quality of it, a member of the medical profession may scarcely assume to suggest specific schemes for its doubtless much needed improvement. However it may not be impertinent for a medical man to point out some of the serious objections to the plans which have been proposed, more especially as they seem to have been largely urged by theoretical physicians and briefless attorneys. As a recent writer has said, the first question is "How to select your experts." One method, I believe, which has been proposed, is that they be selected by the trial judge. With all respect for the judiciary, one may inquire how is a judge to recognize a good, wise, honest and perfect expert? Of course the law might specify that only specialists be chosen, but practising a specialty does not necessarily make a real specialist. Specialists like the rest of us have their strong and their weak points. Actual practical knowledge, broad experience and a judicial temper are qualifications quite rare in any class of men; and specialists as a class, whatever their special excellencies, are not particularly noted for breadth, impartiality and a calm judicial turn of mind.

The impracticability of choosing experts by the medical profession itself has been referred to. Most of the reformers appear to be satisfied with choosing and paying experts according to their various plans; but others go farther, and having chosen the true experts as they fancy their simple formulæ will readily find them, propose to protect their dignity, prevent any back talk and make things generally smooth for all concerned by exempting these good and true folk from cross examination. This commission have reached a decision and handed it to the authorities. In the words of a recent writer, "Expert knowledge has as a rule done all it can towards promoting those communal interests which in legal phraseology, are spoken of as the ends of justice." Thus is a deep and knotty problem in jurisprudence, easily and gracefully solved by the physicians. An attorney has recently been kind enough to enlighten the medical profession upon this most difficult problem: "How to secure to the public perfection in diagnosis." I am not expert enough in the law to venture an extended criticism of my medical brother's scheme for reforming jurisprudence, but without flattering myself I think I am doctor enough to inform my legal brother how his "medical court" would work in practice, viz: that to any one who knows the least thing of medical practice, it is absolutely unthinkable.

Of this commission I have only to say that such commissions in some countries exist, and we read of most serious mistakes which they have made, errors by which innocent persons have been executed, errors which could scarcely have occurred under our much accused system. Such a commission possibly would have its ad-

vantages, but we can safely be assured that it would also possess many even serious disadvantages, especially in this country, in which more or less politics enters into the appointment of all boards and commissions. In short, I do not believe that the present system is half as bad as it is painted. The same outcry is made against jurors and the jury system, against almost everything in fact. Take for example the odious Leutgart case; while the testimony of the experts was very ridiculous, it was not more so than the rest of the testimony, and quite in keeping with the whole case.

It is the height of folly to say that all this disagreement and attempt to be smart and too expert, is due to big fees, partisanship and freedom in selection of experts. In my judgment, more real experts (mixed it may be true sometimes with a few unqualified men), are now engaged in these suits, than would be selected by any other plan yet proposed of choosing experts. They are quite as honest and but a trifle more partisan than if selected in some less partial way, while this partisanship is readily neutralized by counter partisanship. But the covert partisanship of official experts, though less noisy, might be more noisome. I fail to believe that experts are led to lie for a fee, though they may work for one, and there are just as bright fellows working but not lying for the other side. At any rate if experts work too hard or lie for a fee, what would the same fellows do in a commission or when chosen by judges if offered direct or indirect inducements to find an interest in one side or the other. If an open witness whose testimony they tell us is for the most part despised by the judge and jury, is worth two or three hundred dollars a day, what would a commissioner who has the deciding of the matter be worth? Of course I do not know what legal objections might obtain to the plan, but from my observation it would seem to me that if hypothetical questions could be excluded or greatly limited, and medical experts were only allowed to testify after carefully and sufficiently studying the case in litigation, and then only to give opinions based on their own experience and judgment, such testimony would be much more useful and just, though still far from infallible. To make the most of such testimony, attorneys trying such cases should be sufficiently versed in medicine to fully understand the case in hand. At present this is but rarely the case. However, the frequency and importance of damage litigation will doubtless develope a class of legal specialists capable of properly utilizing expert testimony.

In my humble opinion the medical profession can most aid justice by giving in court only opinions based upon careful personal observation, modestly and charitably expressed, without the slightest fear of saying "I do not know" when occasion requires, and by keeping simply to the cardinal points at issue and not by technical hair splitting over fine theories. The medical man who is plain, broad, charitable and of large practical experience, is ordinarily a fair expert witness. If the cross examiner be skillful and sufficiently informed upon the topic under examination, he will ordinarily succeed in getting a fair correction of any one sidedness of his direct opinion.

On the contrary the usual critic of expert testimony is often narrow, prejudiced, unable to take a broad and practical view of a case, inclined to feel that his views ought to settle the whole matter, and feels he has a mission to enlighten the benighted court with dissertations upon the very latest pathology, etc. Such men are liable to take a greater interest in their own dignity and vanity than in broad justice or fair play.

In short, I dare say that had the attorneys engaged in these suits a deep knowledge of the principles of the medical sciences, and the juries before which such cases are tried a high degree of intelligence, our present system of medical expert testimony would prove very satisfactory. If so, the defect is with our legal machinery rather than with the medical, and it is worse than idle for us to kick ourselves and beg the courts to let some of us relieve the situation by some medical reform There are questions which the medical sciences may decide very positively and yet others which they can not as yet determine with much accuracy, if at all. It is only fair that expert testimony should show (in these latter cases) that opinions are discordant and the matter uncertain. There is certainly nothing disgraceful in this; on the contrary, the disgrace would follow the positive dictum of some board of Sir Oracles who agree to decide matters still open to question.

THE TREATMENT OF SQUINT.*

By Edward J. Brown, M. D.,

Minneapolis.

All cases of abnormal deviation of the visual axes are, in the final analysis, cases of squint. In manifest squint the individual has found binocular single vision either impossible, as in paralytic squint, or to be attended with a greater expenditure of nervous energy than he is willing to devote to such purpose, and he has elected to

*Read in the Section of Surgery of the Minnesota State Medical Society, June 16, 1898

do his work with the eye which under the circumstances is able to do the work easiest, while the fellow eye having nothing to do, turns in or out, and up or down in the line of least resistance.

In latent squint on the other hand, either the causative elements are less potent or the individual has greater nervous energy and a more persistent determination to enjoy the advantages of binocular single vision; this he accomplishes with more or less physical exhaustion of one kind or another as the price he pays. But if the incentive to single vision be removed, as by excluding one or the other eye, the tendency will usually show itself and the latent squint become momentarily manifest. In the common acceptation squint is supposed to be either convergent or inwards, or divergent or outwards, but within comparatively recent years upward and downward squints have been recognized, and during the past two years Dr. George T. Stevens has shown us that we may have a double vertical squint, either upward (anaphoria), or downward (kataphoria). That is, the eyes may be so located in their orbits that the visual lines in the state of rest are above or below the normal plane. In other words, the eyes are placed too high or too low. This determination has come from investigations with the tropometer, an instrument devised by Dr. Stevens to measure accurately the various rotations of the eyes and thus serve as a check upon the results of the phorometer. Dr. Stevens has found by a large number of observations that the normal average rotations should be, up 33 degrees, down 50 degrees, in and out 50 degrees. In case of decided variations from these averages, which are always to be interpreted in connection with other findings, such as the lateral and vertical deviations, the abduction, adduction and sursumduction, conditions of abnormal tension are generally found, and these conditions have been found capable of inducing most serious nervous disorders, such as neuralgia, vertigo, chorea and epilepsy, to say nothing of the general nervous wear and tear which are greatly increased in a thousand individuals who have nothing of a special, localized character to complain of.

The importance of the upward or downward deviation of one eye (the hyperphoria or hypertropia) has been generally recognized for some years, and Stevens has especially emphasized its importance as a causative factor in the production of the lateral heterophorias. Since his discovery of the fact of double vertical squint he has concluded that lateral squints are in great measure the results of abnormal vertical tensions, and consequently curable by the restoration of normal vertical tension. During the past two years or more Dr. Stevens has been testing his cases with a new instrument, the clinoscope, which he described in the Medical Record of Feb. 27, 1897. With this instrument he has been able to show that most cases of abnormal deviation are the subjects of torsion, i. e., a twisting of the eye on its antero-posterior axis, and to determine the amount of such torsion in degrees of arc. Further investigation has seemed to show that the torsion has a very important causative relation to the heterophorias.

For some weeks during the past two winters I enjoyed the very great privilege of observing the work of Dr. Stevens in his private office in New York City. Among other cases hardly less interesting was a little girl of about twelve years, with divergent squint of high degree. The tropometer showed great excess in the upward rotations. Partial tenotomy of both superior recti brought about an immediate and very marked betterment of the squint, and later advancement of both inferior recti caused, apparently, its entire disappearance. If such results as these can be expected from carefully measuring the movements of eyes and properly graduated tenotomies and advancements, it would seem that Dr. Stevens has some ground for his claim that the classical treatment of squint by such methods as are commonly taught and practised is nothing short of criminal. It is commonly admitted that the results are merely cosmetic, since very few such cases are cured in the sense of having the combined normal use of the two eyes. If the patient has two eyes capable of being brought into useful consentaneous use, he should be given such treatment as will afford a fair prospect of such a result.

Children should not as a rule be operated upon till of sufficient age and intelligence to make the subjective examination of the muscles reasonably trustworthy. In most cases that would not be earlier than eight or ten years. In the meanwhile the squinting eye should be exercised and so its visual power maintained by the daily bandaging, for an hour or so, of the other eye. Refractive errors should be corrected at an early age, and the child required to wear the glasses constantly. This alone will in a certain proportion of cases cause the disappearance of the manifest squint, and this is especially true of alternate squint, in which the two eyes are apt to be not greatly unlike in their refractive conditions.

In manifest squint of adults, where there is not such a degree of amblyopia as to render the attempt to secure binocular single vision futile, the first move should be to develop diplopia. After that is accomplished, an effort may be made in appropriate cases to develop the consentaneous action of the two eyes by means of orthoptic exercise; or if that be not feasable, ac-

curate measurements of the muscular condition should be made with phorometer, tropometer and cliniscope and the appropriate graduated tenotomies and advancements done at once. The vertical tensions should first be restored as far as possible, to the normal, and later where lateral deviations still persist in spite of such treatment, the lateral muscles must be treated. Dr. Stevens believes that proper attention to the element of torsion in these cases will decidedly increase the number of cases in which the lateral muscles will not require operation.

An interesting case in this connection was one in the service of Dr. Charles Stevens at the eye clinic of the Presbyterian Hospital, a young woman with right divergent squint of about 90 degrees and almost complete loss of the power of convergence. As a child she had had convergent squint and one of New York's distinguished oculists had operated on the internal rectus. The eye was now in extreme divergence and the clinoscope showed a torsion of 10 degrees. Had the child been properly examined her convergent squint would probably have been found to be the result of hyperphoria, the correction of which would have cured the convergence as well.

This extreme case is typical of much of the work done by most oculists whose conservatism leads them to adhere to the classical treatment of squint.

In the treatment of the heterophorias or latent squint, exactly the same principles are involved. In a certain proportion of cases healthy individuals may suffer no recognizable inconvenience from a considerable degree of latent error, but even a low degree of vertical deviation may be a serious handicap to one who is wholly unconscious of anything wrong beyond the fact that he gets tired too easily. The prismatic correction of low degrees of error will in some cases afford relief for a time, but a larger proportion of cases are relieved by systematic exercise of the muscles by prism. In most cases, especially of vertical insufficiencies, so-called, the rhythmical exercise by comparatively weak prisms is especially valuable. By this means the muscles may be so toned up that they will do their work with comparative ease, but the exercises must be continued more or less or the beneficial effects will soon be lost. But at the best the individual has simply been enabled to conceal his error, which still remains, in latent form, acting as a constant handicap in the way of excessive expenditure of nerve force. Permanent relief is only to be secured by such graduated tenotomies and advancements as will bring the eyes into a state of comparative equilibrium.

In the diagnosis and treatment of these cases the most careful and repeated examinations should be made, and with the use of the various instruments, phorometer, tropometer and clinoscope, which Dr. Stevens has perfected for the purpose, any well trained oculist ought to do satisfactory work.

My own operations, while not very numerous, have been on the whole satisfactory. There have been some brilliant results, and so far as I know, no failures.

I will report in brief one case, Leah L., five years of age, was brought to me eight years ago. I found alternate convergent strabisums. The retinoscope showed hyperopic astigmatism 1.50 D. with vision 20-xxx, not improved for distance by glasses. Glasses and atropia were ordered, the latter to be used for some weeks. Her parents were instructed to insist upon the use of both eyes by occasional bandaging if necessary, and to have the eyes operated upon at the age of eight or ten years if the squint persisted. In May of this year she was brought to me, a tall, slight girl of thirteen years, wearing a brace for spinal curvature. Dr. Gillette had insisted that her eyes should be attended to. I found the condition of the eyes practically unchanged, except that the right eye did most if not all the squinting. There was left hyperphoria 2°, esophoria 23°, upward rotation about 30°, downward 40°. After repeated examinations, I did a partial tenotomy of the left superior rectus. The immediate result was vertical orthophoria and esophoria 5°. The next day, June 2, vertical orthophoria and esophoria 5°. June 3, esophoria 4°. June 8, esophoria 3.5°. June 13, esophoria 2.5°, hyperphoria 0, right sursumduction 3°, left 2.5°, abduction 1°. The squint is cured and the muscular equilibrium promises to be perfect.

69 Syndicate Block.

Facklam thinks that "Huntington's chorea" is something quite apart from the other forms of chorea, inasmuch as it manifests itself in somatic and psychological symptoms, may be inherited, and progresses very slowly; in its course it is accompanied by degeneration. Chronic periencephalitis is most probably the cause. Collins also has studied Huntington's chorea and discovered that the reports upon its pathology are not uniform. In a case that he saw, the movements were very severe and incessant except during sound sleep, and even then they often caused awakening. The disease was fatal, and traceable to the maternal grandfather, who had three children, two of whom were affected with the disease, one of the two being the mother of the patient. At the postmortem the dura was found considerably adherent, the diploë dense, and the Pacchionian depressions marked; the brain had a wet appearance, and the pia was not adherant.

THE IMPLANTATION OF AN ARTIFICIAL VITREOUS AS A SUBSTITUTE FOR ENUCLEATION OF THE EYEBALL.*

By Frank C. Todd, M. D.,

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Minneapolis.

The object of this operation is to obtain a more natural appearing artificial eye than results from the removal of an eyeball by enucleation.

In enucleation we dissect up the conjunctiva around the cornea, sever the muscles of the globe

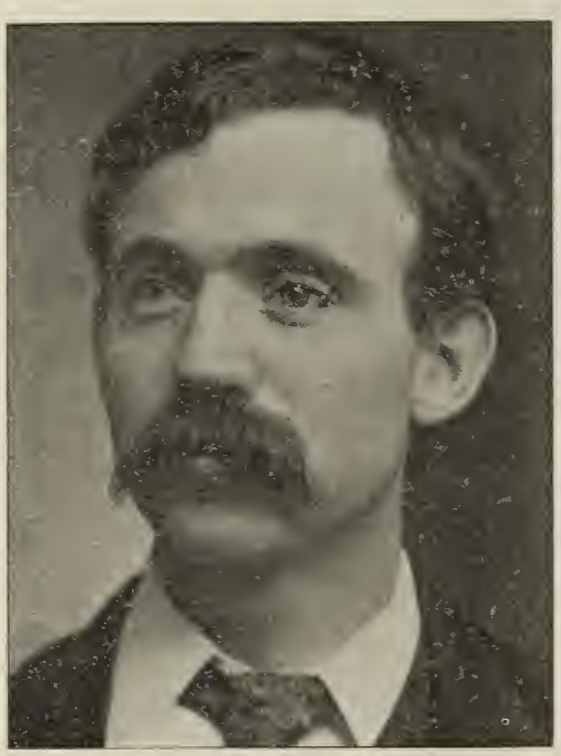

FIG. I.

and the optic nerve, and remove the entire eyeball, leaving a deep cavity which is only partially filled later by the thin glass shell. Such an eye is sunken and small and permits the collection of tears and secretion. It lacks motility and in general has the staring appearance characterizing the ordinary artificial eye.

It would seem that to be deprived of one of the organs of sight is misfortune enough, and further to be made conspicuous by a staring glass eye, the wearer ever conscious of his deformity, must be a source of great annoyance and embarrassment.

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Evisceration consists in scooping out the contents of the sclerotic tunic after removing the cornea. This operation was devised by Graefe, of Halle, in 1884, to prevent death from meningitis after the removal of suppurating globes, and by Mules, of Manchester, England, at about the same time, to take the place of enucleation in sympathetic ophthalmia,[1] since which time it has been urged by some surgeons as furnishing a more suitable and movable stump for a glass eye. Experience has shown, however, that after a short time, the muscles being bound down by cicatricial contraction become useless, the motion disappearing, leaving a stump no better than that following enucleation.

In 1885 Mr. Mules devised and carried into execution the operation which bears his name.[2] This consists in evisceration, with the introduction of a glass ball, described in detail in the report of case I.

In 1886, Mr. Adams Frost, of London, practiced the insertion of a glass ball immediately after enucleation of an eyeball.[3] This operation was intended for cases where from atrophy and shrinkage of the ball it becomes impossible to insert the artificial vitreous within the sclera. The technique of the operation briefly is as follows: The muscles are secured by sutures and severed from the ball, which is then removed, the glass ball introduced into the cavity and the muscles reattached and the conjunctiva sutured. Mr. Lang, of Moorfields, improved upon this operation by inserting the artificial vitreous in Tenon's capsule.[4] Both of these latter operations are applicable only in cases where the operations as devised by Mules cannot be performed.

In 1895, Dr. L. Webster Fox, of Philadelphia, devised a similar method of improvement for cases where the eyeball had already been removed.[5] His operation consists in making a horizontal cut in the conjunctiva and tissues of the orbit and dissecting it up from the underlying tissue, thus making an artificial cavity into which the ball is inserted. Dr. Fox reports in all seventeen cases, in five of which the glass ball came out and had to be reinserted; two of these cases had to be operated upon a third time before the ball remained. It would seem that after the muscles had been in a state of disuse for so long a time there would be no motion imparted to the eye, but Dr. Fox assures us that there is as much motion as there is following evisceration.

