

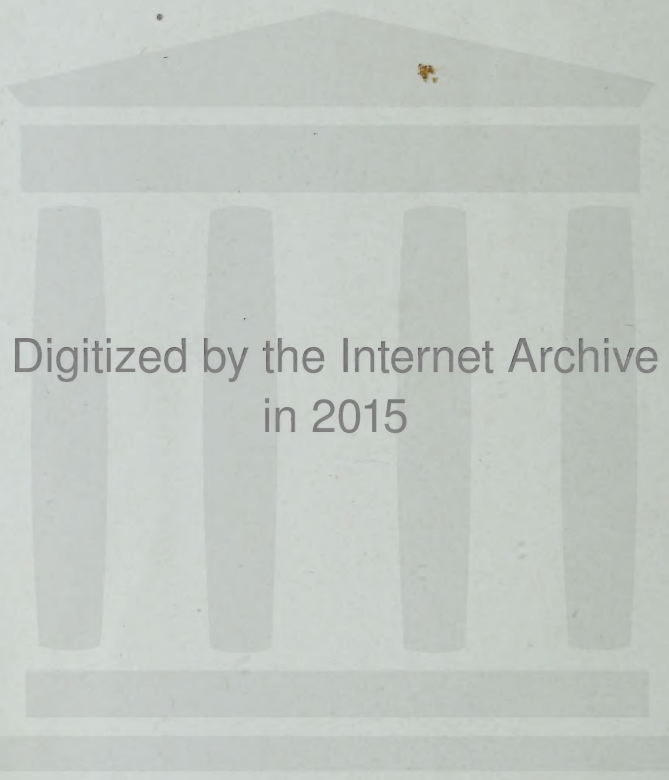




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BACTERIOLOGY.

BAUERERLOFF

AN
ENCYCLOPEDIA
OF THE
PRACTICE OF MEDICINE,
BASED ON
BACTERIOLOGY,

BY
J. BUCHANAN, M. D.

FOURTH EDITION.

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PUBLISHER'S PREFACE.

From various considerations it is evident that Good Health in a great measure rests upon abundance of pure air and light, good food and drink, proper clothing and housing, the daily removing by bathing and otherwise the waste matter of our bodies, which to each of us is a poison.

Successive epidemics of preventable and unpreventable disease have taught us that if we wish to maintain the highest possible standard of health as a nation, with a people vigorous and sound, we must secure to them the necessaries of life in due proportion and of proper purity; that if we are to prevent disease and degradation of elementary living matter, there must be *no* overwork, *no* exhaustion, *no* mental strain, and all insanitary states, together with animal and vegetable waste, must be got rid of as speedily and effectually as possible.

The statistics of our country show that the greatest mortality, immense waste of human life, is due to the presence of microbial diseases.

The aim and scope of the present work is to aid in the elucidation of the Germ Theory of Disease; to the introduction of Bactericides in treatment, so as to give all scientific physicians the means of grappling with maladies which baffled his predecessors.

It is therefore a Practice of Medicine based upon Bacteriology, bringing the science and art of medicine forward as a great national prophylactic, not only to prevent the evolution of disease germs, *but* the best means of preventing their dissemination and securing their destruction and extinction.

It is intended as an introduction to the science of Bacteriology, and has been written more especially for those who have neither the time nor opportunity to pursue a thorough investigation of

the subject, our sole aim being to render the work as practical as possible.

Theoretical discussions have been avoided, and as far as possible accepted opinions and definite facts have been given.

The introduction of a New Materia Medica, consisting of Bactericides or Microbicides, for sterilizing and destroying disease germs in and on the body, is an important feature of the work.

The stamping out of disease germs, the creation of a higher type of manhood, the mitigation of human suffering and prolonging life, are themes which pervade the entire volume.

The preventing of the dissemination of microbes, and their complete extinction, are briefly hinted at by opening up a new field of therapeutic success.

The illustrations of the various Disease Germs are a marvel of art, being all microscopic, then photographed, and subsequently reduced to ordinary cuts.

These are the work of two of the most celebrated artists in New York city, namely, Adolph Kleminger and Rudy Ortmyer. They have faithfully portrayed from pathological specimens, by original microscopic views, every microbe found in morbid states of the human body. The profession at large can attest their accuracy.

The various specimens of morbid anatomy are also the production of those eminent artists.

The photographing of the entire Eight Hundred Illustrations is the work of the Franklin Photo-Electro-Type Company, No. 305 Pearl street, New York city, the superior excellency of whose work is readily demonstrated by any one.

We owe a deep debt of gratitude to the entire Medical Profession of Great Britain and America for specimens of microbes, with the results of their culture and sterilization.

The press-work and binding are the product of the famous AVIL PRINTING COMPANY, Nos. 3941-43-45 Market street, Philadelphia, Pa., who are celebrated throughout the world for medical work. To Mr. JOHN AVIL we are specially indebted for his unswerving, persevering solicitude in passing the work through the press.

INTRODUCTION.