My first experience in inserting an artificial vitreous was obtained in 1896, when I assisted Dr. Allport in performing several operations. He had just returned from an eastern trip and had witnessed Buller, of Montreal, and Fox perform the operation, and had seen a number of their cases. He was so pleased with the opera-

tion that he took occasion on the first opportunity to carry it into practice. Two cases operated upon at this time were shown before the Minnesota Academy of Medicine and reported in the Northwestern Lancet. One of these cases had tuberculosis of the iris and the other hemorrhagic glaucoma. The first case is now under my observation. The eye looks very natural and has given no trouble. The other case was equally successful. I wish now to report three cases operated upon by me within the last six months.

Case I. C. C., æt 30, referred by Dr. Holden, of Sauk Rapids, December, 1897. Injury to upper lid and eyeball some years ago. Has now anterior staphyloma and a tumor attached to the cornea about the size of half a pea; looks like

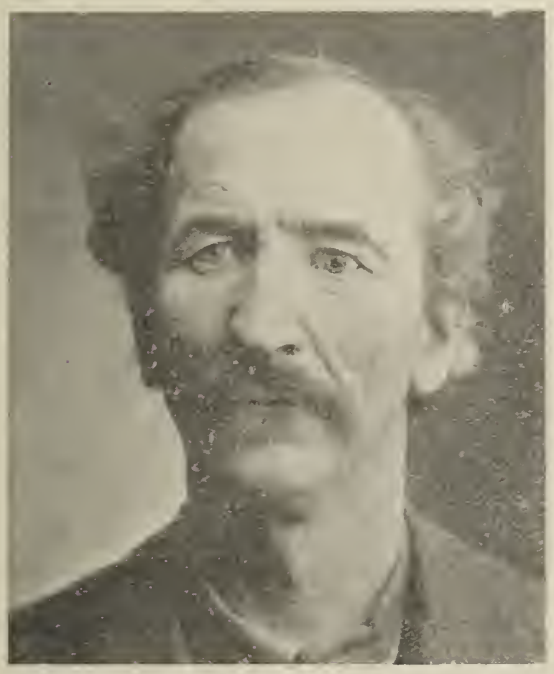

FIG. II.

granulation tissue. The eye is inflamed. Has sympathetic irritation but not sympathetic inflammation.

Operation. The parts were rendered as aseptic as possible. The ocular conjunctiva was severed all around the cornea and dissected up from the underlying tissue. A cataract knife was then inserted just back of the corneo-scleral junction and pushed through to the opposite side coming out at the corresponding region and the superior half of the cornea severed. The scissors were then used to complete the removal of the cornea. The contents of the sclerotic coat were scooped out including the choroid, retina, lens, ciliary body and the head of the optic nerve. A V-shaped piece was removed from the sclera above and below to enlarge the opening and to give a convenient shape to the edges that they might be properly approximated when sutured. Next the hemorrhage was stopped by sponges of cotton dipped in hot sterilized water. The inside of the cavity was carefully searched for any remaining bits of choroid or other tissue which would interfere with healing. The cavity was dried with plain sterilized gauze and a hollow glass globe inserted. The edges of the sclerotic were sutured vertically with about ten sutures of No. 5 iron-dyed silk, which remain permanently, and the conjunctiva sutured horizontally over this. Dry sterilized cotton and a tight bandage were applied. It will be observed

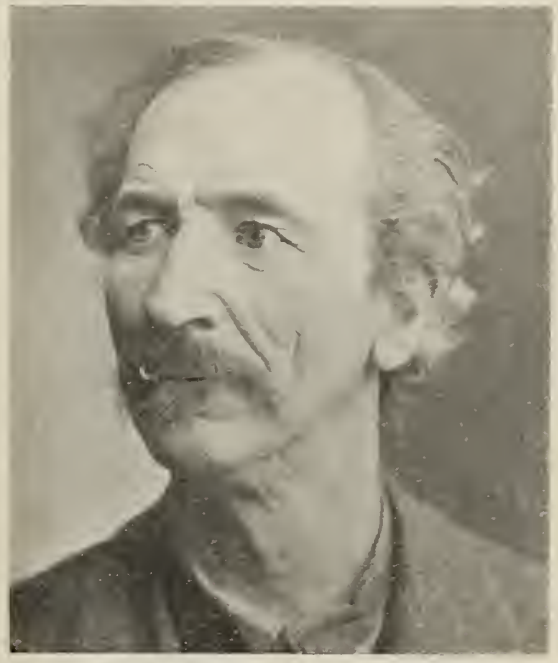

FIG. III.

that no antiseptics were used after the preliminary preparation. It is the custom of some to use bichloride solutions during the operation, and to dust in iodoform. These are irritants, especially the latter, and I believe that they are largely responsible for the violent reaction that usuually follows this operation. This case healed with no pain, no swelling, no reaction. (See Fig. 1).

Case II. J. M. J., æt 54. Referred by Dr. Alford, of Huron, S. D. History shows that following a blow he lost the sight of the left eye by corneal ulceration, of which he had repeated attacks. Has now large anterior staphyloma. Vision=P L. Eyeball tender at times and liable to frequent inflammation. April 6, 1898. Patient

prepared as usual and the same operation performed as detailed above. No pain, no swelling, no reaction. (See Figs. 2 and 3).

This case was shown to my class at the University after the glass eye was inserted and they were asked to make a diagnosis. They all failed, and were surprised to learn that he wore an artificial eye.

Case III. W. M., æt 21, lost his sight from a purulent infection two and one-half years ago. Has had several painful attacks of irido-cyclitis since, the good eye always showing sympathetic irritation. Has now a severe irido-cyclitis in the poor eye, extremely painful and tender to the touch, and sympathetic inflammation in the good eye. Immediate removal of the blind eye advised but consent was not obtained for two days, during which time everything possible was done to reduce the inflammation and with some gain. May 28 the patient was prepared and a Mules operation performed as before described, a pressure bandage being applied. Following this

FIG. IV.

there was some swelling and some throbbing pain for a day, which gradually subsided, but no more reaction than usually follows an ordinary enucleation, and there was no secretion. It was not necessary to make hot or cold applications nor to give an anodyne. The sympathetic ophthalmitis promptly subsided. This case I here present to you for inspection. (See Fig. 4).

The appearance of these cases demonstrates the advantage of this operation. Swanzey, Fox, Bickerton, Buller, Frost and others have performed a great many of these operations and are enthusiastic in their praises, do not fear substituting it for enucleation in sympathetic ophthalmia, and have had no cases where the ball has been broken afterwards, but realizing this possibility, some are substituting a silver ball. Dr. J. Herbert Claiborne,[6] of New York, has made some experiments in rabbits' eyes with the object of substituting some unyielding substance for the glass or silver ball, but so far has been unsuccessful. I do not see the necessity for such a substitute in Mule's operation.

Some operators use catgut in place of silk to stitch up the sclera, but owing to the fact that this is liable to become absorbed before firm union has taken place and allow the ball to come out, silk seems safer and has not in any of my cases caused irritation.

REFERENCES.

[1]Swanzey, Diseases of the Eye, p. 214.
[2]Ibid, p. 215.
[3 4 5]L. Webster Fox, Journal of the American Medical Association, Jan. 8, 1898.
[6 7]Herbert Claiborne, Journal of the American Medical Association, Nov. 21, 1896.

A REPORT OF A CASE OF GANGRENE OF THE FOOT FOLLOWING AN INJECTION FOR THE CURE OF HERNIA.*

By P. M. Holl, M. D.,

Minneapolis.

In view of the fact that the injection method of treating hernia is being much advocated and practised by a class of practitioners who are very persistent in publishing their successes and equally silent as to their failures, and also in view of the fact that the promoters of these cures are still anxious to sell territory to young physicians in various parts of the state, the following report of a case may be of interest to the Society, even though there was nothing in the case itself to arouse our interest. It was, however, an entirely new experience to those charged with its care and often presented puzzling phenomena.

On June 19, 1897, Charles E. Erickson received an injection in the inguinal canal. He was at once seized with violent pain in the leg and foot, great prostration and a sense of impending death. Stimulants and anodynes were given and after a few hours' rest in the office he was able to go home.

During the night he suffered paroxysmal pain in the limb and the site of the injection began to swell rapidly. The next morning when I first saw him I found him anxious and nervous, almost hysterical. The thigh was greatly swol-

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len and the foot cold and painful. Hypodermics of morphia and hot compresses to the swollen area soothed him greatly. Nevertheless at irregular intervals the pain seemed unbearable.

On my first visit he was in a dark bedroom and I did not notice the color of the foot until the next day, when I found it cold, almost insensible, and of a grayish blue color. Up to this time it was thought that the pain down the leg was due to the injury of a nerve, but this theory was now abandoned. It seemed clear that the injection went directly into the artery and that it caused a coagulation of the blood in the terminal branches, hence the coldness, insensibility and peculiar discoloration. On the third day he entered the hospital. The hot compresses to the thigh were continued and seemed of much benefit. Suppuration and sloughing were avoided, but the foot gradually became lifeless and it was now apparent that it was doomed. The circulation was entirely cut off at the ankle, but how much farther up the circulation was obstructed was an interesting question.

The next few days the patient's condition remained about the same, temperature 100°-102°, pulse 108-120, excitable, nervous and emotional. The swelling in the groin slowly subsided, but the foot gradually became worse and showed unmistakable evidence of gangrene.

On the fifth night the patient had an attack of vertigo, accompanied by a severe chill, disturbed circulation, and a systolic murmur was heard over the mitral area.

On the tenth day there being some evidences of a line of demarcation and a gradual but steady rise of temperature, the foot was amputated seven inches below the knee, this being the point of selection of the patient, who being an artificial limb maker knew what kind of stump he wanted. His selection seemed within the line of safety. The operation was done without an Esmarck or tourniquet, an assistant was detailed to control hemorrhage by digital pressure, if required. The skin was found in good condition, the muscles soft and flabby, the cellular tissue œdematous, each stroke of the knife being followed by a flow of serum, rather than blood. The arteries were soft and flabby and did not bleed readily. After a few moments a free flow of blood was established and what blood there was in the veins was expressed. The condition of the stump caused not a little anxiety as to the life of the flaps and the security of the ligatures. The stump was freely flushed with warm sterilized water and dressed in the usual manner. The next few days there was a great deal of oozing of serum, but no hemorrhage of an alarming nature, nor was there any trouble from this cause later. There was a slight sloughing of the skin flaps, but not as much as expected.

The patient did well and left the hospital on the thirteenth day after the operation with the stump almost healed and apparently no pus.

Four days later the patient was seized with nausea and diarrhœa. The day had been a hot one, and the patient indulged freely in buttermilk and other drinks, therefore nothing was thought of this attack, especially as he seemed as well as usual the next morning. He seemed delighted with his stump which now was practically healed.

Two days later, the nineteenth after the operation, and the thirtieth after the unfortunate injection, he became restless, excitable and incoherent in speech, his temperature rose rapidly, and from now on until his death, two days later, he presented the ordinary picture of an intense acute mania; his temperature frequently rose to 107.8° per rectum.

FOOT JUST BEFORE AMPUTATION.

On dissection of the foot the posterior tibial artery was found plugged from its most minute terminals up to the inner malleolus. The anterior tibial was partially plugged just below the line of incision and wholly so from the ankle down, and in fact all of the arteries of the foot, even the most minute branches were filled with a stained blood clot. The other tissues of the foot showed the ordinary appearance of gangrene.

On post mortem examination the stump was found healed and offered no explanation of the unexpected later developments. The femoral artery was opened its full length. Numerous small ulcerations were found in the tunica intima, evidently the whole serous lining was corroded by the injection. The inguinal canal was

filled with a dark, gangrenous looking mass, but the point of entrance into the artery could not be determined. The brain was intensely congested with every evidence of encephalitis, and after diligent search several small thrombi were found in some of the smaller cerebral arteries. The other organs presented no especial pathological changes outside of what might be expected from the high temperature.

From the evidence obtained it seems reasonably certain that the injection went directly into the external iliac artery, was carried by the blood current to the most direct terminals, namely in the foot, and there caused coagulation of the blood in the capilaries and smaller arteries and finally in the larger vessels, and that the last violent outbreak was a secondary infection from lesions not removed by the operation.

It is only fair to state that the accident may have been due to the lack of care in giving the injection, rather than to the liquid used, the composition of which is a secret. But it is reasonably certain that it contained iodine and carbolic acid. And I am convinced that the best of care will not always prevent accidents.

I have since learned of a case that occurred in Des Moines, Iowa. I have a few notes direct from the attending physician. The patient received his injection and left the office. In a short time he became unconscious and in this condition was brought in to the doctor's office. He remained in this condition for some time, and after a severe illness of two or three weeks died of what proved on post mortem examination to be a case of pulmonary thrombosis. In this case the injection went into the saphenous vein.

The promoters of the injection cure say they kill no more than the surgeons. But they do not tell their patients that the cure is dangerous and probable always will be so.

ŒSOPHAGOTOMY FOR THE EXTRACTION OF AN IMPACTED TOOTH PLATE OF SIX YEARS AND FOUR MONTHS STANDING.*

By G. G. Eitel, M. D.

Surgeon to Asbury Hospital and Consulting Surgeon to the Northwestern Hospital.

Minneapolis.

A Miss A., age 27, came to my office Aug. 16, 1892, with the following history:

*Read in the Section of Surgery of the Minnesota State Medical Society, June 16, 1898.

Six years and four months previous she had been at a party, and while dancing, some passing incident caused her to laugh in such a manner as to throw her upper tooth plate out of her mouth on to the floor, breaking it into two pieces. Being more mindful of her personal appearance than of the danger of wearing a broken plate, she wiped the pieces with her handkerchief and placed them back in her mouth, wearing them during the rest of the evening. It being her custom not to remove her plate on retiring, she found to her astonishment on arising the next morning that instead of having two fragments of plate in her mouth she had but one, and she immediately realized that the lost fragment had passed, during sleep, unconsciously, into the œsophagus. As it gave her no discomfort she paid but little attention to it, not even mentioning the circumstance to any one.

ACTUAL SIZE OF PLATE REMOVED.

About one year after the accident above described, when eating rather hurriedly and swallowing a piece of beef that had not been properly masticated, she discovered that it would not pass on into the stomach, but was at once regurgitated, and from this time on she noticed some obstruction. She then consulted a physician, who, according to her story, advised her to let it alone and pay no attention to it as long as she experienced so little discomfort. Subsequently the obstruction became such that she could not swallow any solid food whatever, and for a number of months she was sustained on liquids, mainly milk, many hours being required to swallow a teacupful of milk or beef tea.

Fortunately the obstruction was low enough down so that quite a large quantity of fluid could be taken into the œsophagus above the obstruction, and allowed to pass as it might into the stomach. She became so accustomed to having fluid in this reservoir that she seldom went without it during the day time.

The first thing to attract my attention when she consulted me was her general emaciation and cyanosis with dyspnœa, which indicated an obstruction in the air passages. An examination with an œsophageal sound revealed an obstruc-

tion about two inches below the upper border of the sternum. From the click produced by the sound I was satisfied that the lost fragment of the plate was being struck, and that it was the cause of the obstruction.

I made an attempt to grasp the plate with forceps designed for such purposes but could not reach it.

The patient's physical condition being such as to demand prompt relief I at once sent her to the Northwestern Hospital, and with the assistance of Drs. Dunsmoor, C. T. Cook and U. G. Williams made an external œsophagotomy.

The patient being anæsthetized with chloroform was placed on a table, her head somewhat elevated and her neck flexed in the direction of the right shoulder. The field of operation was brought as nearly as possible into an aseptic condition and an incision through the skin and platisma muscle was made on the left side, beginning at about the middle of the neck and extending along the anterior border of the sterno-cleido-mastoid muscle down to the clavicle. This incision was gradually deepened, the anterior jugular vein clamped above and below and severed, and the sterno-cleido-mastoid and omo-hyoid muscles, the common carotid artery, internal jugular vein and the trunk of the pneumogastric nerve were drawn back with blunt retractors by my assistants. As the clavicle was approached due care was exercised not to injure the subclavian vein and arch of the aorta. A large size œsophageal sound bulb was introduced into the œsophagus down to the obstruction, where an incision about an inch in length was made into the lumen of the œsophagus directly upon the bulb. With the point of the right index finger I carefully dilated the upper part of the constriction and found a place where I could secure a hold on the plate with a small sequestrum forceps. It was with some difficulty dislodged and extracted.

I then made an attempt to pass an œsophageal bougie into the stomach, but without success, as there was an almost complete stricture some distance below the point where the plate had been lodged. I finally succeeded in passing the point of a slender uterine dilator, by means of which a sufficient opening was made so that a large size stomach tube could be easily passed.

The upper part of the incision was sutured, but on account of the vomiting during and after the operation it was impossible to prevent infection of the extensive wound, which finally had to heal entirely by the process of granulation. There was considerable discharge from the wound. The temperature for a few days reached 101° F. and then gradually receded to the normal.

The patient was fed with predigested food, per rectum, for over one week, after which time milk and beef tea were introduced into the stomach once a day through a tube. The rectal feeding was continued for one week longer.

The patient gained rapidly in flesh and strength. At the end of four weeks the wound had closed, leaving quite a wide and ugly scar. This was completely removed by injecting a two per cent. solution of cocaine along the skin margins, and after waiting about five minutes denuding the edges of the skin with a sharp scalpel and dissecting it for about an inch and a half on either side, the margins then being brought into apposition by means of fine silk stitches placed close together. A large size œsophageal bougie was passed once a week for about two months.

There seemed to be but little difficulty in respiration after the plate had been removed from the œsophagus, and no hindrance to deglutition at any time after the fistula had closed.

The patient began to enjoy excellent health almost immediately after the operation, which is still her good fortune, almost six years having passed since that time.

VERATRUM VIRIDE IN THE TREATMENT OF PUERPERAL ECLAMPSIA.*

By J. T. Christison, M. D.

St. Paul.

When one considers the remarkable tendency among physicians of the present day toward the exploitation of new drugs and synthetical products of the chemical laboratories all over the world as specifies for the cure of all manner of disease which flesh is heir to, I trust I may not be looked upon as retrogressive if I venture to call your attention to an old and time tried remedy, which in my hands has given excellent results in one of the most serious of conditions which medical men are called upon to treat. I refer to the use of veratrum viride in the treatment of puerperal eclampsia. I shall endeavor to prove, and I think conclusively, that this drug properly used is one of the most valuable agents at our command for controlling the convulsions in this much dreaded condition. My attention was first called to the value of this drug in eclampsia by Prof. Charles Jewett, of Brooklyn, N. Y., while at the Long Island College Hospital, and the results obtained in two cases in which I saw it used in the out-patient department so

*Read before the Minnesota Academy of Medicine, November 2, 1898.

impressed me that I resolved to give it a trial should opportunity present itself. The happy outcome in my cases is my excuse for bringing this subject before you. So long ago as 1859, Dr. Baker, of Alabama, called the attention of the profession to the value of this drug in puerperal eclampsia in an article which appeared in the Southern Medical and Surgical Journal for that year, but to Dr. Herbert Fearn, of Brooklyn, N. Y., is probably due the credit of first bringing this agent prominently before the medical profession and emphasizing its value in this connection, which he did in an article entitled "Veratrum in Large Doses as a Substitute for Blood Letting in Puerperal Convulsions," in the American Journal of Obstetrics for January, 1871.

Although veratrum viride has long been used for this purpose, it does not seem to me to have received the attention which its merit justly entitles it to, due largely, no doubt, to the fact that this drug has been and is now looked upon by many as a dangerous one to use. From my own experience, however, (a somewhat limited one, it is true), I am inclined to the belief that these dangerous qualities have been much overrated, and that to the use of a poor specimen of the drug or a lack of sufficient care in its administration is more likely due the failure to secure the desired effect.

If we refer for a moment to the physiological action of veratrum we find that of the several properties possessed by this drug the most constant and at the same time the most striking is its power to diminish the force and frequency of the heart's action and to lower arterial pressure. To this property is due its efficiency in controlling the convulsions of eclampsia. It is true it has to be administered in seeming heroic doses, but the well known fact that in eclampsia very large doses of any drug have to be used in order to produce any appreciable effect, leads one to the conclusion that the materies morbi, whatever it may be, which produces this condition in the pregnant woman, acts in some way to render the system insusceptible to the action of drugs in general, and that therefore veratrum may be looked upon as no exception to the rule.

Professor H. C. Wood recites an experiment with veratrum in which he divided the carotid artery of a dog and later the fêmoral while the animal was under the influence of this drug, in which the power of the circulation had been so reduced that the bleeding ceased spontaneously without an alarming loss of blood.

Professor Jewett says "The value of veratrum in eclampsia seems to depend on its effect upon vaso-motor tonus." According to this author it is conveyed by the blood into the vasa vasorum and through them paralyzes the vaso-motor nerves, the blood vessels thus losing their contractile power. It thus relieves the vaso-motor spasm of the cerebral vessels, and the consequent cerebral anæmia to which the convulsions are supposed to be due. It is probably also a spinal motor depressant, though this effect is secondary to its action on the sympathetic through the vaso-motor nerves.

According to Professor J. A. McCorkle, of Brooklyn, the drug overcoming the vaso-motor spasm of the renal vessels exerts also a favorable influence as a diuretic.

In excessive doses veratrum causes a profound collapse. In toxic doses it is believed to act as a cardiac poison. In eclampsia, however, it is never necessary to push the drug to a dangerous degree. Pallor, exhaustion, nausea and sometimes vomiting are encountered from large medicinal doses, but these symptoms are easily overcome and are never followed by ill results. I have been unable to find after a careful and complete search of the literature of the subject any report of a death from its use in convulsions, the only fatal case from its administration reported being that of a feeble child, eighteen months of age, to whom thirty-five drops of the tincture had been given in divided doses. It is well to keep the patient in a recumbent posture and thus avoid the dangerous symptoms said to supervene upon assuming the erect position.

As regards the best preparation of this drug for use in the treatment of puerperal convulsions, I am convinced that the fluid extract occupies easily the first place. Dr. Squibb recommends as the best preparation a fluid extract made from the rhizome of the plant, rejecting the rootlets as unreliable. The proprietary article, "Norwood's tincture," is of about half the strength of Squibb's fluid extract, but is probably not equally reliable. The conclusions of Professor Wood, from researches made by him, are that the alkaloids possess no advantage over the whole drug. These remarks apply to the American hellebore or veratrum viride and not to the European plant veratrum album, this latter containing a principle not found in the native plant, by reason of which it produces in large doses an inflammation of the alimentary mucous membrane. It is also otherwise inferior. The preparation used in the cases I shall report has invariably been the fluid extract manufactured by Squibb from the green hellebore.

Just a word in regard to the method of administration. No definite results can be expected if we trust to the stomach of an eclampsic patient for absorption. The hypodermic syringe should always be employed. Prompt effects and accurate dosage are possible only in this way. There is generally some irritation at the point of puncture, but if the proper amount of cleanliness is

observed suppuration never occurs. The dose is from ten to twenty minims, repeating the lesser dose in from twenty to thirty minutes, as often as is necessary to bring the pulse down to sixty beats or less per minute. In the cases in which I have used this drug I have always given the larger dose at first and then repeated in smaller amounts as needed, being guided by the pulse. The average dose required is generally from thirty to sixty minims, though in one case I administered eighty minims in three hours. Much larger doses may, however, be given. In a case reported by Dr. E. S. Bunker, four hundred minims of the fluid extract were administered hypodermically during the first six hours of the treatment, and diminishing doses were continued for many hours thereafter. The patient eventually made a good recovery.

The theories of the causation of eclampsia are numerous and varied and each has its warm advocates. I shall not take up your time enumerating them; suffice it to say that I regard the toxæmia theory as the most valuable; but at the same time I firmly believe that the kidneys have an important bearing in the causation.

My experience with this drug is limited to four cases as follows:

Case I. Mrs. R. J. (Scotch), the mother of two children called on me in December, 1891, to engage my services to attend her in her third confinement, which she expected to occur about March 1, 1892. She told me at this time that during her last pregnancy she had been troubled with severe headache and marked swelling of the feet and legs, and was alarmed to find the same condition beginning to declare itself again. Upon examination I found the ankles œdematous, and in the urine the next morning I found a large volume of albumen present and some casts. She was given infusion of digitalis, and elaterium. She got along nicely until the evening of January 27, 1892, when I received a message stating that she was having a convulsion, and upon reaching the house at 9:30 p. m. found her partially conscious and having labor pains, the pulse being 168 per minute. I at once injected twenty minims of veratrum and began the administration of chloroform. In half an hour I gave ten minims more, the pulse now being 110. At the expiration of another thirty minutes ten minims were again injected, and counting the pulse half an hour later it was found to be 58 per minute. The cervix was by this time dilated to about the size of a silver dollar, and after manual dilatation I applied the forceps and delivered a living child. This woman probably had a pre-existing nephritis, for examination of the urine three months after her confinement showed the presence of albumen and casts. In spite of this, however, I have by a careful regulation of her diet and hygiene been enabled to carry her safely through two subsequent pregnancies.

Case II. Mrs. W. (American). This case I saw in consultation, October 12, 1893. The woman had had before my arrival six convulsions and was then in a state of profound coma. She had been delivered of a dead fœtus some eight hours before. The pulse could not be counted. The catheter brought away no urine. I packed hot water bottles about her, injected twenty minims of veratrum and placed two drops of croton oil on her tongue. During the next three hours she received in all eighty minims of the veratrum, at the end of which time the pulse was 68 per minute. She was now able to recognize her husband and understood what was said when spoken to. Seeing her after a lapse of six hours she complained of faintness, nausea and soreness where injections had been made. The faintness and nausea were soon relieved by the administration of an ounce of whiskey undiluted at intervals of two hours. The bowels had moved, and the catheter now being used four ounces of very albuminous urine resulted. The after treatment consisted in the use of infusion of digitalis and salines. She made a complete recovery.

Case III. Mrs. H. (Dane). First seen December 2, 1896. A primipara in the seventh month of gestation. The entire body was œdematous, the urine almost solid when simply heated. On the twentieth of the same month I took Dr. Leavitt, assistant city physician, to see her with a view of having her admitted to the City Hospital. Arrangements were made for her to go the next morning, but that evening at about eleven o'clock I was called and found the woman in a convulsion upon my arrival and was informed that she had had three others, the first occurring about 9:45 while she was preparing to retire for the night. I pressed a neighbor woman into service and had her administer chloroform while a veratrum injection was prepared. The pulse at this time was 170 per minute, and in thirty minutes following the hypodermatic use of twenty minims of the veratrum it had fallen to 102. Ten minims more were now given and at the expiration of twenty minutes the pulse had dropped to 64 beats per minute. Stethoscopic examinations at this time failed to discern any evidence of the fœtal heart sounds, and manual dilatation of the cervix was resorted to. At 3 a. m. I was able to apply the forceps and delivered a dead fœtus, without injury to the cervix or perineum. My attempts to deliver the placenta by Crédé's method failed to bring about its expulsion, and after waiting two hours I introduced my hand into the uterine cavity and succeeded, after half an hours' hard work, in getting it detached. Its removal was followed by the most severe and persistent hemorrhage that I have

ever seen. Ergot hypodermatically, hot intrauterine douches at a temperature of 120° F., internal and external manipulations finally checked it, but not before the woman was in an almost moribund state and to all appearances beyond hope of recovery. The respiration was of a sighing character and varied from five to eight per minute. The radial pulse could not be felt. The extremities were cold and consciousness entirely lost. As a last resort I prepared a saline solution, using one drachm of salt to one and one-half quarts of boiled water, and with a number 15 soft rubber catheter attached to a four quart fountain syringe, allowed six quarts of the solution to flow into the intestine, retaining it by a pad held against the anal opening. In from fifteen to twenty minutes a marked change was noticed. The respiration became stronger and increased to fourteen per minute. The pulse at the radial artery became discernible, though so rapid that it could not be counted. Four quarts more of the saline solution were then used and an injection of nitroglycerine, one one-hundredth of a grain, digitalin, one-hundredth grain, and strychnine one-fiftieth of a grain, were given, and forty minutes later the radial pulse was counted, and noted at 140 beats per minute. Twenty minutes later, or an hour after the second injection of the saline solution, the woman regained consciousness, complained of soreness at the point of the needle punctures and expressd a desire to urinate, passing seven ounces of a light-colored urine having a specific gravity of 1010, and containing, upon the addition of heat and nitric acid, only about five per cent. of albumen. She was now made comfortable, and at 7 a. m. I left her in comparatively good condition. Returning at 9 a. m. I found the pulse 110, temperature 99°, respiration 16. She complained of a slight headache and had passed eleven ounces of urine, which, upon examination, showed a small amount of albumen.

This patient had been taking one drachm doses of Carlsbad salt every morning and drachm doses of infusion of digitalis after meals for fifteen days previous to the convulsive attacks. Her recovery was uneventful, although she remained in a very weak condition for a long time, but under the administration of iron and a generous dietary, she finally regained her health, and on the first day of May, 1898, when I last saw her she seemed to be perfectly well, though her urine then showed a trace of albumen and she complained of occasional headaches, which were always relieved on taking a dose of the Carlsbad salt.

Mrs. B. Irish. Mother of seven children, five having been born before her removal to the United States. Her last two confinements, in which I attended her, were normal in every respect. On the morning of May 27, 1897, I was hurriedly summoned about 7 a. m., and informed upon my arrival that she had had two convulsions. Her pulse was then 158 per minute. I at once gave an injection of twenty minims of veratrum, and followed it with a copious enema of soap and water to relieve the bowels. Thirty minutes later the pulse was 96, and ten minims more of the veratrum were given, which brought the pulse rate down to 64 beats twenty minutes later. With the assistance of Dr. E. C. Eshelby, she was safely delivered of a living child about 9 a. m. At 1 p. m. I was again summoned, and found her in another convulsion. Gave twenty minims more of the veratrum and during the afternoon she had another convulsion, but of very short duration. At 4:30 she received another injection of ten minims and continued for several days to take small doses by the mouth. Her recovery has been complete and uneventful. I examined her urine at intervals for several months thereafter and failed to find either albumen or casts.

In concluding this paper I do not wish to be understood as advocating the use of veratrum viride as an exclusive agent to be relied upon in the treatment of this condition.

The advantages claimed for veratrum, according to Prof. Jewett, when used as above noted, are:

1. It is at once a harmless and an extremely potent measure.

2. It is eminently a manageable agent, the pulse affording a ready and precise guide to the dosage.

3. It is prompt in its action and easy of administration.

Chloroform, the most prompt and efficient of all antieclampsic measures, should be administered until the circulation shows the influence of the veratrum.

Cathartics as a valuable adjunct to the treatment should not be neglected; the placing of one or two drops of croton oil on the tongue in serious cases is desirable, and the use of salines will be found of great value in the after treatment.

The acceleration of labor by judicious means and the induction of labor when not already established, are always indicated on the occurrence of eclampsia.

In view of the fact that the use of the saline solution in the one case in which I employed it brought about such a marked change, not only in the general condition but in the urinary secretion, I am of opinion that its further trial in this condition will demonstrate that it is a valuable agent in the treatment of these cases, whether used as an intravenous injection or in the simple manner in which I employed it.

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THE CURABILITY OF MAMMARY CARCINOMA.

The time was, not so very long ago, when the diagnosis of cancer of the breast was equivalent to passing a sentence of death, and operation was performed rather with the view of adding a few months to life or of promoting euthanasia than with any expectation of permanent good results. That improvement in results should come about through improvement in the operative technique seemed little likely, for the operation is one that has belonged to coarse surgery, as its common name "amputation of the breast" indicates: and in the performance of this class of operations there have been in the past surgeons whose skill and dexterity would equal if not excell that of the best operators of today.

None the less it has actually happened that the operation of removing the breast has been so greatly improved of late years that the outlook for the unfortunate subjects of mammary cancer is wonderfully improved. Their condition is so far from hopeless that they have a fair prospect of complete cure, and what is better the percentage of success is constantly increasing as one improvement after another is added to the operation. To remove a breast properly can no longer be spoken of as a piece of coarse surgery. The amputation part of the operation is but a small piece of the work, which as developed chiefly by Halsted includes the removal not only of a liberal margin of sound skin and subcutaneous fat, but also the complete removal of the pectoral muscles with their fascia, a minute and careful dissection around the sheath of the axillary vessels for the purpose of removing all the axillary glands, and sometimes the removal of the clavicular glands as well.

Warren, of Boston, who has taken a hand in the development of the successful operation for cancer of the breast, made a communication upon the subject to the Massachusetts Medical Society at its last meeting, in which he gave the statistics of seventy-two cases that had come into his hands during the last fifteen years. Reports were obtained upon sixty-four of these cases, showing that twenty-six were alive and thirty-eight dead, two of the latter, however, having died of other disease than cancer and long after the danger limit had passed, so that in a general way it may be said that nearly half of the patients operated upon were alive when the report was made.

Of forty-one cases where the recurrences could be studied, thirty-seven showed recurrence during the first three years after operation, and making allowances for the number of cases where the return of the disease was for a time overlooked, it may be safely claimed that when at the end of three years after an operation a competent surgeon fails to find evidence of recurrence the cure is complete and permanent. Dr. Warren says that this will be found to be true ninety-nine times out of a hundred. Applying this test to his report, there are seventeen such cases, one of which died ten years after the operation of apoplexy and one six years after of cholera. The percentage of cures according to this standpoint is thirty and nine-tenths. This is for operations covering fifteen years, but if only those cases be considered which have been operated upon under the improved technique, there are twenty-two cases, with eight cures, a percentage of thirty-six and three-tenths. Dowd has recently given the statistics of one hundred and ninety-nine cases with seventy-one cures, a

percentage of thirty-nine and six-tenths, but there is reason to think that some selection was used in taking the cases for report.

The kind of cancer in any given case must greatly influence the prognosis. Out of the seventeen cures reported above but one was a medullary cancer. In this case there was recurrence in the pectoral region two years later; this was successfully removed three years ago and there has been no further return. The prognosis of a case must therefore depend somewhat upon the variety of carcinoma that presents itself, the scirrhus and the intermediary form between it and medullary giving the best hope of successful treatment.

In eight out of the seventy-two cases there was a history of trauma and in four a history of abscess. Retraction of the nipple was noted in fifteen instances. In practically every case the axillary glands were found to be involved and in five affection of the supraclavicular glands was noted also. After one of the early operations the disease returned in a para mammillary gland, justifying the more recent practice of making so clean a sweep as to include all glandular tissue.

After all that has been said about the importance of early operation, in sixty-eight of the cases the disease had been known to exist for an average period of more than ten months. That earlier operations will give far better percentages of success there can be no doubt, but as Dr. Warren says, there is a curious propensity on the part of the cancerous to conceal their malady and this must ever stand in the way of the best results from operative treatment.

REPORTS OF SOCIETIES.

MINNESOTA ACADEMY OF MEDICINE.

R. O. Beard, M. D., Secretary.

Stated meeting Wednesday evening, November 2, 1898, at the West Hotel, Minneapolis; the president, Dr. C. G. Weston, in the chair.

Dr. H. A. Tomlinson, of St. Peter, read a clinical and post mortem report of the case of a dement in the State Insane Hospital, who had died of nephritis complicating tuberculosis, and in whose gastro-intenstinal tract was found a miscellany of foreign bodies which had been swallowed by the patient.

The President, Dr. C. G. Weston, offered his inaugural address, the main topic of which was

HOSPITAL CLINICAL RECORDS.

See page 453.

Dr. J. T. Christison read his thesis entitled

VERATRUM VIRIDE IN THE TREATMENT OF PUERPERAL ECLAMPSIA.

See page 467.