The sale of several editions of the present work, within a period of a few months, clearly demonstrates that the microbia theory of disease is taking deep root among physicians of all schools in medicine—that its elucidation grows and is being rapidly taken hold of by all progressive minds.

The continued, unwearying researches of bacteriologists into the etiology of all infectious and contagious diseases are fast enclosing such affections within this area.

Whether it be normal bioplasm that is changed, altered, degraded, under adverse or insanitary conditions into a microbe, or whether it is an evolution of animal or vegetable matter, it is not necessary for us here to discuss; sufficient to say that there does exist in all diseases, in all deviations from health, disease germs, animal and vegetable parasites, in all stages of microscopic life, from a single cell to the more highly organized intestinal worm or Hydatid Cyst,—all living upon their host and affecting him in a different manner one from the other, but each one from the smallest to the largest is a source of weakness and death.

Whenever vitality is weakened or depressed, whenever that complicated but perfect piece of mechanism, man, is out of gear different forms of pathogenic microbes put in an appearance, exist and flourish in the body, infest the springs of life, strike at cell nutrition, live and grow in the body, according to the status of vital force; and not only do these germs eat up the vital elements of the tissues, but in their growth by sporulation excrete toxical elements which are pernicious to the regular performance of cell function, inducing chemical change, fever, heart failure, convulsions and other phenomena.

The germ theory of disease, as adopted by its advocates, assumes, and endeavors to demonstrate, that there is a specific microbe, the factor of each disease; that this micro-organism is

capable of reproduction; invariably produces similar chemical and pathological changes in the body in which it is localized; that each microbe is morphologically and pathologically distinct; that in the process of sporulation it excretes a substance, a ptomaine, peculiar to itself. To corroborate this, special organisms are invariably found in the blood or tissues in connection with each respective disease; so also are special alkaloids; that those microbes are all pathogenic, that is, capable of cultivation out of the body in some nutrient fluid, and the cultures, when inoculated into some animal, produce the original disease. Those pathogenic microbes are the true factors of morbid action.

Pathogenic microbes may enter the body of an individual, and if his vitality be of the highest grade, they will either be repelled or lie latent in the blood; but if vital force be low, heat, moisture and nourishment favorable, they will grow either slowly or rapidly according to the conditions indispensable for their germination or budding, but in all cases they set up a chemical change in the part. How this change is effected, whether by the excretion of a ferment, or by the abstraction of certain chemical agents, or by the addition of particles, or by permitting a re-arrangement of atoms, as the abstracting of oxygen and carbon from the fluids, it is impossible to say.

Any element that will establish a renewal of life in the body, tends to check or retard microbic evolution, even concentration of fluids hinders, while dilution favors germ growth. Dilution by drinking fluids affords a pabulum, favors movement of particles, and hence promotes the catalytic action of germs.

Some microbes will grow well in one kind of fluid, others in a different kind, even the blood can be so sterilized that no microbe will live in it.

In the microbial process of growth, shedding, budding, sprouting,—in this metamorphosis of albuminoid substances, there is in every case a fixed alkaloid or ptomaine thrown off. This in some cases is harmless or innocuous, in other cases it is a most deadly poison, causing a nerve storm of frightful violence, cerebral disturbance, irregularity of the pupil, sudden retardation of the heart's action, spasms, death.

Although the science of bacteriology is one of recent origin,

it has made immense progress in the course of a very few years. It is essentially an American science—had its origin in that remarkable and admirable essay on the germ origin of tuberculosis, published in 1842 by Prof. John K. Mitchell, M. D., of Philadelphia. This was the starting point; nurtured in solid genius, aided by the faith and energy of his pupils, this science has been able to overcome the prejudices of ages, and penetrate into the very heart and become the principal pillar of scientific medicine. To the brilliant genius of Ephraim Cutter, M. D., of New York, the progress and proud position of bacteriology owes much; all his published essays are masterpieces of his gigantic intellect.

The great American philanthropist, *Andrew Carnegie, Esq.*, has, financially, done more for the advancement of the germ theory of disease than any other individual or nation on the face of the globe. He has spent half a million dollars in building a laboratory, and supplying it with all the most improved and necessary apparatus for the study and culture of all pathogenic microbes. The very existence of such a magnificent institution, so liberally supplied and endowed with every requisite for scientific study, is the admiration of all scientific minds.

Every American must admire his magnanimity.

The inauguration of the National Bacteriological Society of the United States, March 20th, 1890, gave an impetus to the study and elucidation of the germ theory of disease which never existed before. The election of the very eminent Jas. M. Burns, M. D., D. C. L., the bacteriologist, to be president of the society was a step in the onward progress of scientific medicine.

Of all disease germs, this very learned Professor has paid special attention to the bacillus of tubercle. His excellent cultures of that germ excel any thing ever produced, either in this country or Europe.

He was the first to demonstrate that the bacilli excreted an alkaloid, a ptomaine, a tetanizing poison, which gave rise to the graver symptoms of tuberculosis. His name shall be honored by ages yet unborn for his scientific services in the field of bacteriology.