The discussion was opened by Dr. A. B. Cates, of Minneapolis. He said that he had been gratified by the excellent presentation of the subject made by Dr. Christison. He believed in the value of the veratrum viride, but thought it should not be relied on to the exclusion of other measures. Perhaps the most valuable of all agents in eclampsia was chloral in conjunction with veratrum viride. Hypodermoclysis, and, in appropriate cases, venesection, he regarded as valuable aids. In those cases in which eclampsia occurred after labor, recovery was usual. The dangerous cases were those occurring before or during delivery. He had little or no experience with viratrum viride, but he should certainly employ it with interest in the future. He believed that the induction of premature delivery was eminently desirable in cases of threatened eclampsia, as indicated by diminution of urine, albuminuria and œdema. He deprecated, however, forcible delivery.

Dr. Wm. Davis, of St. Paul, said that he wished to refer particularly to two points in the paper. His experience with eclampsia had been peculiar in the erratic distribution of his cases. He referred to certain cases, in one of which the use of the wet pack was followed by remarkably good results. He had had small experience with the drug in question. He thought its most marked field was in those cases in which premature delivery was necessary, in which event the veratrum viride assisted in the dilatation of the os. On the theory that the convulsions of eclampsia are due to the poisoned condition of the blood, it had been recommended to bleed the patient profusely and supply the place of the lost blood by hypodermoclysis, so as to dilute the poison. In the third case reported by Dr. Christison this very plan of treatment had been unwittingly followed. Nature had bled the woman to the limit and the doctor had replaced the blood by a saline solution with the most excellent results both upon the convulsions and upon the nephritis.

Dr. H. B. Sweetser, of Minneapolis, referred to the prophylactic treatment of eclampsia by milk diet, complete rest and salines. He had not used veratrum viride. Dr. Cates had men-

tioned certain indications for immediate delivery and he wished to inquire whether he resorted to this measure without previous attempts to modify the condition with drugs.

Dr. Cates replied that with the presence of œdema, he thought the cases were so desperate as to brook no delay.

Dr. Sweetser referred to a case in which excessive œdema occurred, without the appearance of any convulsions. He thought that induced labor would have been ill-advised.

Dr. H. A. Tomlinson, of St. Peter, referred to the pathology of eclampsia, the essential point being the inadequacy of the functions of the kidneys. He insisted upon the necessity for observing the elimination of urea, rather than the amount of albumen, or the degree of œdema present. An excessive elimination of the phosphates is a usual accompaniment of the deficient output of urea. A twenty-four hours' specimen of urine should be periodically examined. The best treatment is prophylactic.

Dr. J. W. Little, of Minneapolis, said it had been his misfortune to attend several cases of eclampsia. In one of these he had used veratrum viride by the mouth, but he could well appreciate the hypodermic method of administration. He approved of the use of hot packs and of the hypodermic use of pilocarpin with morphia. The veratrum in the above case apparently stopped the convulsions; but the kidneys did not resume function and the patient died.

Dr. F. A. Dunsmoor, of Minneapolis, referred to several cases of eclampsia, and said that in his experience the "normal liquids" of Parke, Davis & Co. were to be preferred to the fluid extract. He had seen forty minims of the veratrum viride given hypodermically and repeated in half an hour, when it seemed to him that the absorption of the first dose could hardly be completed, and that the repetition was risky. The patient had, however, recovered.

Dr. Sweetser inquired whether the test of the specific gravity of the urine after the albumin had been removed, was a safe guide to the quantity of the urea eliminated.

Dr. J. L. Rothrock, of St. Paul, said that the use of drugs in eclampsia is still empirical, since the pathology of the disease is yet uncertain. The toxicity of the normal urine was admitted, and that toxicity apparently diminished as the toxicity of the blood increased. The arrest of the convulsions and the elimination of the toxic material are the most urgent demands. He urged the importance of venesection, thus removing a portion of the toxic blood, and then of hypodermoclysis in connection with it, to dilute the remaining body fluids. Referring to the association of eclampsia and nephritis, he noted that albuminuria is not, necessarily, evidence of nephritis. It should certainly be watched, as a warning of coming eclampsia; and yet the latter, even, is not necessarily evidence of nephritis. A pregnancy might, too, be imposed upon a preëxisting nephritis, and the patient might survive delivery without eclampsia. He referred to a seemingly severe case of albuminuria following eclampsia which had recovered, and in which nephritis was evidently not present.

Dr. J. W. Dudley, of Minneapolis, inquired whether the author of the paper had any failures under the use of veratrum viride, and whether any abscesses had developed at the seats of puncture. He referred to an experience in a large number of hospital cases exhibiting albuminuria without following eclampsia.

Dr. J. H. Dunn, of Minneapolis, referred to the relation between urea elimination and eclampsia, and considered it not satisfactorily established. He thought the estimation of urea an insufficient guide to the prognosis.

Dr. Tomlinson said it was not the question of the elimination or non-elimination of urea, but of the failure of the metabolism of the antecedents of urea.

Dr. Dunn suggested that the estimation of urea was not a safe means of estimating the presence of other toxic materials.

Dr. Cates said that the question of the quantity of urine in relation to the quantity of urea must be considered.

Dr. Sweetser demurred to the argument that albuminuria, œdema and headache were proper indications for the induction of labor.

Dr. T. S. Roberts, of Minneapolis, said that the discussion had gone rather far away from the subject of the paper. He had had one case of eclampsia to many of albuminuria. The latter condition was a common occurrence in the later months of pregnancy. He referred to the destruction of the fœtus as an evidence of the toxic condition of the blood of the mother. He justified the induction of labor in many of these cases. He referred to cases in which premature labor had occurred or had been induced, with the result of saving the child; and to others, in which death of the child had resulted, with the saving of the mother. In none of these cases had eclampsia occurred.

Dr. R. O. Beard, of Minneapolis, called the attention of the Acadamy to the neurotic features of eclampsia, and held that the value of chloroform and, subsequently, morphia, used hypodermically, was dependent upon the power of these agents to hold the nervous cataclysm in check until the toxic agents in the blood could be eliminated. He cited a case of eclampsia occurring at eight months; convulsions beginning before delivery, which was rapidly induced, and continuing for twenty-four hours, to the number of twenty-three. In this case chloroform was used for sixteen hours, and morphia hypoder-

mically for nine days, with resulting recovery.

He held that the estimation of urea was not, necessarily, a guide to prognosis; since in true eclampsia, the failure was not one of the elimination, merely, but of the metabolism of urea. The toxicity of the blood doubtless depended upon the fact, and yet the urine might contain the immature products of this defective metabolism. If it did, they might fail of recognition by the ordinary methods of estimating urea, or they might serve to swell the volume of nitrogenous waste, so recognized, and to give to the observer the false sense of security that urea was undergoing elimination. If they did not appear in the urine in the place of urea, their absence was not, necessarily, a measure of their toxicity. He suggested that experiments to determine the toxicity of eclampsic human blood by the intravenous injection of minerals, were unreliable; since it had been proven that the normal blood serum of one species was often toxic to another, and was not infrequently causative of albuminuria. He thought that if physicians generally adopted, as a routine practice, the examination of the urine of pregnant women ,albuminuria would be found to be a very frequent condition, and the ratio of its occurrence to that of eclampsia would be found to be very uncertain. He believed that the death of the fœtus in eclampsia was not always the result of the toxicity of the blood of the mother, but a direct consequence of the severe toxic contractions to which the uterus was subjected, and of the convulsive seizure as a whole. He took exception to the statements of the writer of the excellent paper to which the Academy had listened, with respect to the physiological action of the veratrum viride. It slowed the heart beat, but it did not diminish its force. What the systole lost in intensity it more than made up in the amplitude of the contraction.

His own experiments, and those of others, with this agent, both upon the heart and upon striated muscle, showed that in actual work done, the veratrized muscle was not deficient but rather the reverse. Were this not true, it could not act as a diuretic; since if it caused both vasodilatation, in general, and a diminished heart action, blood pressure would fall and the renal output would fail. The danger of veratrum to the heart lay in the excessive prolongation of the heart beat, which was as refractory to too slow a rhythm as it was to excessive stimulation.

Dr. J. T. Christison, in closing the discussion, said that he was gratified to have been the cause of so active a discussion of the subject; but he suggested that it had led away from the topic of his paper, "The Treatment of Eclampsia by Veratrum Viride."

He thought that Dr. Cates had touched the right position with reference to the induction of labor. He was convinced that the kidney was a central cause of eclampsia, and he thought that the estimation of urea was important. He had had no abscesses result from his hypodermic punctures, and in his treatment with veratrum viride he had so far had no failures.

Upon motion the Academy adjourned.

RAMSEY COUNTY MEDICAL SOCIETY.

Haldor Snévé, M. D., Secretary.

The regular monthly meeting of the Ramsey County Medical Society was held September 26, 1898, with the Vice-President, Dr. E. Boeckmann, in the chair, and 38 members present.

Dr. A. J. Gillette exhibited a case of hysterical lateral curvature of the spine, which was discussed by Drs. Dunning and Foster.

Dr. Green presented "the man with a musical heart."

Dr. W. D. Kelley read a paper entitled

EXAMINATION OF THE BLOOD AS A MEANS OF DIAGNOSIS.

It was discussed by Drs. Greene, Rothrock, Foster and Renz.

Dr. E. Boeckmann exhibited a specimen of myoma of the cervix.

BOOK NOTICES.

The Treatment of Skin Cancers. By W. S. Gottheil, M. D., Professor of Dermatology in the New York School of Clinical Medicine, etc. Published by the International Journal of Surgery Co., New York. [Price $1.00].

This monograph, while dealing with the various methods of treating epithelioma of the skin, is particularly devoted to a description of the use of caustics, for which the author shows a decided predilection, that will cause the book to find favor at least with those who approve of this method.

The Medical News Visiting List for 1899. Phila: Lea Brothers & Co., 1898. [Price $1.25.]

The beauty of this pocket-book alone in its rich seal brown binding of morocco leather is enough to make one covet it, particularly when examination shows that its outside attractiveness is well matched by the compactness, convenience and general usefulness of its contents. There are tables of weights and measures, of poisons and antidotes, and of doses, directions for the examination of urine and for resuscitating the asphyxiated, therapeutic reminders, and illustrated directions for tying arteries, followed by the conveniently arranged visiting list itself.

An Introduction to Pathology and Morbid Anatomy. By T. Henry Green, M. D., F. R. C. P., Physician and Special Lecturer on Clinical Medicine at Charing Cross Hospital, etc. Eighth American Edition. Illustrated. Phila: Lea Brothers & Co., 1898. [Price $2.50.]

A work that has been so long before the public as this of Green's, needs no more notice than mere mention of the fact that a new edition is out. There have been some changes in the way of improvements in the arrangement of the text, and a number of new illustrations have been added.

A great charm of Green's book is that it gives side by side with the statement of pathological appearances, an explanation of the manner in which the phenomena described have come about. This not only adds greatly to the interest of the text, but is also a distinct help in fixing the facts in the mind, and the average reader will find that he takes away and keeps with him more from the book than from others that occupy the same field.

A Manual of Otology. By Gorham Bacon, A. B., M. D., Professor of Otology in Cornell University Medical College, New York; etc. Illustrated. New York and Phila: Lea Brothers & Co. 1898. [Price $2.00].

This work is designed chiefly for the use of students in order to furnish them with a compact yet complete account of the diseases of the ear, and to give them something to which they may refer for guidance without a laborious search through the larger works on otology. As the genral practitioner is ever but a student as regards diseases of the ear, Dr. Bacon's book suits him as well as the undergraduate in medicine.

The author's experience as a teacher has taught him just the kind of book the student needs and he has written it largely out of his own experience, so that it is of an entirely original character. An introduction by Dr. C. J. Blake, the well known aurist of Boston, defines the scope and character of the work.

The Care of the Baby. By J. P. Crosier Griffith, M. D., Clinical Professor of the Diseases of Children in the Hospital of the University of Pennsylvania. Second Edition, Phila: W. B. Saunders. 1898. [Price $1.50].

Griffith's book has met with great popularity and the second edition was soon demanded. Although designed nominally for nurses and mothers, it contains many useful hints for the general practitioner, particularly for the young man just starting in practice, who is likely to be puzzled by unexpected questions from mothers and nurses about matters that are dealt with in just such a book as this.

NOTES.

The Prevention of Sore Nipples.

By Milton J. Mabbott, M. D., Attending Obstetrician, New York Infant Asylum.

The treatment of sore nipples is more successful than formerly. The prevention of mastitis, or its cure without suppuration when seen early, may be so uniformly accomplished in these days that certain practitioners are careless in regard to the nipples prior to lactation. I wish to emphasize its importance, and particularly to present a simple and efficacious method which has proved usually successful in my practice—I may say unusually successful, for I have seen less gratifying results from other methods. The method is based upon suggestions made to me some years ago by Dr. E. L. Partridge. It is so successful that recently I have used no other, and it is to this method only that I desire to draw attention. I refer to the use of Lanoline and a nailbrush.

Lanoline, as is well known, is simply sheep's wool fat mixed with a small percentage of water. It is official under the name of adeps lanæ hydrosus, and is well described in Potter's Materia Medica. The article manufactured by the process of Liebreich is the preparation usually dispensed. My regular prescription is as follows:

℞ Lanoline (Liebreich) ..... ℥ j

Dispense in glass or porcelain screw-cap jar.

Sig.: For external use every night.

The patient is instructed to begin its use from four to six weeks before the expected date of confinement and continue until delivery. Every night at bedtime a small portion of Lanoline is thoroughly worked into each nipple with the thumb and fingers, special pains being taken to rub it well into any folds or crevices, especially in the case of depressed and sunken nipples. This kneading process has the effect of forming the nipple—partly by pulling it out and partly by causing erection—and this in itself develops the nipple and promotes facility of nursing. I consider Laoline superior to other substances which might be used for this purpose by reason of its combined adhesive and penetrative qualities, promoting the nutrition of the epidermis.

The nailbrush should be soft and well soaked. A harsh brush at the beginning would have the effect of a file. It is desired to avoid causing abrasion at any time. If soreness is produced, the treatment has been too heroic. The nipple should be brushed with lukewarm water and any mild, pure soap (preferably a white soap), giving it a thorough lathering for three or four minutes. It should afterward be rinsed with fresh water and dried as after ordinary bathing. The effect of this treatment is to remove every de-

tachable fragment of epithelium, together with any little crusts of dried secretion which may possibly have accumulated, and which, unless removed, act as a protection to the surface of the nipple and keep it tender and delicate.

All these agencies combined, secured in so simple a manner, develop the cuticle, render it firm, elastic and resisting, and produce a useful nipple which may be almost guaranteed against subsequent abrasions and tenderness. No woman should consider it too troublesome, in view of the suffering and dangers which thus may be averted.—New York Medical Journal, Sept. 10, 1898.

LECTURES AND ADDRESSES.

SPINA BIFIDA, CLUB FEET, CIRCUMCISION.

A Clinical Lecture Delivered to the Junior Class of University of Minnesota, at St. Barnabas Hospital, Oct. 14, 1898.

By James E. Moore, M. D.,

Minneapolis.

Gentlemen: If you have an idea at the beginning of your clinical work that it is only during the shedding of blood that you can learn anything in this amphitheater, you are mistaken. It shall be my endeavor, whenever it is possible, to bring before you such cases as will be of practical value to you. I am at times obliged to apologize to my class for performing before them capital operations such as they may not, or rather should not, be called upon to perform for many years, for those of us who do nothing but surgery naturally have a large percentage of major operations to perform, but even in these cases you can learn much that is of practical value to you, if you will but keep your eyes and ears open. Some of the most valuable clinics you will attend will be unattended by bloodshed. If at your surgical clinics you learn only how to perform certain operations, you have either been very inattentive or have had very poor teachers. One who does nothing but operating is a very poor surgeon. You should, as soon as you enter this room, begin to observe the movements of the surgeon and all of his assistants. You can learn even from the nurses, because they are well trained and experienced. Watch every movement made in the preparations before the operation and during the application of the dressings afterward. It is a great mistake to lose all interest as soon as the operation is over, for you will be called upon to dress wounds long before you are asked to perform capital operations.

The little patient now being anæthetized in the next room is a stout, hearty boy about one year old, who came into this world somewhat handicapped, for he had club feet, spina bifida and a foreskin so long that it has been a constant source of irritation to him. Since the only cutting to be done is the circumcision, I shall first call your attention to that so that the little one need not be kept under the chloroform too long.

A long foreskin, known technically as a phimosis, is a very frequent source of trouble of various kinds. In this case the opening through it is smaller than the urethra, and when the child urinates the foreskin becomes greatly distended. There is always some residual urine in the prepuce around the glans, which becomes ammoniacal and has caused ulceration. When this child first came to me, one month ago, the whole penis was greatly swollen, and a bloody, fœtid discharge was oozing from the foreskin.

The treatment, which consisted of frequent syringing with a borolyptol solution, has greatly reduced the swelling and the discharge. I should much prefer to wait until these ulcers, which you can see on the mucous membrane, had all healed, but the mother is anxious to return to her Dakota home and with proper care the operation can be safely done now. The danger is of course that the wound may become infected from these ulcers, so I first irrigate very freely with sterile water and then wash repeatedly with peroxide of hydrogen. I now introduce the point of a hæmostatic forceps into the opening in the prepuce and stretch it by spreading the blades apart and withdrawing them. In cases where the foreskin is not unduly long but is causing trouble by the narrowness of the opening, this stretching is all the treatment required. In this case however the foreskin is much too long and must be amputated.

I retract the foreskin and you see that the mucous membrane of the prepuce and of the glans are covered with ulcerated spots caused by the retained urine. As a rule you will find it very convenient to use an instrument known as a phymosis clamp to hold the foreskin while you are cutting it, but in this case I can do better without it on account of the swelling. This is an operation you will all be called upon to perform, and is a very simple one but one that is frequently performed in a very bungling manner.