Another bacteriologist of great merit and research, Prof. George H. Day, M. D., Monroe, N. Y., has worked with unceas-

ing energy on the streptococcus of diphtheria—a microbe of vast importance to the human race—which appears sporadically, epidemically and epidemically, and is pre-eminently contagious and infectious, its essential characteristic being its migration from the blood to weakened mucous membranes or wounds; that when migration is complete it spreads by spore proliferation and degeneration of structure, and in this process of growth, a ptomaine, is thrown off and is absorbed into the system, which is the cause of morbid changes, embolism, heart failure, paralysis. The Professor has clearly demonstrated the pathogenic character of the streptococcus.

In the Eastern States, the profession are making strenuous efforts both in the culture of pathogenic microbes, and in the introduction of numerous bactericides, in Maine, Massachusetts, and Connecticut especially. Dr. Norcross of Lewiston, and Dr. Nichols of Portland, Maine, are doing good work.

In Boston, Mass., the illustrious Drs. Brown and Hall, No. 2 E. Brookline Street, are not only eminent scientists, energetic workers, ardent, nay, enthusiasts in microbial culture. They have traced a large number of their cases of epileptic seizures to the ptomaines of special microbes irritating the weakened brain patch. Dr. Brown, in a classical essay on this subject, describes with clearness and accuracy the microbe of neurasthenia which is present in all nervous maladies, by incontrovertible evidence.

We might with propriety merely give the name and address of physicians who have made either important discoveries or added to our stock of knowledge on bacteriology. To J. B. Kleckner, M. D., Lynchburg, O., is due the discovery of the gonococcus in all cases of masturbation, and spermatic crystals in impotency. To E. P. Barnes, M. D., Corning, O., is due the discovery of the bacillus of cancer in the vaginal secretion, twelve months before induration of the uterine os or neck takes place.

J. A. Henning, M. D., Garnet; R. I. Craft, M. D., Blue Rapids, and I. C. Boulson, M. D., Iola, Kansas, are entitled to honorable mention as scientists who have done much to advance this department of science.

J. J. Crider, M. D., Ottumwa; B. M. Corbin, M. D., Hazelton, and R. Small, M. D., of Decorah, Iowa, are each respectively

entitled to be enrolled as benefactors of our race. Prof. Rutledge, of St. Louis, Mo.; Drs. Dreese, Briley and Swinehart, Indiana, are active workers in the great cause.

Westward science, art, all that is great, good, noble, progressive travels, and here in the salubrious atmosphere of California, Oregon, Washington, we find Prof. I. F. Mehrman, M. D., of Oakland, making rapid progress, important discoveries in the culture and sterilization of the cancer bacillus. At the same time W. D. Church, M. D., of Half-Moon Bay; J. Manson, M. D., of North Bloomfield and J. A. Miller, M. D., San Ardo, are energetically at work on newly discovered microbes and bactericides. These eminent physicians are stamping their impress upon the page of time, changing, modifying the treatment of their brother practitioners.

In Oregon and Washington, all physicians irrespective of their former teachings, are accepting the microbial theory of disease.

The germ theory of disease naturally gives rise to a treatment of all maladies with bactericides—a system of practice which is decidedly the most successful ever inaugurated; *one* which is diminishing the mortality of all contagious and infectious disease; *one* which is effecting a perfect revolution in treatment, and of preserving and prolonging life.

If we are believers in the germ theory of disease, it necessarily follows that we must believe in the administration of microbicides to either sterilize or annihilate the germs. The very existence of bacteria demands the exhibition of germicides, which are justly termed the scavengers to germ-laden blood and tissues.

Much has been written on the nature and action of bactericides, especially their influence on pathogenic microbes.

Some species of bacteria are either sterilized or completely killed by a certain class of germicides; while others refuse to be at all affected by them. No complete or systematic list of bactericides has as yet been made out—but the time is fast approaching when the peculiar action of every germicide upon each microbe will be definitely fixed. It is now positively settled that the dioxide of hydrogen and bichloride of mercury, will, in the strength of 1 in 300,000 parts, check the growing power of spores— that sulphur completely kills the streptococcus of diph-

theria—glycerite of ozone, the bacillus of tubercle—salol, the bacillus of rheumatism, and the micrococcus of diarrhea and dysentery, and so on with other germicides.

In all researches upon pathogenic microbes, capable of forming spores, the influence must be judged by its action.

The work hitherto done has been enormous, but, I fear, of less utility than at first sight appears, for in most of it the point most prominent in the mind of the worker was to ascertain whether the particular antiseptic, mixed with the nourishing medium in a solution of definite strength, has or has not the power of inhibiting the growth of the micro-organisms. This point no doubt is of some interest, and perhaps of great interest, but whether a particular substance is an antiseptic in the proper sense of the word, *i. e.*, whether on exposing the organisms to this substance in a solution of definite strength and for a definite period the organisms become afterward incapacitated from growing or multiplying; or still more, whether or not the substance is a germicide, *i. e.*, is capable of altogether annihilating the life of the organisms—these are questions requiring special attention, and represent a wide and rich field of inquiry, which, so far as I can see, has received only in very few instances due attention.

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BACTERICIDES CONTAIN TWO HUNDRED ILLUSTRATIONS.

AN ENCYCLOPEDIA

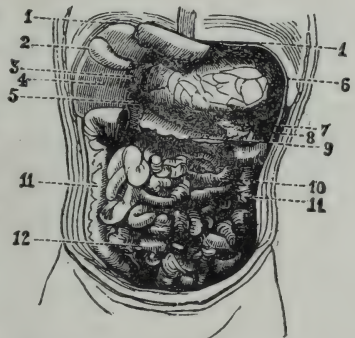
OF THE

PRACTICE OF MEDICINE.

The trunk of the human body is divided by the diaphragm into two cavities; the upper being the thorax or chest, and the under the abdomen or belly. Both the cavity and the viscera it contains are included in the term abdomen. It contains the liver, pancreas, spleen and kidneys, as well as the stomach, small intestine, colon and rectum. The bladder, lower bowel and internal organs of generation lie in the lowest part of the cavity, which is called the pelvis. The entire abdomen, with all its viscera, is lined with a serous membrane, the peritoneum, which is folded or reflected over every organ, keeping them in their proper relation to each other. The external division of the abdomen is into three parts, namely, the upper or epigastric region; the middle or umbilical, and the lower or hypogastric. These are again subdivided by two vertical lines, the side divisions being called the hypochondriac, lumbar, and iliac regions respectively.

Diseases of the abdominal viscera are frequent, and consist chiefly of acute and chronic disorders of the digestive organs or of derangements of the nerveplexus and ganglia there situated. These disorders, owing to the presence of innumerable ganglia, and intimate anastomosing with the great sympathetic system, give rise reflexly to innumerable cerebral affections.

Besides, its importance is greatly enhanced as being the seat of



1. Diaphragm. 2. Gall-bladder. 3. Pyloric end of Stomach. 4. Right Lobe of Liver. 5. Duodenum. 6. Great end of Stomach. 7. Spleen. 8. Piece of Caul, or Omentum. 9. Pancreas (Sweetbread). 10. Small Intestine (Jejunum). 11. Great Intestine (Colon). 12. Small Intestine (Ilium).

the sympathetic nervous system, the seat or abode of organic and emotional life, the abdominal brain, the great sympathetic in which our emotions, desires, affections, passions, preside.

The expulsion of the fœtus before the seventh month of uterogestation, or before it is viable, is termed abortion; between the seventh and ninth month, a miscarriage. When it once occurs it is apt to recur about the same time in subsequent pregnancies.

Causes.—These are numerous and variable, and are referable to the mother or to the fœtus and its appendages. The causes in the mother may be extreme nervous susceptibility, great debility, disease, plethora, faulty mechanism, violent mental emotion, fright, passion, violent exercise; disease germs lurking in her blood as tuberculæ, syphilis, cancer and those which are the factors of fevers; sexual excesses, racing, jumping, blows; the use of certain drugs as iodide and bromide of potass, sabina, aloes, cinchona, cotton root, borax; thickening of the neck of the uterus is a common cause of habitual abortion at four and a half months. The causes seated in the fœtus are its death, disease or rupture of its membranes.

The ordinary symptoms of abortion are one or more rigors of variable degrees of intensity, a disappearance of the morning sickness, flaccidity of the breasts, uterine hemorrhage, tenesmus or bearing down, flakes of decidua with intermitting pain, and other symptoms incidental to parturition.

Treatment.—This is variable, according to the constitution of the patient, but in all cases an effort should be made to prevent such a catastrophe if possible, for which purpose the patient must maintain the horizontal position in bed, rigidly enforcing rest and quietness, with a perfect freedom from care, worry or excitement, at the same time uterine tonics should be administered to brace up that organ. The best of these is the distillation or wine of the *aletris farinosa*, one of the most powerful vitalizing uterine tonics in the *Materia Medica*. This is a remedy of unexcelled therapeutic power in toning and bracing up the uterus; it is of the greatest efficacy to all ladies who have that organ in any way damaged or suffering inertia, or who happen to be the victims of habitual abortion or miscarriage. Its use during pregnancy, especially prior to parturition, renders labor easy and speedy, and its peculiar action on the uterine fibres renders it a prophylactic against all ulterior results, such as after-pains, metria, etc.

Opium in some form is the remedy to arrest uterine contrac-

tions, thus: Opii pulv. grs. x; Dover's powder and pulverized asclepias, of each grains xxx. Mix. Make 15 powders, one every three hours. No plug or tampon, or any other body should be introduced into the vagina unless there is excessive hemorrhage, as its presence excites uterine contractions and expulsion of its contents. If these means fail, the case should be treated same as an ordinary labor.