It is very important to remove just enough of the foreskin, because when too little is removed the patient is not benefited and when too much is removed it may do him serious harm. Several instances have come under my observation in which the operator had taken hold of the foreskin and drawn it forcibly down and cut it off, only to find when the mischief was done that he had removed a considerable part of the integument covering the penis. In two instances I have known a part of the glans to be cut off. These mistakes are unnecessary and inexcusable, for they can easily be avoided by a little care. It is important to remove a proportionate amount of the integument and mucous membrane. In this case I shall first split the foreskin back as far as the glans. I now grasp the edge of the prepuce at four different points with hæmostatic forceps, being careful to take hold just at the

junction of the mucous membrane with the integument. Now when traction is made upon these forceps by myself and assistant the mucous membrane is put well upon the stretch, and I proceed to remove the surplus, leaving enough to come just below the point of the glans.

When using the phymosis clamp you should be careful to draw the mucous membrane well down before tightening the screw, or you will cut off too much skin and too little mucous membrane.

You see that the hemorrhage is insignificant and it can usually be controlled by the sutures. In some cases however there are two arteries that bleed so freely that it is wise to apply light catgut ligatures to them. Hemorrhage must always be controlled, or a clot will form in the foreskin which will delay the process and may spoil what would otherwise be a good result. I now split the mucous membrane a little further back over the dorsum so as to allow it to turn over the glans with ease. I now take a straight Hagedorn needle threaded with fine catgut and after rounding off the corners begin at the point where I split the mucous membrane and bring the cut edge of this membrane to that of the skin all the way around with a continuous suture. The fine catgut is used because it lasts long enough to secure good union and does not have to be removed. I have learned not to attempt to apply a dressing in these cases, for it becomes soiled and does more harm than good. There is usually some swelling for a few days after the operation and the member looks as if the work had been poorly done, but this soon subsides and the only evidence of the operation is that the child is in a much better condition than before. I shall direct the mother to protect the part from the clothing for about three days after which the child can tumble about the floor as usual.

Circumcision has been quite the fad among a certain class of physicians and has been brought into disrepute, but in properly selected cases it is a very valuable procedure. When the foreskin is so long and narrow as to interfere with micturition or to become filthy and sore, it should be removed. Children frequently grow irritable, restless and nervous without apparent cause, who upon examination will be found to have a prepuce closely adherent to the glans and an accumulation of hardened secretion at the base of the glans. In these cases when the child is crying the penis will be found in a state of erection and he will often put his hands down there showing that that is the source of his suffering.

The prepuce is usually adherent in new born babes but soon becomes separated.

When the adhesions do not disappear and the hardened smegma accumulates back of the glans it is liable to cause priapism, vesical irritation and general restlessness. The condition is believed to have caused convulsions and paralysis, and other serious nervous symptoms.

When a child suffers from any of these symptoms and an adherent or narrow prepuce is found he should be operated on at once. I believe that it is good practice to circumcise every child in whom there is a suspicion that a long foreskin or adherent prepuce may be a source of irritation. Sexually the Jewish people are exceptionally healthy and they also suffer less from venereal diseases than others, all of which can be reasonably attributed to the rite of circumcision. The operation when performed for the relief of the conditions or symptoms above cited is an eminently satisfactory one to parents and physician.

This child was brought to me one month ago on account of club feet, the other conditions being considered of less importance. He was suffering from a double talipes equino-varus which in this instance was doubtless due to the spina bifida.

The heels were drawn up and the bottoms of the feet turned inward. I now remove the plaster casts that have been on since the day of the operation and the feet are in a normal position and do not appear any different from babies' feet in general. I found that this left foot could be forced into a normal position quite readily, so I simply over corrected the deformity, placing the foot in a calcaneo-valgus position and held it there by means of plaster of Paris. This right foot could not be placed in a normal position on account of the contraction of the tendo Achillis and of the plantar fascia, so I cut these tissues with a tenotome, after which I forced the foot into the over corrected position and applied the plaster cast.

This pair of feet differs somewhat from the ordinary club feet on account of the cause and the deformity seemed to be due entirely to the contraction of the soft parts, whereas in the ordinary congenital club foot the greatest trouble is in the bones. These feet look perfectly normal, but it would not do to allow them to go without mechanical support for fear of a relapse. There is a persistent tendency to relapse in most club foot cases.

Had I not been able to completely overcome the deformity at the first setting I should not think of applying a clubfoot shoe now, but should overcome as much more of the deformity as possible with my hands and then reapply plaster of Paris to hold what I had gained. This operation would be repeated every five or ten days until the feet could be put into an overcor-

rected position. After these deformed feet have been straightened and not till then a club foot shoe should be applied. The shoe should not be employed as a means of treatment but to prevent a relapse and to allow the patient to learn to walk. This patient has been standing on the plaster casts.

The shoes I have made for him were made from an ordinary shoe with a heavy sole.

I could not find lace shoes small enough so I took button shoes and had the buttons and flaps in which were the button-holes removed, after which I had the shoes cut open clear down to the toes and eyelets put in on either side, thus making them lace from the point of the toes to the top of the shoe. A light steel sole is fastened over the bottom of the shoe to prevent the shoe from getting out of shape. Steel uprights extend from the bottom of the shoe up either side to a point three inches above the knee, with joints at the knee and ankle, and bands around the thigh, and the leg just below the knee. The joint at the ankle is locked so that the toes can not drop. A strap goes over the instep to hold the foot firmly down into the shoe.

The object in extending the braces above the knees is to overcome the pigeon toe. These braces must be applied to other shoes when they are worn out and worn constantly until all tendency to relapse has disappeared. In this case there is so little tendency to relapse that it is perfectly safe to remove the shoes at night, but in most cases it is necessary to have a night shoe as well.

This child's limbs seem to be strong and well developed and I believe that it will walk, but in some cases of club foot from spina bifida the limbs are either spastically contracted or paralytic so that the child can never walk.

I now wish to call your attention to this spinal tumor called a spina bifida. This tumor is usually found in the lumbar or sacral region, and is due to the lack of development of the bony part of the spine which allows the contents of the spinal canal to protrude. The coverings of the tumor usually consist of the integument and the meninges of the cord. Sometimes the integument is absent and at other times it is exceptionally thick and covered with hair. The contents are cerebro-spinal fluid and portions of the cord or spinal nerves. The diagnosis of spina bifida is comparatively easy because the edges of the opening in the bone can be felt and by this means differentiated from growths outside of the spine. The symptoms, prognosis and treatment depend upon the size of the opening in the bone. The tumor may be so small as to be scarcely noticeable and will then give rise to no symptoms and will require no treatment. It may be as large as a child's head when it is a very grave affliction.

In these cases of large tumor the covering is liable to be very thin and may rupture, allowing the cerebro-spinal fluid to escape causing the death of the child.

In this class of cases there is usually a direct communication with the ventricles of the brain and there is also a hydrocephalus present. In these extreme cases the prognosis is grave and treatment unsatisfactory. Some cases have been reported, however, in which spontaneous rupture has been followed by a cure.

There is a third class of cases in which the tumor is large enough to give rise to symptoms and not so large as to preclude the possibility of cure. It is in this middle class that the question of treatment arises.

Medical treatment is useless. Mechanical treatment by means of trusses, belts, etc., has failed.

Of late years operations have been performed upon a good many cases. The injection of irritating fluids has been most frequently resorted to, the object being to cause shrinking and adhesion of the sac thus gradually obliterating it. While some successes have been reported many failures and a large mortality rate are also in evidence. While I cannot speak from experience, this method seems to me to be as unsurgical as the injection method of treating hernia. The favorite material used in these injections consists of iodide of potassium and glycerine.

An operation very like the radical operation for hernia has been successfully performed and seems to me the most rational method of treatment. In fact a spina bifida is a hernia with a bony ring and contents made up of portions of the nervous system.

In this operation a skin flap is turned back from either side, the sac emptied and tied off and the skin closed again. The mortality is necessarily large, but without relief these patients are better dead than alive and any procedure offering relief is legitimate. The greatest trouble has been to prevent so great a loss of cerebro-spinal fluid as to cause the death of the patient. Pieces of bone have been dissected up and made a part of the flaps covering the wound, but this procedure is yet in the experimental stage.

In this case before you the tumor is not large and the integument covering it is thick and unyielding so that it needs no treatment. The chances are that as the child grows older this bony ring will grow smaller, and now that we have overcome the deformity of the feet and the limbs seem well developed and strong I believe we are justified in giving a favorable prognosis.

ORIGINAL ARTICLES.

EXCISION OF THE RECTUM FOR PROLAPSUS CAUSED BY TRAUMATISM.*

By G. G. Eitel, M. D.,

Surgeon to Asbury Hospital and Consulting Surgeon to the Northwestern Hospital.

Minneapolis.

Prolapse of the rectum may be divided into two varieties. The first is a common affection in children. Diarrhœa, constipation, oxyuris vermicularis, polypus, phymosis, urethral stricture, calculi in the urinary bladder—any one of these conditions may produce a straining at the time of stool, which will cause a separation of the mucous from the muscular coat of the rectum. This is immediately followed by a protrusion of the mucous coat from the anus. This variety of prolapse is not dangerous, nor is it difficult to manage. A cure is usually effected by very simple methods of treatment. The second variety, as a rule, is found in the adult. It presents the appearance of a large, protruding mass, conical in form, of a firm consistency, and is composed of all the coats of the bowel, including the peritoneum. The causes of this variety are very similar to those of the former, with the addition in some cases of severe abdominal pressure.

Upon investigation I have been much surprised at the scarcity of available data concerning the results of operations on this variety of prolapse. During a recent visit to the East, I made diligent inquiry at several of the larger hospitals and among many of the more prominent surgeons connected with these institutions, and was greatly surprised that the operation had not been performed by any of those with whom I had come into contact. In one case, while at Johns Hopkins Hospital, the operation was done by Dr. J. C. Bloodgood, but with what result I have not been able to learn after diligent inquiry.

In view of the scarcity of data upon this subject, the report of a recent case, which is typical of this variety of prolapse, especially where severe extraabdominal pressure has been the chief factor, will, I trust, not be devoid of interest.

Mr. A. M., age 34, single, a man of fine physique, family history excellent, occupation railroad bridge carpenter.

On the third of January, 1898, while engaged at work on a bridge, a push-cart loaded with railroad ties fell upon him and crushed the trunk of his body in such a manner as to force the rectum out through the anus. A local surgeon was called and promptly reduced the prolapse. For about three weks the patient received the benefit of the most approved methods of treatment, but instead of getting better he grew steadily worse, and, as he expressed himself, "suffered the torments of the damned." On February four he consulted me, giving the history as above stated, with the addition that he was unable to assume the erect position or go to stool without bringing on a prolapse of his rectum. An examination made while he was at stool revealed a protruding congested mass about the size of a child's head. On the following day, with the assistance of Drs. C. E. Bashman and E. H. Reeve, I removed the prolapsed mass.

The patient, while under the influence of chloroform was placed in the lithotomy position. The buttocks were brought as nearly as possible into an aseptic condition. An incision was made beginning at the muco-cutaneous junction and carefully avoiding any injury to the sphincter and levator ani muscles. Hemorrhage was, without difficulty, controlled by pressure forceps. The gut now projected about eight inches below the anus. The peritoneal opening was closed with fine cat gut sutures, after which about seven inches of the protruding cuff were amputated. All bleeding points having been taken care of, the bowel stump was attached to the skin margin by eighteen interrupted sutures of No. 12 twisted silk. The mucous and skin edges were brought into close apposition in order to avoid, if possible, any denuded points. An external dressing of iodoform and sterilized gauze was applied and firmly supported by a bandage.

The patient complained of no pain after the operation, and on the third day was found sitting up in his bed, shaving himself. His bowels moved spontaneously on the fourth day, he having lost all control over the act of defecation. This disagreeable condition continued for almost a month, during which time he wore an "anal truss." He finally made a splendid recovery.

*Read before the Section of Surgery of the Minnesota State Medical Society, June 16, 1898.

INTESTINAL ADHESIONS.*

By A. E. Benjamin, M. D.

Minneapolis.

The field of abdominal surgery is a very complex one; especially is this true of intestinal work. We have made great progress in this line in recent years, and much has been taught us by such men as Senn and Murphy. It is, however, my purpose and privilege to bring be-

*Read before the Section of Surgery of the Minnesota State Medical Society, June 16, 1898.

fore this section a subject which is not threadbare from discussion, but which is beginning to interest the profession greatly, viz: intestinal adhesions. Very little is to be found in our literature treating upon this condition, but it is none the less important, because of its frequent occurrence, well established by the numerous abdominal sections now being performed; and since too this malady is often a sequence of such sections, it becomes doubly necessary to consider it.

Tappey, in the American Gynæcological and Obstetrical Journal, November, 1895, quoting Riedel, mentions the following causes of adhesions in the abdominal cavity: "Contusion of the abdomen; inflammation about the bladder and vermiform appendix; inflammation of the vermiform appendix alone; inflammatory processes in the colon and in lipomata that have become detached from their pedicles within the pelvic cavity; inflammation of the ovaries or tubes or both; inflammation of the uterus; inflammation of and about the rectum and of the bladder." He further states that abdominal surgery has well established the fact that many of the pains, vague uncomfortable feelings and so called dyspepsias are caused by adhesions of the various organs in the abdominal and pelvic cavities.

Bryon Robinson believes that peritoneal adhesions are quite abundant after abdominal section. In two hundred autopsies made by him he states the percentages of adhesions in the regions which he terms major regions of peritonitis as follows: (a) In the mesosigmoid, 80 per cent. (b) In the cecoappendicular apparatus, 72 per cent. (c) In the pelvis, 75 per cent. (d) Around the gall bladder, 65 per cent.

J. G. Adami, of Toronto, in an article published in the Philadelphia Medical Journal, Vol. I., No. 9, speaks of the frequent adhesions occurring between the omentum and intestines, and in one hundred and fifty autopsies he found this often demonstrated as well as in several cases with adhesions at the sites of operations.

The special causes of adhesions of the intestines are as follows: I. Aseptic. II. Septic. III. Specific inflammations of the peritoneum. The aseptic include tramatisms, from contusions by handling the intestines and the use of antiseptics during operations; also medicated dressings, hemorrhage, inflammatory cysts, extrauterine pregnancy, pressure from tumors or malpositions of organs, chronic Bright's, malaria, etc. Adhesions due to septic inflammations are caused by streptococci, staphylococci and bacilli coli communis infections. Gonorrhœa, which is usually of a mixed infection, syphilitic and tubercular inflammations are specific causes.

The symptoms of intestinal adhesions are often those of acute obstruction of the bowel, with which we are all familiar, but when a fibrinous peritonitis occurs, producing a mass of adhesions, there may be cachexia, ascites, diarrhœa, and an apparent tumor. This condition is, I believe, often mistaken for malignant disease. In the chronic form there may be irregular attacks, of the acute form, but lessened in intensity, with colicky pains. In some cases of adhesions there are irregular attacks of abdominal cramps, shortly after eating, and frequently increasing in intensity, with vomiting or uncomfortable feelings resembling indigestion. When adhesions occur between the stomach and intestines the symptoms may resemble those of a grave disease, with stabbing, dragging pains relieved by vomiting, and absent when the stomach is empty. When adherent to the gall bladder symptoms of bilious colic are present. In the septic form of adhesions is observed a conservative plan of nature, walling off and uniting all organs and tissues adjacent to a septic Fallopian tube, ovary or an appendix, preventing absorption or extension of the inflammatory process. The adhesions produced by a tubercular peritonitis are, as a rule, all below the umbilicus, and in Douglas' pouch. A special form of adhesions may occur at the seat of typhoidal ulcers, which have extended through to the peritoneal covering lying in apposition with a second coil of intestine, to which the bowel affected becomes attached, preventing perforation at the time of disease. Kinks or flexions from faulty attachment, of only a single point, do at times cause obstruction, while a great matting together may produce no trouble.

A fistula connecting the bowel above and below coils precludes the possibility of obstruction. This is sometimes observed at the time of operation and at post mortems.

It is interesting to note what occurs in some instances of adhesions of the intestines. The seat of the trouble is usually in or near the pelvis and involves the small intestines. Through some inflammatory process a coil of limited area becomes firmly adherent. The flow of the intestinal stream, on account of the sharp bend, is not perfect, and is only possible so long as the proximal portion of the coil is not too much distended. The loaded bowel usually tightens the kink, or, from pressure, complete stenosis occurs. The distal portion of the coil is collapsed, but regains its natural size, and permits unimpeded fæcal flow when these coils of adhesions are broken up, unless the coats of the bowel have become impaired by inflammation. In most cases there is a catarrhal inflammation as well as a compensatory enlargement of the proximal end of the gut. The adhesions may exist for years and cause no more than a transitory colic, borboryg-

mus, local distension, attacks of constipation on account of valve like obstruction, a passage of much glairy mucus and fæces bringing some relief, until a favorable condition for tthe phenomena of obstruction occurs.

I wish here to report a few cases to illustrate some of the types above mentioned.

Case I. R. B., age twenty-one, American. Butcher, very fleshy and of phlegmatic temperament. Family history of tuberculosis and epilepsy; personal history of attacks of epilepsy (grand mal) and recurrent appendicitis—during the last five or six years; the last year the attacks were very frequent. The attacks of appendicitis were invariably accompanied by convulsions, obstruction and extreme pain. There would be fullness and hardness at the seat of the appendix, and, in a few days, a profuse discharge of mucus, with fæces, bringing relief. I was called February 26, 1893 and found the patient suffering as above. The attacks continued at varying intervals. An operation was decided upon. On May 25, 1893, on opening the abdomen over the region of the appendix, a mass of adhesions was found, involving the cœcum, ascending colon and omentum. The appendix was not found nor was any pus present. Some of the adhesions were broken up, the bowel straightened out somewhat and the wound closed. The patient was considerably better, for six or eight months, when his old trouble began to return. He was referred to Dr. Murphy, of Chicago, who operated on him before several members of this Society, which met in Duluth, in 1895. About the same condition was found as at the first operation. More of the adhesions were separated, but the patient died, a short time after, from shock.