This is not a threatened abortion, nor **Missed Abortion.** an imperfect abortion. Threatened abortion is very common at four and a half months, especially if there is the slightest thickening of the neck, for when it begins to stretch and emerge into the body, if there is resistance, there will be irritation communicated to the fundus and contractions. When a woman has threatened abortion, she suffers pain, has a bloody discharge, and mouth of the womb is opened. An abortion may be threatened and averted, and pregnancy go on in a healthy way. There might be an abortion in the case of twins, one aborted and the other remain and go on to development. The abortion of one of the twins may be a missed abortion, or the miscarriage of one may be a missed miscarriage.

If the foetus alone, or the entire ovum alone, comes away, the woman has miscarried, or aborted; it may not be complete, but imperfect. The ovum may come away alone, without the membranes, or the after-birth; or only a portion come away. This is always dangerous, as it is liable to give rise to hemorrhage or else lead to putrid absorption. This is especially liable to be the case if the abortion has been caused by instruments or drugs, for then there is always less or more endometritis. Imperfect miscarriage invariably induces endometritis in subsequent life.

When a woman has a missed miscarriage, or abortion from a fright or blows, the natural course of events is as follows: The foetus dies, the symptoms of pregnancy are arrested, milk may appear in the breasts, there may be a bloody oozing from the uterus, or otherwise; if the waters are not dried up, they are absorbed, and the contents of the uterus shrivel up and become mummified. If the membranes remain entire, absorption is the rule, with mummification. The uterus steadily diminishes in size, but its contents remain and continue up to the full time, when they are expelled. The expulsion is frequently unexpected; happens while standing or defecating, and the mass, shrivelled up in a bundle, or rolled up in a parcel, is expelled. The mass is usually fresh, of a brown color, and contains the foetus in the centre.

When such a case as the above is clearly made out, the introduction of a catheter, or catgut bougie, into the uterus for several hours, so as to excite contractions, together with quinine and caulophyllum to stimulate uterine energy, is indicated.

A collection of pus in any part of the body
Abscess. (*streptococcus pyogenes*). The process by which an abscess is formed is as follows: A damage of sufficient violence has been inflicted—capillary vessels relaxed. With this partial death exudation of blood products, lymph, and lymph degraded into bacteria, pass or flow through. This lymph, if the state of partial death is great, or vital force low, may break down as it is effused, becoming pus or purulent matter, or if not so greatly depressed, the exuded lymph may remain and form a thickening or induration which may remain in the minute interstitial structure of a part.

Effused lymph may remain in a part indefinitely or may be absorbed, or may suffer some accidental shock, when it may suddenly break down. The lymph dissolving into pus, making for itself a cavity, makes its way to the surface or to some natural outlet of the body.

The breaking down of lymph into pus is invariably ushered in by a rigor or chill, and if there be pain, heat, redness, swelling, they each change in their character; pain becomes throbbing, heat diminishes, redness changes into a livid color; swelling becomes soft, flaccid.

Pus, or the *streptococcus pyogenes*, may make its appearance in a different part of the body from whence it was formed, as in the case of psoas abscess in disease of the spine. The pus may find an outlet either artificially or naturally, or it may be absorbed, and cause blood poisoning.

In order to prevent suppuration or the formation of pus in a cavity, the stimulation over the affected part must be in proportion to the amount of depression which caused the original lesion—or as powerful as the structure of the part will bear without causing its destruction; local stimulation should not only be powerful, but, as far as the nature of things can, germicidal. Who has not witnessed the splendid remedial action, the ozone generating power, of turpentine in peritonitis, and pleuritis—the persistent action of a saturated tincture or oil of lobelia in periostitis of the phalanges of the fingers?

When the rigor comes, the precursor of abscess, heat and moisture unremittingly applied are the proper remedies, with free openings and counter openings to afford a free egress to all purulent productions.

The pus of all abscesses is simply the lymph from the blood—altered, changed—degenerated into the bacillus pyocyaneus—the microbe of pus.

This wood cut affords a beautiful illustration of a microscopic parasite residing in the sebaceous sacs, and hair follicles of the human skin. They are met with in almost every person, but most numerous in those whose skin and liver is torpid, or in those who suffer sexual perversion. They vary in length from one-fortieth to one-hundredth part of an inch. The head is always directed downwards and when a large number is present, they collect into a conical bundle, the larger end of the cone being formed by their heads. Their number varies from two to three in a follicle and in some cases as many as fifteen. The parasite possesses eight thoracic appendages of the most simple and rudimentary kind; the mouth is suctorial; sexes are distinct.

In order to eradicate this parasite, the liver, bowels, skin should be well stimulated, brought into an active condition, sexual perversion overcome. On the nose, cheeks or other parts where sebaceous glands are numerous, after first bathing with warm water and drying off, a ten-per-cent. solution of peroxide of hydrogen should be applied.



Acarus folliculorum, magnified.

A perfect arrest of the function of the liver, so that the various materials from which the bile is formed accumulate in the blood, and cause blood and brain poisoning.

It is a state or condition which is extremely liable to occur during the progress of almost any acute or chronic disease of the liver, but an almost invariable attendant on acute atrophy and fatty degeneration, such as is present in yellow fever, in which there is a destruction of the hepatic cells, with rapid wasting of the gland.

Acute atrophy of the liver is the direct result of the presence of a fungus or microbe in the blood impairing the nutrition of the gland, much aggravated by venereal excesses, mercury, alcohol, and by mental and physical prostration.

It is impossible to explain how those microbes, or their spores or ptomaines, can cause such rapid metamorphosis in a gland so rich in blood vessels, as to cause one-half or more of it to disap-

pear in a few days, without the blood vessels themselves being affected. No other disease has the least analogy to it.

It is most present in chronic alcoholism, where all cases show a fatty liver. Indeed the general pathological condition found among all drinkers is interstitial deposits of fat, and an infrequency of fibroid tissue.

Next in order to alcohol comes the germ syphilitica, which acts directly as an eating fungus upon the hepatic cells; the cancer microbe eats up the glandular epithelium and thus leads to an arrest of function. More rarely is acholia due to chronic inflammation with either amyloid or fatty degeneration.

Whether then the cause be microbes or poisons, or plastic lymph effused in an inflammatory process, an impermeable state of the ductus communis choledochus and an arrest of the capillary circulation take place.

An effort at treatment should in all cases be tried. Locally over the liver, con. ozone, followed by hot poultices; internally some of the following remedies should be tried: *Chionanthus Virg.*, *euonymus*, with an eight vol. solution of peroxide of hydrogen.

Inflammation of the sebaceous glands and hair follicles, with retention of the gland secretion, which is degraded into bacteria.

The treatment embraces both local and constitutional measures.

The diet should be very nutritious, but plain, embracing abundance of vegetables and fruit; all stimulants avoided, such as wine, malt liquors, tea, coffee. Glycerite of sulphur, administered in the evenings in sufficient doses to move the bowels.

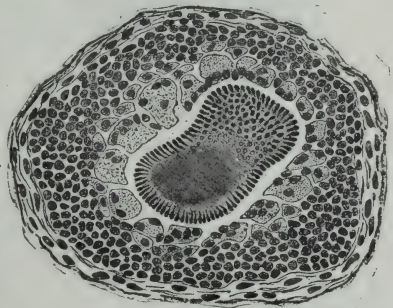
Boroglyceride paste applied to the patches, over night, is a particularly serviceable and efficacious remedy. Distillation of jequirity is also of great value.

That which is common in young men and women at and subsequent to puberty is best relieved by dusting on the microbe powder during the day, and applying an ointment made thus: Iodide of sulphur, grains 25 to one ounce of ozone ointment, or resorcin jelly. Baths of alkalies, iodine, are invariably of service. The liver in all cases should be well stimulated by *chionanthus*, peroxide of hydrogen.

The affection is presumably one which is dependent on the presence and activity of a micro-organism. The micro-parasite is a member of the fungoid class and consists chiefly of a mycelium which divides in a dichotomous fashion, and gives rise by its

spread from a centre to a radiated appearance, whence its name—actinomyces—is derived. The circumferential ends of the mycelial sprouts have a flask-shaped swelling. The little masses of felted mycelium may be recognized by the naked eye as sulphur-yellow bodies of about the size of a hemp-seed. The disease which this parasite is supposed to cause may develop in many parts of the body. The most common site appears to be the jaw and parts bounding the mouth. The affection in animals has long been known in this situation under various names, and has been regarded as a form of scrofula and as a new growth. It is believed that the parasite gains an entrance through the medium of a carious tooth or some wound of the gum leading to the jaw-bone. There is but little to be said of the morbid anatomy of the disease. A

swelling forms in the jaw, and gradually increases in size. This tumor in its earliest stages may be punctured without any matter being let out, although it generally has an elastic and semi-fluctuating consistence. A section made into a tumor in the early stage of its existence shows a reddish-white area sprinkled in places with gold-colored granules. Later on abscesses and fistulæ form, in the discharge from which the sulphur-colored bodies may be seen. Broadly speaking, the tissue of the morbid new

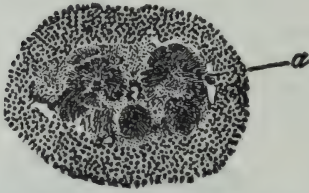


ACTINOMYCOSIS.