Case II. Mrs. M., age twenty-nine. Irish. Tubercular family history. She called at my office July 7, 1896. Was very anæmic and weak. Complained of great pain in the abdomen which was much distended. She had not menstruated for over a year, never had been pregnant. On examination I found a large cyst in the pelvis. Next day at the house found her in a worse condition with signs of obstruction. With three or four days treatment she was no better; her symptoms of obstruction becoming alarming, we operated on July 11, 1896. A large cyst of the broad ligament, extensively adherent to the bladder and intestine was found, filled with three gallons of cystic fluid and blood. To have dissected all the adhesions would have been to sacrifice the life of the patient. We removed all of the sack possible, stitched the remaining portion to the abdominal wall and kept packing with gauze each day until the cavity was obliterated. The patient is now well, has no pain, bowels regular and does her own work.

Case III. Miss P., age forty-one. Domestic. Irish. Was called March 16, 1897. Found the patient suffering with agonizing colicky pains, also vomiting, fainting and chills. Upon examination could detect a possible soft mass in the lower right abdomen. She was taken at once to the hospital. She continued to suffer from marked constipation, frequent attacks of colic and vomiting. An operation was decided upon and performed March 24, 1897. A vaginal examination under the anæsthetic revealed nothing of importance. Upon opening the abdomen a cyst about the size of a walnut was found arising from the left ovary and firmly adherent to a loop of the small intestine. The ovary and cyst were separated from the bowel and removed, and the peritoneum carefully stitched over the raw surfaces. The patient made an uneventful recovery. The symptoms of headache, nausea, vomiting, fainting, extreme constipation and dyspepsia for which she had been treated for months before all disappeared.

The treatment of this form of disease is preëminently surgical, when any treatment is necessary, but the method to pursue in each individual case diagnosed, will suggest itself at the time of operating and needs no particular consideration here. An operation is seldom required when the adhesions surround solid or fixed organs, but when the bowel becomes united to such movable organs as the ovary, tube, bladder, stomach, omentum, etc., troublesome symptoms usually occur.

Maurice Richardson and others believe that when long continued disabling abdominal pains, though doubtless at times of nervous origin, are present, an exploratory operation is necessary.

With the knowledge that many abdominal operations are followed by intestinal adhesion, the writer wishes to mention, in this connection, something in the way of preventive treatment. We should avoid:

1st. Sepsis.
2nd. Strong antiseptic solutions.
3rd. Prolonged exposure.
4th. Unnecessary handling of parts.
5th. Hemorrhage.
6th. Certain irritating medicated dressings, and last but not least, leave no raw surfaces uncovered.

To prevent adhesions between the bowel and denuded surfaces, Senn advises omental grafts; Morris uses aristol films; Baum thin plates of absorbable tissue, cat gut or fresh animal peritoneum. These contrivances are not as successful as we would wish. However, the future may bring something which meets the demands.

In conclusion I wish to emphasize the fact that adhesions of the intestines do occur oftener than is supposed, that they are frequently unrecognized and mistreated and that they often follow laparotomies.

The recognition of these facts has been the writer's excuse for this paper, hoping thereby to bring before you the surgical importance of these adhesions, to urge a thorough examination in every case of abdominal disease, a guarded prognosis, conservative treatment and a careful operation in all abdominal sections; thus the future will doubtless establish more cures from this malady, and more of the criticism and reflection often cast upon our profession and skill will be avoided.

CRETINISM, WITH A REPORT OF A CASE OF THE SPORADIC VARIETY.*

By Christopher Graham, M. D.

Rochester, Minnesota.

Thyroid therapy has found a stable and scientific basis. The experimental physiologist, the physician and the surgeon, each may claim a share of the honors.

The physiologist ranks first, for his deductions were established by method and fact. The surgeon taught through operative errors; the physician profiting by the directed labors of the former and the well meant operations of the latter and in part by his personal observations, drew conclusions that hastened this advanced doctrine.

Wolfstein says that "among the many great achievements of this great century may be surely ranked the benefits which humanity has received from the recognition of this doctrine," organ therapy, and further: "None of the internal secretions, the seminal fluid excepted, ranks the thyroid in potency."

In cretinism thyroid treatment finds a fruitful field of usefulness; has already accomplished much and promises everything. Cretinism, with which I propose chiefly to deal, has been so modified through this therapy that its most frightful aspects have been well nigh lost.

Two forms of cretinism are recognized, the endemic and the sporadic. The former finds mention in the sixteenth century, the latter was first clearly distinguished by Fagge in 1871.

The endemic form has occurred in various parts of Europe and Asia, especially in the valleys of the mountainous regions.

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Hirsch states that it is also found in Vermont, Massachusetts and California, but Osler, who has carefully studied cretinism in America, fails to corroborate such statement.

The sporadic form, however, has been reported from various parts of the United States, and these reports have rapidly multiplied since 1893, at which time Osler made a collective report of eleven cases. In the two forms the characteristic symptoms are so nearly alike that Osler's definition, embracing both, is a good one:

"A chronic affection characterized by disturbance of the growth of the skeleton and soft parts, a remarkable retardation of development, an extraordinary disproportion between the different parts of the body, a retention of the infantile state, with a corresponding lack of mental progress."

There are however, differences which have led some observers to class these two affections as independent.

The endemic form is usually accompanied by goitre, the sporadic is much more rarely so accompanied. In fact, absence or atrophy of the thyroid is the rule. Morel, Curling and Fagge, as well as many later observers, agree that goitre is the first of a series of degenerations leading to cretinism.

Bircher says that thyroid feeding has less or perhaps little effect on the myxœdematous condition of the endemic type, but this has not been fully established. However the goitrous condition is relieved if calcareous degeneration has not taken place, and doubtless further observations will show that the myxœdematous condition will likewise yield. Dentition is more delayed in the sporadic. The endemic arises in certain localities and seems to have something of an infectious nature, said also to be due to drinking water which possesses some organic or inorganic poison or is lacking some virtue which otherwise would prevent such abnormal development. Again the skeletal development shows differences. The long bones are less or more slowly developed in the sporadic; the sutures and fontanelles are slower to close, being often open as late as the tenth year.

There are other minor differences as shorter life and gentler disposition of the sporadic, but despite all these it is generally conceded that the same cause or causes act to produce both forms.

The function of the gland is variously discussed. Horsley says that it is a blood forming organ. Schiff, that it secretes a substance that influences the nutrition of the nervous system. Kinnicutt says that we must accept one of two theories:

First, that it secretes a substance which enters the circulation through the lymphatics and which is essential to the chemistry of metabolism and for proper nutrition of the various tissues.

Second, that it produces an antitoxine to neutralize or destroy poisons that are developed during tissue change and by collecting in the blood produce autointoxication. Whatever the nature of the secretion, development, mental and physical, is largely dependent upon it.

As to the pathology of the disease little is positively known. There are, in the sporadic, three conditions of the gland noted by various observers. One, where the gland is absent congenitally or wasted in early life. A second where the gland is atrophied or perhaps functionless. The third, those cases in which goitre exists along with cretinous symptoms.

The pathology is, however, closely allied or identical to myxœdema, operative or idiopathic. Post mortem cases of natural myxœdema have always shown an atrophied gland. The walls of the vesicles are infiltrated with embryonic tissue and chronic thyroditis is evident; connective tissue increases throughout the body; fat usually develops subcutaneously; epithelial cells block the tubes of the sweat glands; blood and skin show excessive mucin.

Whatever may be the true pathology of the cretinous state certain it is that a functionless thyroid, or a perverted secretion is back of it all.

The symptoms usually appear appreciably from six months to five years after birth. In the developed state they are striking and repulsive. Mental and physical development retarded; a head large for the body growth, misshapen, scantily covered with a coarse, yellowish growth of hair; a bloodless yellowish green complexion, low forehead, eyes apparently small, with swollen lids and œdematous surroundings; nose flat and broad between the eyes with nostrils dilated; thick lips, lolling tongue, dribbling saliva; perhaps toothless; ears deformed and protruding and a short, bull like neck make up a distressing and often absolutely expressionless countenance.

Subcutaneous fat is abundant and supraclavicular deposits frequent. Muscles soft and flabby; limbs often crooked and the ends of the long bones enlarged; protruding abdomen increased by lumbar lordosis; when able to walk the gait it tottering and awkward; fingers and toes short and stumpy giving broad hands and feet; skin is dry and perspiration scanty; special senses poorly developed; speech comes late or is not at all attempted, and the voice is coarse and rasping. Puberty is delayed; circulation poor as shown by cold, blue hands and feet and subnormal temperature. All movements slow and apathetic and often they sit for hours oblivious of surroundings.

The diagnosis offers but little difficulty in a case well developed. He who has read the ordinary text-book descriptions and has seen the cuts usually accompanying, will rarely fail to make a correct diagnosis. Small stature; disproportion of parts; the peculiar facial expression; stupid manner; fatty deposits; subnormal temperature and poor circulation are quite sufficient to permit a diagnosis.

Putnam says that there may be disorders of nutrition or irritative nervous symptoms unaccompanied by myxœdema due to deficient or perverted thyroid action, and that we may yet learn to recognize affections that lie between myxœdema and health, as well as the disorders of development and nutrition for which the thyroid is now known to be more or less responsible.

Regarding the primary causes that destroy the gland or pervert its function, we have little or no understanding. Whatever these primary causes may be this is common agreement, that the condition is due to maldevelopment of the thyroid gland, its absence, atrophy or hypertrophy, perverted or abolished secretion; the trouble manifesting itself either in early embryonic life, appearing at birth or soon thereafter or delayed until late childhood. Bircher lays blame chiefly to drinking water. Ewald, however, says that water alone is not the sole cause of the disease, but that certain hereditary tendencies together with bad hygienic surroundings and poor social conditions combine to produce or aid greatly in its production.

Kocher says, both goitre and cretinism may be inherited from parents who show no thyroid disease but the function of whose gland has undergone some change. Judson Bury and Munson emphasize intermarriage as a fruitful cause, while Langdon Downs considers alcoholism a strong causal factor, especially if active at the time of the procreative act.

Treatment: As in idiopathic myxœdema, cachexia strumapriva, infantilism and the like, so in cretinism thyroid therapy has wrought marvelous changes and demonstrated the value of experimental therapeutics. Through the number of cases treated and reported it has been clearly shown that thyroid treatment offers the greatest good to the suffering cretin.

The capabilities of treatment are: First, removing the myxœdematous condition; second, quickening physical development; third, awakening the intellect. ' The myxœdematous condition is rapidly and often fully reduced, thus removing the most unsightly symptoms which mark these unfortunates.

Dr. H. C. Wood, in discussing the loss of body weight in the allied conditions through thyroid action, says: "The various researches are sufficient to warrant the conclusion that thyroid treatment decreases body weight in part by causing waste of nitrogenous tissue, but to a greater extent by wasting the carbohydrates." Physical development is rapid and perhaps the

most marked and remarkable effect of thyroid feeding. This is seen especially in the long bones, and so profoundly does treatment affect the tendencies of growth, though years have elapsed since growth was manifest, it is again remarkably quickened.

Telford Smith points out the tendency to bending of the bones, especially the long, during thyroid treatment, and urges care in overtaxing the limbs at this period, or advises the use of splints to avoid such deformity. Food is given in quantity and quality to meet the demands of increased growth, and sunlight and air in abundance.

The mental condition is slowest to respond and it is difficult to say how far we may reasonably expect such development to obtain. However, cases are reported where improvement has been apparently complete and many where comparison with the normal is favorable.

Speech also is favorably affected. Where the language consisted of harsh rasping grunts, words and sentences were gradually acquired, while some report cases where speech became distinct and even fluent.

It is a common observation that the shorter course this disease has run and the younger the patient toward whom treatment is directed, the more nearly perfect the final result. Therefore the plea of Koplik for early diagnosis and treatment is pertinent. Other effects of treatment are softening of the skin, abundant and silky growths of hair replacing the coarse and scanty, and the rapid progress of delayed dentition.

Treatment must be continued throughout the entire life of the individual, otherwise relapses occur. It is sufficient in most cases to give a large weekly or bi-weekly dose after distressing symptoms are relieved. The dose for a child varies from one-half to one grain, at the beginning, gradually increasing to five or more, keeping track of any untoward symptoms and decreasing the dose or discontinuing it for a time, then resuming with less amount. Cretins bear thyroid better than adult myxœdematous patients, but the effect is the same, therefore treatment is safer in the former than in the latter.

Danger signs are increased temperature, rapid pulse, insomnia, restlessness, digestive disturbance, dyspnœa, muscular twitchings and tremor. Early signs of improvement are lessened stupidity, gain in myxœdematous condition, mental and physical awakening and attempts at speech.

Report of Case. John M., born October 13th, 1891. Saw him first June 9, 1897, aged five years, eight months and twenty-six days.

Family History: Parents both born in Germany, of healthy stock, medium size, average mental ability. No hereditary taints obtainable, no history of cretinism or goitre on either side save an aunt that developed goitre of one lobe during a pregnancy. The father something of a drinker. Age of father and mother forty-two and thirty-six years respectively. Have eight living children from twelve years to eight months old and all normal except the one reported. One died of whooping cough in infancy.

TAKEN JUNE 30, 1897, 23 DAYS AFTER TREATMENT BEGAN. SHOWS DECIDED IMPROVEMENT.

Labor reported normal and easy, lasting little more than one hour. Nursed the child six months, then fed him milk from a spoon as he refused the bottle. From the sixth to the ninth month the mother began to notice that the child was not right, that the tongue protruded, lips thick and child slow intellectually.

Had a very poor appetite, refusing everything except milk and bread; appetite continued poor well into the first year of treatment. This child has had measles and whooping cough, the latter especially severe, being in a hopeless condition several days. The mother says that he took not

even a swallow of milk for nine days, and what surprised her most was that he kept fat the whole time. He was always constipated; sweated but little. Cut first tooth at nine months, and slowly developed more, until after treatment when it was much more rapid, cutting the last baby teeth in May, 1898.

When first seen, June 9, 1897, the following was noted:

Child had never attempted walking, limbs not deformed but short and thick; diet had been little else but bread and milk; constipated; teeth few and decayed; fontanelle widely patulous; thyroid gland could not be palpated; head large and square; face swollen and expressionless. The forehead seemed low, eyes small and widely separated. Nose flat at roof, turned up at end and nostrils dilated, Lips thick and tongue protruding, hair thin and bristling. Abdomen markedly protruded and lumbar lordosis greatly exaggerated, skin dry and scaly, anæmic and greenish yellow.

Appetite poor and digestion capricious, head could not be held steady, muscles weak. Sweat but little, temperature subnormal, always cold and seems sensitive, taking cold easily. No speech, not even words, harsh cries the only language.

Diagnosis of cretinism made and powdered thyroid given, one-half grain three times a day. At no time has the dose been more than three grains daily, because the child living at a distance could not be under observation. Had the child been carefully watched and larger doses provided, I am confident the results would have been much more nearly perfect and rapid, if not more marvellous.

Three weeks after treatment began, the child returned markedly improved at which time picture number one was taken.

During the later winter the child began to walk some and said several words, but owing to bad weather the parents did not return for medicine and the child relapsed in so far that walking and talking ceased and myxœdema began to show. On returning the dose was increased to three grains per day, and rapid improvement followed.

Present condition: Fontanelle almost closed, hair thick, soft and normal, skin smooth and soft, eczema of head, face and lids nearly gone, eyes apparently larger and brighter. Nose improved, lips thin, tongue normal and wholly within the mouth, first teeth all present but very much decayed, temperature normal and child sweats easily. Myxœdema almost disappeared, lumbar lordosis slight, abdomen normal. To use the mother's words, "John was always so bloated, now he is like other children." Walks everywhere unassisted, and is difficult to care for as he often runs away. Is again saying a few words. Appetite excellent, eating all ordinary food and digestion perfect.

Spleen and liver not enlarged, constipation overcome. The most marked feature is growth. The first loss in weight so often noticed was scarcely manifest in this case, and I attribute it to the small initial dose so that the loss in the myxœdema kept pace with the natural gain due to the good effect of the drug. The child has gained ten pounds in weight and but a fraction less than six

TAKEN JUNE 2, 1898, AFTER ONE YEAR'S TREATMENT.

inches in height; though apparently much more. Apparent gain due I am sure to increase in muscle strength thereby straightening the skeleton and improving the lordosis. The child is now fairly bright and playful and answers to his name. Not difficult to amuse and smiles cheerfully.

Picture number two was taken June 2, 1898, nearly one year after he was first seen.

INJURIES TO THE CERVIX UTERI.*

By W. T. Adams, M. D.

Elgin, Minn.

I feel able to congratulate you today upon the unusual interest you have shown in the work of this section this year, which shows unmistakably that the science of obstetrics and diseases of children is receiving due attention, and that it is keeping step with the progress of the times which has been so marked in all branches of medicine and surgery during the last two decades.

Whatever asepsis and antisepsis and allied scientific investigation has done for surgery and medicine it has done for obstetrics, and in no field have there been more beneficent results than in the care of children.

We know of no more conclusive evidence of the live interest the profession in Minnesota have shown in the particular fields assigned to this section than the fine array of papers which will be presented to you this afternoon, papers which for original thought and research and scientific interest will be well worthy of your most careful and earnest attention.

We thank you most heartily for your presence here, and earnestly invite you to enter heartily into the discussions of the various themes as presented, whether you are members of the Society or not.

With your permssion I will engage your attention for a short time on the subject "Injuries to the Cervix Uteri."

The importance of this subject is too well understood, and its bearing upon the welfare and happiness of so many women is too definitely known to warrant any introductory remarks or excuses for bringing the subject before you today. The highest obligation rests upon the obstetrician to conserve the integrity of the parts to his utmost ability, and to further this end is the object of this paper.

In order to present this theme in the light of experience rather than of fine spun theories so prevalent in much of our medical literature, the writer presented the following list of questions to a number of men who are active workers in general practice, and in the practice of obstetrics and gynæcology:

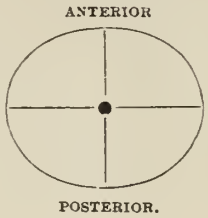
Please mark on the diagram the location of the most frequent injuries to the cervix—also indicate position second in frequency, as shown by your experience.

State briefly your opinion as to chief causes of injury to the cervix.

*Read in the Section of Obstetrics and Diseases of Children of the Minnesota State Medical Society, June 17, 1898.

Do you advise that the injuries be repaired at time of confinement?

CERVIX UTERI.



In reply, as to the most frequent direction of laceration, eight out of twelve writers have indicated left unilateral, three bilateral, one posterolateral, both right and left. As to the direction second in frequency, four have indicated right unilateral, one anterior, and one stellate. But one writer has a reason assigned for the direction of laceration, that the left lateral laceration is most frequent because of the greater frequency of left occipital anterior presentation.

In answer to the query "What are some of the chief causes?" since they are briefly stated I will enumerate them all as given by each writer, as follows:

1. Rapid delivery by natural or artificial forces through undilated os, almost always first labor.

2. Dry labor. Too early rupture of the membranes. Digital dilatation. Rapid instrumental delivery.

3. Premature instrumental delivery.

4. First, pressure; second, rapid dilatation; third, forceps when posterior; fourth, occiput posterior; slow progress with unbroken bag of waters, no laceration unless anterior lip projects under pubes; occiput posterior or foot presentation make tear nearly certain.

5. Over distension.

6. Insufficient dilatation, and ill-controlled first stages of confinement.

7. Either head or shoulders are among chief causes.

8. No cause assigned.

9. Rapid first stage of labor. Premature rupture of membranes. First labor at twenty-five years, or later.

10. Rigidity. Pressure of anterior lip against the pubes. Undue stimulation to contractions. Hasty use of forceps. Forcible dilatation even with fingers may cause laceration.

11. Ergot before birth of child. Forceps before complete dilatation. Pressure on or titillation of the fundus.

12. Three very important factors, or chief causes of laceration: First, rigid, hard cervix, such as is usually found in abortion, or in rapid

labor when cervix is not prepared, or is made to dilate too rapidly. Second, occipito-posterior presentation. Third, forceps.

The foregoing statements seem to have covered substantially the variety of causes which contribute to this injury. The writer is led to believe that still another cause may be added which is of more than passing importance. The anterior segment of the cervix presents in the vagina while the posterior segment rests against the sacrum, and is supported by it in a large variety of cases. In consequence of this, the anterior segment pushes forward with the expulsive efforts of the mother, and the greatest strain is felt at the union of the two segments, which favors lateral tear. This affords a tempting condition for the physician to manipulate the os with the fingers, in attempting to pass it back of the presenting part. I feel that there is imminent danger of injury to the parts by this procedure, and that if it is done at all it should be done with the greatest care. The shape of the parturient canal, especially the inclination of the superior strait, and the position of the fœtus and placenta have much to do with the relative condition of the cervix, and there is little use in attempting to effect the passage of the head through the os until everything else is ready. It is my firm belief that meddlesomeness with the os has much to answer for in injuries of the cervix.

Ergot is mentioned. I believe that ergot should rarely, if ever, be given before the birth of the child. If contractions are insufficient, it is far better to give quinine, if something of the kind is required.

If the os is rigid, it should be softened. The writer has had the happiest results from a small dose of morphia, or a little chloroform, and the warm douche has many advocates.

Many of the causes mentioned are beyond our control, but thoughtful consideration of them will convince us that care and prudence will enable us to carry many patients through safely who otherwise would receive injury.

The selection of a forceps is of the utmost importance. A forceps, the shanks of which run an inch or inch and a half apart parallel with each other to the blades, and the blades of which inscribe graceful curves, fitting the head, will inflict less injury than a forceps which has shanks running directly from the lock in line with the blades. With the former, the contracting os will press equally upon the forceps and head, while with the latter the os will engage upon the shank which holds it away from the head, thus making uneven pressure, and rendering greater liability to injury. This I regard as an important matter.

As to whether repair should be made at once, of the twelve opinions expressed, one has said flatly, "Yes." Another has said, "Yes, if deep," while all the rest have said either, "No" or "Very rarely," and four of them have advised it when required to control hemorrhage, one of whom says his results after immediate operation have been good. One writer assigns as his reason for saying "No," "the great liability for infection that obtains in a majority of cases of confinement in residences."

The trend of opinions of these men seems to be against immediate repair, which to me seems most rational, notwithstanding much has been said of late in its favor. I am of the opinion that it is difficult in many cases to tell whether repair is needed or not unless the tear is deep. The condition of the parts and of the patient herself would seem to me to preclude so important an operation unless to control hemorrhage.

I am indebted to the following gentlemen for kindly answering my inquiry:

Dr. Park Ritchie, St. Paul.
Dr. H. W. Lorgijean, Detroit, Mich.
Dr. F. A. Dunsmoor, Minneapolis.
Dr. Joseph Price, Philadelphia, Pa.
Dr. J. H. Etheridge, Chicago, Ill.
Dr. Alexander J. Stone, St. Paul.
Dr. W. J. Mayo, Rochester, Minn.
Dr. Charles B. Penrose, Philadelphia, Pa.
Dr. Henry T. Byford, Chicago, Ill.
Dr. J. B. McGaughey, Winona, Minn.
Dr. Henry J. Garrigues, New York City.
Dr. Archibald McLaren, St. Paul.

THREE CASES OF MASTOIDITIS IN YOUNG CHILDREN.*

By Edward J. Brown, M. D.

Minneapolis.

Case I. Caroline C., 13 months old, was brought to me from a distant town, July 29, 1896, with the following history: When the child was three weeks old the mother took charge of it, and at the first dressing discovered that the right ear was full of pus. As the nurses had not noticed the discharge the time of its beginning is unknown. (No tubercular history, but the mother has never been strong and suffered from an acute otitis media at the second or third month of pregnancy). This discharge was neglected, on the theory that it would get well of itself. At the seventh month a swelling appeared in front of the right ear. This was poulticed by the physician and during the next three or four months there were nine abscesses in front of the ear, which

*Read in the Section of Obstetrics and Diseases of Children of the Minnesota State Medical Society, June 17, 1898.

were religiously poulticed. Three weeks ago a swelling appeared behind the right ear which has been discharging the past two weeks from a sinus one inch above the external canal and one-quarter of an inch behind the attachment of the auricle. Child does not walk or stand, but eats and sleeps well. Temperature 101°. The abscess was opened, freeing only a small amount of pus. The following day, under chloroform, an incision one inch long connecting the two sinuses was made, and granulations and a small section of necrosed cortex of the superior portion of the mastoid bone was removed with the sharp spoon. Iodoform gauze dressing. August 8, child doing well; temperature has ranged from 102° to 99.7°, this morning 99.8°. Open the wound and curette carious bone involving the superior and anterior regions of the antrum and extending into the attic. Aug. 12. Discharge much less; the temperature 99.2°; goes home and the wound is dressed by the family physician. Oct. 12. Child has gained in flesh, and only a suppurating sinus at the site of the wound remains. Probe shows caries still present, and under chloroform a sufficient incision is made to enable the greater part of the mastoid cortex to be removed and the attic and aditus to be thoroughly curetted. After this, progress was steady, and in two weeks the child was taken home, wound healing kindly with iodoform gauze dressing. Discharge growing less. Temperature 99°.

Jan. 9, 1897. The father reports that the child has had measles. Sinus behind ear has closed. Slight discharge from ear. Under cleansing, and instillation of alcohol and iodoform, the discharge soon ceased.

April 20. No discharge; no perforation visible in the tympanic membrane. Child hears a whisper with affected ear. Adenoids have been removed, and the child's general condition is greatly improved.

I am indebted to Doctors Blitz, Howard, Woodling and F. R. Wright for kind assistance in the various operations done in this case. The tender age of the patient, and the fact that I had never opened the mastoid in so young a child, are the only excuses I have to offer for the possibly unnecessary number of operations.

Case II. December 9, 1896, I was called in consultation with Dr. P. M. Holl, of Minneapolis, to see Horatio E., three and a half years old, four weeks ill with scarlatina and now suffering from double purulent conjunctivitis, double purulent otitis media, left facial paralysis and ulceration of the soft palate. There was great difficulty in nourishing the child, and only for the skillful and persistent attention of the attendant physician he would doubtless have succumbed. Both corneas ulcerated and perforation occurred in the right, but under Dr. Holl's careful management, with the use of atropia, eserine, calomel powder and hot water, healing occurred with fair vision in both eyes.

Jan. 4 Dr. Holl asked me to open the right mastoid, which had been swollen since the day before. The ears and naso-pharynx had been carefully syringed, but drainage had not been sufficient. There was moderate swelling over the mastoid, an incision one inch long revealed a small amount of pus under the periosteum, and a sinus leading to the antrum. The latter was enlarged with a sharp spoon, all granulations removed from the antrum and the passages connecting it with the attic and bony cavities lightly packed with iodoform gauze. The adenoid growths of the naso-pharynx were then curetted, and the patient left in care of Dr. Holl, with the result of an uneventful recovery, but with a very considerable degree of deafness, the watch being heard only on pressure.

Case III. At 4 P. M., on June 9, 1897, by request of the attending physician, I saw Grace C., aged ten years. She has had in former years attacks of earache and discharge, which have been treated by blisters behind the ear, as advised by the family physician.

This attack began with pain in the left ear three days ago. Yesterday her physician saw her for the first time, found some purulent discharge from the ear and ordered hot applications. No discharge has been noticed today. The child has not been fully conscious during the past 21 hours. There has been some opisthotonos, and on disturbing the child by examination, I observe the frightened look and the peculiar cry of meningeal inflammation. The pupils were 3 m. m. in diameter and very sluggish. Pulse 160 and temperature 104° as taken by the doctor in the morning. The doctor had applied leeches in the morning, and there had been excessive hemorrhage which had continued until my arrival. In fact, I was obliged to persistently apply Monsel's solution in order to check the bleeding. After removing the clotted blood, which filled the external aural canal, I found an inflamed tympanum with only a fringe of the membrana in place. There was no swelling over the mastoid and no evidence of tenderness could be elicited. The diagnosis was clearly septic meningitis, resulting from a neglected chronic suppuration of the middle ear.

I gave an unfavorable prognosis of course, but advised the ice cap, and as the only possible salvation, immediate operation. The result: discharge of the attending physician, employment of a magnetic healer and death on the following day.

Comment on these cases is hardly necessary. It may not be out of place however, to remark that dozens of such cases die every year from

septic encephalitis, and that there is scarcely one such death for which some general practitioner is not responsible.

Specialists have their own sins to account for, and they are not a few, but the abominable neglect of the ear troubles of young children, both acute and chronic, is directly chargeable to the family physician.

69 Syndicate Block.

THE CARE OF PREMATURE AND FEEBLE INFANTS.*

By S. W. Ranson, M. D.

Dodge Center, Minn.

"In France, premature births range from fifteen to thirty per cent of all births, according to place and local conditions. Besides this, about five per cent. more are so feeble at birth as to survive but a few days.

"According to the law of Malthus, when the increase of population is not arrested by any obstacle it doubles every twenty-five years in a geometrical proportion." This gives an annual increase of four per cent.

Supposing the premature births and those born at full term so feeble as to live but a few days to be only fifteen per cent., which is a very conservative estimate, and apply the law of Malthus to the United States having a population of seventy millions. This would give us annual births of two millions eight hundred thousands. Fifteen per cent. of this gives four hundred and twenty thousand premature and feeble infants born in these United States annually, the most of whom are quietly laid away with but little if any effort being made for their rescue. It is only in the home of the childless, or where offspring are greatly desired, that any considerable efforts are made to save them.

It is maintained by some that it is inconsistent with the best physical development of the men and women of our nation, to mature these little creatures to life, assuming that they will have impaired physical vigor and transmit this to their offspring. I believe this assumption is entirely groundless, and unless these infants inherit syphilis, tuberculosis or other constitutional disease, their expectation of life, after the second or third year, is as good as those born at full term. Lyman Beecher was a seventh month child, so small and feeble that the nurse expressed regret at seeing him breathe and show signs of life. Yet Lyman Beecher lived to a good old age and gave to the world two children whose names will be immortal. It is evident that anything that can be done to lessen the death rate in this army of little mortals is in direct accord with the highest aims and purposes of our profession.

There are two causes that operate to produce the heavy mortality in these cases: First, the rapid radiation of heat, which, unless counteracted, speedily reduces their temperature to two or three degrees subnormal. Second, their lack of ability to digest and assimilate nourishment to keep up the vital functions.

Weight at birth is an indication in regard to the viability of the child.

From a tabulated record of 182 premature births at Nice, France, we find that all under two and one-fourth pounds died on the day of birth. All over five and one-half pounds lived. This table shows conclusively that every additional ounce increases their expectation of life.

The indications for their care are to maintain a uniform, equable temperature, at or near normal, and to administer suitable nourishment at regular intervals and in proper amounts.

In some of our large metropolitan cities, there are wards connected with maternity hospitals where there are incubators heated by steam, the temperature is regulated by a thermostat, the receiving air is filtered as it enters, and the amount is regulated by a fan in the chimney. The baby in its little hammock, on a bed of down, can be watched through the glass case. A thermometer at its head registers any variation of temperature. Every two hours the children are taken out to an adjoining ward where healthy wet nurses are in attendance, are fed, washed if soiled and returned to the incubators. It is reported that eighty per cent. of all placed in these incubators early, without being first chilled, are saved.

But as only a small percentage of these unfortunates can have the benefit of such treatment, it is necessary to adopt methods applicable to the masses, and the method will vary with the season of the year, and the environment of our little patient. If it comes to the home of the well-to-do, where the parents live in warm, comfortable houses, well heated, and are able to provide competent, intelligent nurses, variations of external temperature and inclemency of the weather are not serious difficulties to overcome. But in the homes of the poorer classes of society, the improvident, the impecunious and the intemperate, inclemency of the weather is a prolific cause of mortality. Artificial heat can be

*Read in the Section of Obstetrics and Diseases of Children of the Minnesota State Medical Society, June 17, 1898.

maintained by hot water bags, hot bricks, etc., by direct radiation from stove, furnace or steam radiator, or from these methods combined.

I have taken two children's bath tubs of metal, one several sizes smaller than the other, padded the smaller with cotton batting and flannel, placed the child in this, and set it in the larger with two inches of water between them, under the whole placed one or two kerosene lamps, and maintained an equable heat of the desired temperature in the coldest of weather. In every case it is indispensably necessary to have a thermometer at the child's head to register variations of temperature.

Sudden changes and draughts of cold air are to be carefully avoided, especially when feeding and dressing. If the house is cold and open, I generally curtain off the warmest corner for the baby and its nurse. The food should be mother's milk, or that of a healthy wet nurse. Almost always these infants are too feeble to nurse, and have to be fed, in which case mother's milk is drawn and fed to them. Some cases refuse or are unable to swallow, and resort must be had to the introduction of a soft catheter into the stomach, through which the milk can be poured.

In cases where mother's milk, or that of a healthy wet nurse cannot be obtained, modified cow's milk may be used. Those who have access to the milk laboratories of our large cities can prescribe the required amount of different elements and know that their prescription will be filled accurately and scientifically.

But to us, who do not possess these advantages, a few general facts will enable us to prescribe with approximate accuracy. Different breeds of cows, and the same cows at different seasons of the year and under different sanitary regulations, will vary considerably in the amount of fat, proteids and carbohydrates which their milk will contain. The same is also true of mother's milk. An analysis of woman's milk and cow's milk will show that the fats are about the same in each. That the sugar is two and seven-tenths greater in woman's, and identical in chemical and physiological properties. That cow's milk contains four per cent. of proteids to one and one-half per cent. in woman's milk. Hence to modify cow's milk and to make it approximate mother's milk, we must maintain the fat at its normal percentage, increase the sugar and decrease the proteids.

This can be done by taking cream, with the required percentage of fat, reducing with sterilized water and adding milk sugar,

We are very apt to think of cream, as entirely different from milk, when it differs only in a higher percentage of butter fat, and slightly less of proteids and sugar.

Cream obtained by the centrifugal method contains sixteen per cent. of butter fat, can be obtained from new milk without standing, and is very stable in its constituents; it would, therefore be well to use it as a unit of measure. But when we cannot have access to cream made by this process, we can get approximately correct results by the gravity method. Set a four per cent. milk on ice, or in cold water, six hours, skim the top layer, and you will get a twelve per cent. cream; let this same milk stand twelve hours and it will yield a sixteen per cent cream. The reduction and combination of these with whole milk, sterilized water and milk sugar, will give almost any desired percentage of fat, proteids and carbohydrates.

To overcome the acidity of cow's milk and render the curd flocculent and more easily digested, one part of lime water may be added to every sixteen parts of the mixture.

Dec. 7, 1896, I delivered Mrs. H. of twins at the seventh month of gestation. The sum of their weights was four pounds, one being an ounce or two heavier than the other. The parent's living rooms were over a butcher's shop, and were quite cold. The babies were washed about the face, wiped, oiled with warm olive oil, wrapped in cotton batting and flannel, placed in a sewing basket on a stand, near a hard coal stove, and curtained off from the rest of the room, through which cold draughts of air were constantly passing. A thermometer was placed between them and the temperature maintained at 99° to 100° degrees Fahrenheit. They were fed with milk drawn from their mother every two hours. Once a day the cotton was removed, and fresh oil and cotton applied.

The first four days they moaned continuously and were fed with difficulty. After two weeks they were able to nurse, but were kept oiled and wrapped in cotton for two months, at which time they weighed about six pounds each. At the present time they are as active and vigorous as the average children of their age.

The object in using warm olive oil is to keep the skin soft and moist, and prevent the dermatitis that so frequently attacks premature and feeble infants; it also does away with the necessity of frequent bathing of the child, and thereby exposing it to the danger of becoming chilled. I would use the warm olive oil only during the coldest of the season, but wrapping in cotton batting is preferable to putting on cloths in all of these cases.

I am indebted to Dr. Rotch's tables and to Westcott's article in the January, 1898, number of the Archives of Pediatrics for some of the facts contained in this paper.