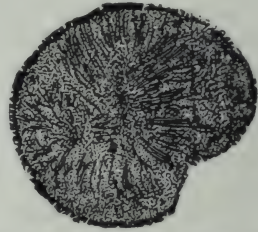
A nodule is shown composed of round cells, in the centre is the clump of actinomyces surrounded by large transparent cells. Magnifying power 350.

growth, which must be regarded as inflammatory rather than sarcomatous, has very much the characters of ordinary granulation tissue. Actinomycosis may occur primarily in the respiratory tract proper. It is localized to the bronchial mucous membrane, giving rise to the signs and symptoms of chronic bronchitis, with fetid expectoration, in which the actinomyces are often readily discovered. Primary localization of the disease is in the parenchyma of the lung, from whence it is propagated to the pleura and to the prevertebral tissues. Some of the cases have many of the clinical characters of empyema with discharging sinuses, and in such cases a complex system of fistulæ not infrequently undermines the morbid tissues. The structures in the posterior mediastinum and prevertebral regions are often affected, and the bodies of the vertebra may become carious. In another class of cases the disease begins primarily in the intestinal canal. In some of the cases the foci of the disease are widely disseminated. The liver, spleen, muscles of the

back, and muscular substance of the heart, have been shown on post-mortem examination to have numerous centres of actinomycosis. Large abscess cavities may form behind the peritoneum as well as behind the pleura, and these may communicate by many perforations of the diaphragm. The symptoms necessarily depend chiefly on the localization of the disease as well as on its rate of progress, and present therefore extremely varied clinical pictures.



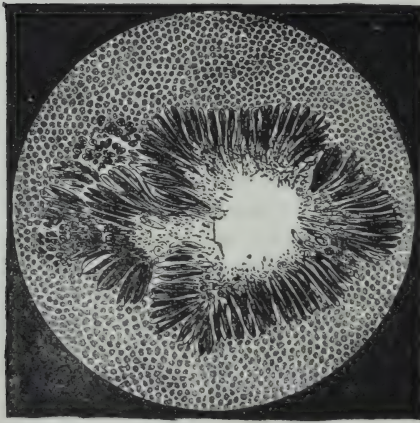
A group \times A Zeiss (= 3-5 inch) shows probably the earliest stage of growth: each separate collection of fungus consisting of fine filaments radiating from a common centre.



The portion of fungus as seen in this cut is older, more matured. Under this power some of the filaments are apparently thicker than the majority, and are club-shaped.

No doubt the fungus effects an entrance by the mouth, taken in with the food, through the medium of a crack, fissure on the gum or a carious tooth, and at first appears as a whitish nodule looking like tubercle. This nodule becomes the neoplasm, the swelling or abscess, a purulent cavity.

No doubt the disease is transmitted in man very readily by the use of imperfectly cleansed dental instruments, by the cups of public fountains or the like.



Actinomycosis from human liver.

There is no structure or tissue in the body exempt from the entrance of this germ; besides the mouth, the crypts of the tonsil, larynx, bronchial membrane, lungs, intestines, testes, ovaries, bones.

By certain experiments we are led to regard the actinomycetes as the result of a highly degenerative change in the life history of man.

The diagnosis rests upon the discovery of the small yellow granules in which the fungus

may be detected. The disease must not be confounded with extra-peritoneal abscess about the soft tissues of the jaw due to carious teeth.

The fungus bears cultivation well in almost any nutrient menstruum—it produces the same micro-organism by inoculation. The form we meet with in cattle is the same as what occurs in man.

The treatment which is of utility is a general alterative and tonic course of remedies, in which germicidal medicaments should play an important part. If the germ is in the mouth peroxide of hydrogen and solutions of boroglyceride are invaluable; if in the intestines, resorcin; if in the bronchi or lung, glycerite of ozone; if in the bones, saxifraga.

Actinomyces finds a favorable location for breeding in the liver, which is often mistaken for cancer or syphilis, but a microscopic examination of the fæces indicates its true character. It seems quite possible that the weakening of the system by the microbe of syphilis, cancer, or by the excessive use of mercury, is a cause why it is found in the liver. One thing is certain, the microbe is communicated from cattle to man, and passes from man to man by contact.

It behooves us to take all possible means to make a careful diagnosis, and if the disease is recognized in animals it should be at once stamped out and not allowed to spread from one to another and endanger human beings.



Actinomyces from tongue of ox, for comparison.

It has been recently demonstrated
Addison's Disease. that disease of the suprarenal capsules, or what some term Addison's Disease, is due almost entirely to an infiltration of those glands with the tubercular bacilli. This disease germ, once deposited in the suprarenal capsules, grows, and goes through its different stages of growth and degeneration, causing chronic interstitial inflammation and fibro-caseous and calcareous metamorphosis. In the early stage of the disease the capsules become enlarged from

the presence or aggregation of the bacilli. These germs generally localize in the centre of the gland, grow and breed outwards, usurping its entire structure; as it reaches the vortex, cheesy and calcareous degeneration commences in the centre. This change is uniform. In rare cases the bacilli are deposited in points or nodules in the glands, which gives it a lobulated appearance; whichever it may be, their proper structure is entirely obliterated, no sign of gland structure is left; on a cut section it appears yellow. The structure and functions of the suprarenal capsules are the same as the lymphatics, pink marrow and mesenteric glands.