Northwestern Lancet.

A SEMI-MONTHLY MEDICAL JOURNAL

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THE ANTIVIVISECTIONISTS AGAIN.

What with the antivivisectionists and the anti-vaccinationists, the medical profession has a hard time of it, for if one of those bodies of cranks is not threatening to make itself obnoxious the other is sure to be doing so. It seems to be one of the perversities of human nature that the bitterest attacks should be made upon those improvements which are introduced from the most unselfish motives and are of the greatest benefit to mankind. Thus, anæsthesia was greeted with a storm of bitterest opposition and denunciation; those who used ether at the first after Morton's demonstration of its effects, did so knowing that there were many who in case of accident would eagerly bring a charge of manslaughter and find plenty of testimony in support of the charge. Vaccination, whose protective power is as well established as is the law of universal gravitation, is constantly menaced by a small but active band of fanatics, who keep up a kind of guerrilla warfare attacking unguarded points and occasionally scoring a point, as when in England recently a bill was passed that practically nullifies compulsory vaccination in that country.

The attack upon vivisection is no less irrational. The investigations pursued and the discoveries made by experiments upon animals are for the benefit of mankind in general and not of the medical profession in particular. Indeed, from the commercial standpoint the progress of medical science is at the expense of the doctor who finds his work curtailed just in proportion as people are taught how to avoid disease or cure it by short and improved methods. Yet, to hear the denunciation of the medical profession in connection with the onslaught upon vivisection, it might be inferred that this practice was a mine of wealth to the profession and that the attack was made to put a check to a greedy accumulation of gains at the expense of vast suffering by tortured animals.

The subject is a pertinent one at the present time because the American Humane Society meets at Washington on the fifteenth of the present month, and will undoubtedly make an attempt to call up and pass an antivivisection bill now slumbering before the senate. This bill, as has been previously shown in these columns, is objectionable because it applies to vivisection, not the general law against cruelty, to which there would be no objection, but such special regulations as to greatly hamper, if not altogether prevent, much of the important investigation at present going on by the aid of experiments upon animals. The joint committee of the scientific societies of the city of Washington is so much aroused about the danger that threatens as to have issued a circular requesting that the medical and scientific press of the country will appeal to its readers to exert themselves against the bill. This is to be done only by direct appeal to the senators themselves, asking them to vote against this measure. Many an act of this kind goes through a legislative body by default, because the members are not informed of its true merits and no one takes the trouble to so inform them. In the present instance, let every medical man speak or write to the senators who represent him in congress and show them how much against the true interests of humanity is the antivivisection bill, and the defeat of the measure will be assured.

THE MEDICAL DIAL.

With the first of the present month there appeared in Minneapolis a new medical journal, which according to the announcement in its editorial columns, promises to represent the medical interests of the city from which it hails. The Dial is neat and unpretentious in appearance, contains thirty-two pages of excellent reading matter, and will appear monthly. It is under the editorial management of Dr. J. W. Macdonald, assisted by a corps of collaborators who are men of the highest professional standing, not only in Minneapolis and in the state, but in the country as well. With such contributors the new journal cannot fail to take the highest rank in the class which it aspires to join, that is, the really scientific medical journals of the country. The Lancet extends the right hand of fellowship to its colleague, not rival.

REPORTS OF SOCIETIES.

RAMSEY COUNTY MEDICAL SOCIETY.

Haldor Snévé, M. D., Secretary.

The regular monthly meeting of the Ramsey County Medical Society was held October 31, 1898, with the President, Dr. Quinn in the chair and thirty-eight members present.

Dr. E. Boeckmann, chairman, reported that the Society ought to issue a monthly medical journal and recommended that the publication of the journal for the first year be delegated to the Committee on Publication with full power to act, with the understanding that the said Committee assume all financial liabilities whatsoever. The report and recommendation were adopted by the Society.

Dr. Quinn, the chairman of the Committee on Banquet to the State Society reported a balance of $102.26 in his hands, which on motion was turned over to the Ramsey County Library. The Committee was given a vote of thanks for their labors by the Society.

Dr. J. J. Platt was unanimously elected to membership. Dr. Harvey, surgeon at Ft. Snelling, was unanimously elected to honorary membership. Dr. E. H. Whitcomb was given a vote of thanks by the Society for a group picture which he presented.

Dr. E. Lundholm showed a new instrument for collecting urine separately.

Dr. C. A. Wheaton showed the Harris instrument.

BOOK NOTICES.

The Principles and Practice of Medicine. By William Osler, M. D., Fellow of the Royal Society; etc. Third Edition. New York: D. Appleton and Company. 1898. [Price, $5.50].

While it may be doubtful who is just at present the leading surgeon in the United States, there need be little hesitation in giving to Osler first place among physicians, a place to which he at once acquired the title upon the appearance, a few years ago, of the system of medicine of which this is the third edition.

Osler's work is strong because he is an accurate observer, an intelligent thinker, a student and a writer. He has made up a treatise out of his own experience, supplemented by an intimate knowledge of what has been written before him, and as a writer he has the skill to so arrange and combine the parts of which his work is composed, that instead of a piece of patchwork the result is finished tapestry. The possessor of his book feels that he can get on very well without another work upon general medicine.

The third edition contains several new articles and many of the old have been rewritten.

Histology: Normal and Morbid. By Edward K. Dunham, Ph. B., M. D., Professor of General Pathology, Bacteriology and Hygiene in the University and Bellevue Hospital Medical College, New York. Illustrated. New York and Phila: Lea Brothers & Co. 1898. [Price, $3.25].

The plan of this work is the admirable one of teaching thoroughly the normal structure of the tissues of the body with only brief accounts of the principal morbid processes, the author believing that if he give general descriptions of the changes that follow modified cellular activity the student who had once mastered normal histology will be able to understand for himself the morbid conditions which he encounters. Consequently the principal part of the work is taken up with the consideration of normal histology, followed by a part devoted to the histology of morbid processes and another which takes up histological technique. This method of studying pathological changes by tracing their growth out of normal structures, certainly sounds like a natural method of teaching and can hardly fail to be successful.

A Text-Book of Pathology. By Alfred Stengel, M. D., Instructor in Clinical Medicine in the University of Pennsylvania; etc. Illustrated. Phila: W. B. Saunders. 1898. [Price, $4.00].

The author, being a clinical teacher, presents the subject of pathology to his readers as far as possible from the clinical side, and this must be admitted to be the standpoint from which pathology is of most interest to the medical profession in general.

The need of a book upon pathology in its relation to clinical medicine is felt particularly in this country where opportunities to follow cases to post mortem present themselves much less frequently than on the continent, where hospital cases at least furnish large numbers of autopsies. With the object evidently of supplying this need, the author has combined with the picture of post mortem appearances an account of the various diseases from the standpoint of etiology, bacteriology and physiological pathology, thus enabling the student to trace the connection between the clinical phenomena of the disease and its pathological results.

The work is very richly illustrated, including many handsome colored plates.

A Treatise on the Science and Practice of Midwifery. By W. S. Playfair, M. D., LL. D., F. R. C. P., Physician Accoucheur to H. I. and R. H. the Duchess of Saxe and Gotha (Duchess of Edinburgh); etc. Seventh American from the Ninth English Edition. Phila. and New York: Lea Brothers & Co. 1898. [Price $3.75].

The great popularity which Playfair's work enjoys, both as a text-book for students and a reference book for practitioners, is due largely to its practical common sense. There is not a word in the book that is superfluous, none of the padding to which many obstetrical works owe their size, and the student soon finds that there is nothing that it is safe for him to skip.

The new edition has been thoroughly rewritten and revised, but is still enough like its predecessors to make the practitioner feel at home in its pages, for obstetrics is so exact a science, that like anatomy, it is slow to change in many of its branches.

A Clinical Manual of Skin Diseases. By W. A. Hardaway, A. M., M. D., Professor of Diseases of the Skin and Syphilis in the Missouri Medical College, St. Louis; etc. Phila. and New York: Lea Brothers & Co. 1898. [Price, $2.25].

This edition differs from the first chiefly in the adoption of a system of classification based upon pathology instead of an alphabetical arrangement, and the dropping of an appendix containing prescriptions referred to in the text, these formulæ being now incorporated into the sections relating to treatment. The manual is an excellent one, clearly written, of convenient size, and reliable and accurate in its information.

American Pocket Medical Dictionary. Edited by W. A. Newman Darland, A. M., M. D., Assistant Obstetrician to the Hospital of the University of Pennsylvania; etc. Phila: W. B. Saunders. 1898. [Price, $1.25].

Although of small size and nominally a pocket dictionary, this book of 26,000 words is so complete and satisfactory in its definitions that for most purposes it will fill all the wants of the practitioner. The pronunciation is clearly indicated and tables are given of the arteries, veins, muscles, etc.

Manual of Chemistry. By W. Simon, Ph. D., Professor of Chemistry in the College of Physicians and Surgeons of Baltimore; etc. Sixth Edition. Thoroughly Revised. Illustraded. Phila. and New York: Lea Brothers & Co. 1898. [Price, $3.00].

Simon's chemistry is one of the standard text-books in medical schools, and is well fitted for the position. Designed particularly to meet the needs of medical, pharmaceutical and dental students it does not confine itself to these special subjects, but treats of general chemistry as well, studying the metallic and non-metallic elements and analytical chemistry, and then taking up organic chemistry, inorganic chemistry and finally physiological chemistry, which bears more particularly upon medicine. A series of beautiful plates, showing the colors of various compounds, is a feature of the book.

A Manual of Venereal Diseases. By James R. Hayden, M. D., Chief of Clinic and Instructor in Venereal and Genito-Urinary Diseases at the College of Physicians and Surgeons (Columbia University), New York; etc. Illustrated. New York and Phila: Lea Brothers & Co. 1898. [Price, $1.50].

This is a new and revised (second) edition, although this fact is not stated on the title page as is usual, differing from the first edition by the addition of a chapter upon the care and use of urethral instruments, and by a few more illustrations.

The work is particularly strong upon the subject of treatment, a quality that will recommend it particularly to the general practitioner, whose chief interest in a case is always to get it well. In particular the description of chronic urethritis

in its various forms is remarkably good and cannot fail to assist the physician in the management of one of the most difficult class of cases which he encounters.

Essentials of Materia Medica, Therapeutics and Prescription Writing. By Henry Morris, M. D., Fellow of the College of Physicians of Philadelphia; etc. Fifth Edition. Revised and Enlarged. Phila: W. B. Saunders. 1898. [Price, $1.00].

This volume is No. 7 of Saunders' Question-Compends, arranged in the form of questions and answers, prepared especially for students of medicine. A sale of over 160,000 copies of these compends shows how thoroughly they have met with appreciation on the part of students and practitioners of medicine.

MISCELLANY.

THE DECEMBER MAGAZINES.

The Atlantic for December contains one of the best contributions yet made to the question of expansion. It is by Benjamin Kidd, the distinguished English socialist and critic, who has just made an extended tour of this country. The article is too valuable for any student of American affairs to pass over. James Whitcomb Riley contributes a beautiful poem on "The Name of Old Glory." Julia Ward Howe begins a series of "Reminiscences of Julia Ward Howe," which cannot fail to be of special interest to any lover of New England home life. These are only a few of the good things in the issue.

Harper's for December, like the Atlantic, has a remarkably able article on expansion. It is by Ernest F. Fenollosa, and is entitled "The Coming Fusion of East and West." It deals with world problems—with facts that men cannot ignore if they would. "The Rescue of the Winslow," is a graphic account of the most thrilling event that occurred, on sea or land, in the recent war. Mr. Frederick Remington, perfect master of pen and pencil, gives glowing pictures of northern forests and a hunter's experience in "The White Forest." The short stories and poems of this issue are excellent, as indeed is the whole magazine.

The Review of Reviews deals with the vital questions of the day in a manner at once so clear, brief, and exhaustive as to make it the most valuable source of general information now known to the general reader. Its editor has a masterful grasp of all our national problems; and while he is often a severe critic, and possesses that rare virtue of being specific in his criticisms, he is ever a helpful critic. He believes in the ultimate success of all things American; and his love of country is nowhere shown more forcefully than in his hatred of all things that tend to injure it, such, for instance, as corruption in high or low offices. Dr. Shaw is also a great editor, inasmuch as he can always get good things on any topic he wants treated in his magazine, which has become a power for good in American affairs.

The leading articles in the December number are "Our Military Organizations," "The Peace Negotiations at Paris," "Tissot's Paintings of the Life of Christ," "How Mr. Stead Sees Europe," "Recent Events in China," and "Col. Waring's Life and Work."

Lippincott's has its usual complete novel as its characteristic and leading feature, but it also gives a table of contents quite worthy our best magazines. Such articles as the following are worthy of special mention, because of their subjects and their treatment: "Philadelphia a Century Ago," "Babylon the Great," "Signature in Newspapers," "Six Weeks on the Stage."

ALVARENGA PRIZE OF THE COLLEGE OF PHYSICIANS OF PHILADELPHIA.

The College of Physicians of Philadelphia announces that the next award of the Alvarenga Prize, being the income for one year of the bequest of the late Senor Alvarenga, and amounting to about one hundred and eighty dollars, will be made on July 14, 1899, provided that an essay deemed by the committee of award to be worthy of the prize shall have been offered.

Essays intended for competition may be upon any subject in medicine, but cannot have been published, and must be received by the Secretary of the College on or before May 1, 1899.

Each essay must be sent without signature, but must be plainly marked with a motto and be accompanied by a sealed envelope having on its outside the motto of the paper and within the name and address of the author.

It is a condition of competition that the successful essay or a copy of it shall remain in possession of the College; other essays will be returned upon application within three months after the award.

The Alvarenga Prize for 1898 has been awarded to Dr. S. A. Knopf, of New York City, for his essay entitled: "Modern Prophylaxis of Pulmonary Tuberculosis and Its Treatment in Special Institutions and at Home."

WET DRESSINGS IN SURGERY.*

By T. O. Summers, M. A., M. D., F. S. Sc., Lond.

Professor of Anatomy and Orthopædic Surgery in the St. Louis College of Physicians and Surgeons.

St. Louis, Mo.

It was my privilege to be present at the presentation to the British Associati on, at Edinburg, in 1875, by Professor Lister for the first time of a clinical demonstration of his mode of surgical dressing which opened to surgery new worlds to conquer. The case was one of ligation of the external iliac and the elaborate dressings being removed proved the triumph of his principle though his venerable colleague, Professor Spence, almost on the verge of eternity, threw a well poised Parthian lance at the rising genius of modern surgery. Since that day every operation, however simple in itself, has been one in which the surgeon "earned his bread by the sweat of his brow." No turning over the case to the unwashed student, for he whose records of success are proclaimed today is the operator who leaves not his patient until the last iota and tittle of aseptic dressing has been fulfilled, for so exacting is this principle that "falsus in uno, falsus in omno" is the inflexible law of its operation.

Since the discovery of the bacteriologic processes of infection in open wounds, there has been a gradually growing tendency to return to the ancient remedial agents which experience dogmatically taught were rationally indicated In the last edition of that eminently practical work upon surgery by Wyeth, of New York, we find this positive and significant utterance upon the use of oil and balsam, the first surgical dressings known to humanity: "I know of nothing equal to this valuable preparation. The oil acts in a twofold way—the surface of the wound is moistened by it, while the liquid excretion from the wounded surface is carried off in a dressing by capillary attraction. The removal of moisture cripples the proliferation of the bacteria, and in this way aids in antisepsis."

The use of animal and vegetable oils is open to the objection offered to solutions in dressings —the necessity of changing the dressing too often—but for a different reason, the tendency of oils to become rancid, and this applies also to the keeping of such dressings prepared for use. Wyeth recommends in his oil and balsam dressing the sterilization of the oil before using, but admits that this is often impracticable, and recommends in this case the use of plain caster oil of the shops.

*Presented in Section on Surgery and Anatomy, at the Forty-ninth Annual Meeting of the American Medical Association, held at Denver, Colo., June 7-10, 1898.

It is therefore clear that to carry out the idea of a practical dressing it must be:

1. Antiseptic.
2. Permanent.
3. Non-irritating.
4. Constructive.

The fulfillment of these conditions has been the aim of the surgical pharmacist from the time when the first coccus wriggled across the field of the microscope and gave its first exhibition to the scientific investigator of its dance of death within the organism of man. But amid all this elaboration of apparatus it was to Sir Astley Cooper, after all, that the credit is due, for his foreseeing therapy leaping over, as it were, the dark chasm which separated the triumphs of his surgical genius from the science illumined land of modern surgical pathology. It was he who, without the knowledge of the bacteriologic factor in the great problem of surgical treatment, by the intuition of genius gave to us the essential principles of external dressing for surface lesions. His formula, however, was open to the objection of violating one of the conditions herein laid down—that of permanence—in that lard was used instead of petrolatum, which has been since discovered and is now substituted in the preparation known as Unguentine, which is an ideal formula constructed along the lines of that suggested by Sir Astley Cooper, but altered to the conditions of modern antiseptic surgery. The irritating effects of the ordinary alum has also in some way been obviated, furnishing thus a typical dressing for surface lesions. For internal lesions that are to be immediately and permanently closed beneath the sutured integument there are many valuable aseptic liquid preparations which we prefer to the too indiscriminate use of iodoform, aristol et id omne genus, but we are free to admit that for all external dressings we have found the highest fulfillment of modern aseptic or antiseptic surgery in the preparation just mentioned.

I am not sure whether this is a proprietary preparation or not, but this I do know, its formula is an ideal one and its results are certainly very satisfactory. It is about time we were looking around after its labor saving methods when we have to employ at the simplest incisive operations an extra attendant to wipe the sweat from our brows as the houri fans the Sultan's heated cheek—though our attendants are not all houris, nor are our cheeks fired with the congestion of a lazy passion. We are glad to see this unholy war against oleaginous applications coming to an end, just as we should be also glad to see the phlebotomy pendulum point to the nadir. In surgical politics I am a middle of the road man—In medio tutissimus ibis.—The Journal of The American Medical Association.

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