The lesions of the nerve centres of the suprarenal capsules and great sympathetic account for the phenomenal pigmentation and discoloration of the skin. The spleen is enlarged and softened; the liver, kidneys, lungs, stomach, intestines, spinal cord and brain are dotted over with tubercle; even the testes and prostate are implicated.

The blood is anæmic, fibrin diminished, red discs altered in size and form, and does not run together as normal corpuscles, owing to the lymph spaces being crowded with tubercle; the white globules are increased in number. Lurking deep in the vital stamina there is great poverty of nerve force, a paralytic state of the vaso-motor fibres of the great sympathetic, and, as a consequence, the blood is imperfectly and unequally distributed.

In addition to the discoloration or bronzing of the skin, we have the characteristic features—anæmia, general languor or debility, with extreme



A vertical section of the human kidney; *a*, exhibits the suprarenal capsules, which are infiltrated with tubercle in Addison's disease.

prostration, expressed by a loss of muscular power, weakness of pulse, remarkable feebleness of the heart's action, breathlessness upon the slightest exertion, dimness of vision, functional weakness and irritability of the stomach. The progress of the disease is very slow; melancholia is not uncommon, drowsy, dreamy languor, dizziness, and syncope not infrequent. Heart failure predominates all through; anæmic murmurs are heard as the disease advances, the skin becomes a lustrous bronze, and the mucous membrane of the lips and gums are strongly pigmented. Sight and memory fail; convulsions and choreic

symptoms, followed by delirium or comatose state. The urine is normal in quantity, albuminous; uric acid, coloring matter are in excess with the microbe indicum.

In eighty per cent. of all cases tuberculosis of the most intense character is present. It is regarded as an infectious blood disease, more especially common among males in the adult period of life, and is found associated with cancer, apoplexy, and waxy and fatty degeneration of glands. Numerous cases have recently been discovered in which there was no tubercular infiltration of the suprarenal capsules at all.

As the tubercular diathesis is so intense, the germs blocking up all the important blood-raising glands, it has generally been regarded as incurable.

All remedial measures, up to the present time, have been inoperative. Accepting the theory—a disease of nervous bankruptcy, with intense tubercular growth—positive benefit, at least a great prolongation of life, results from the use of germicidal remedies, and a tonic treatment, nutritious diet, the avoidance of everything that would debilitate, with rest in the recumbent posture, and the avoidance of all insanitary states. Glycerite of ozone, in twenty-drop doses, has been found a most efficacious remedy; alternating with either the glycerite of kephaline or tincture of oats, to which quinine and tincture of ignatia have been added. The stimulation of the cervical sympathetic with concentrated ozone, with general faradization of that nerve, are important factors in the treatment.

Pseudo-leucocythæmia is a peculiar disease of the blood, like leucocythæmia dependent upon an enlargement or hypertrophy of lymphatic glands; glands of neck, axilla, groin symmetrically enlarged, not inflamed or fused together; thoracic and abdominal glands also affected. Patient becomes weak, loses flesh, soon out of breath on exertion, symptoms of pressure at base of chest or abdomen, gradually increasing debility. It is also called Hodgkin's disease, or malignant lymphomata. The lesion of this disease does not differ from lymphomata. They are divided into hard and soft tumors. The soft lymphomata are of an encephaloid consistency. Their color is of a reddish gray, studded with spots of extravasation. As the glands enlarge, they become confluent, forming a large, soft, fluctuating, lobulated tumor. Hard tumors have a fibrous feel.

It is well known that the lymphatics preside over or are carriers of nutrition or lymph, but how they influence the blood in

the production of white cells is unknown. The spleen, lymphatics, mesentery, suprarenal capsules, and the pink marrow of the bones constitute the great lymph channels; in each or all of them when obstructed, damaged or diseased, there is the prevailing characteristic cropping out—excess of white corpuscles.

The diagnosis of the disease is not difficult, the swelling of the glands in the neck, armpit, or groin are significant; but when the deeper glands are affected it is more difficult. In all forms, however, emaciation and anæmia are marked and progressive. Usually enlarged spleen, palpitation, slight fever, muscular weakness.

A general alterative and tonic course should be tried, and a highly nutritious diet will be found to be the most available means in the line of treatment. Change of air, and sea bathing when the strength permits, are of advantage.

The entire lymphatic system, including the
Adenitis. lymph canals, the pink marrow of bones, spleen, suprarenal capsules, mesentery and other glands are in health actively at work raising the blood from elementary molecules, to leucocytes, thence to red discs. Leucocytes are protoplasmic units partly differentiated so as to assume a function higher than a mere amœba, that is, they unite in forming structures that have the property of vital endowment in a particular direction. All the structures of organic things are made or built of cells, and these cells are differentiated leucocytes. The white cells have amœboid movements, and thus change place and form. Tissues become active as these movements are differentiated and then there are classifications of types of tissues. The respiratory, circulatory and digestive tissues are primordial, and in the first of the series of life; generation is carried out only on the primitive plan of motion by mere division, as fission, budding, etc. In the organic structural animal wherein tissues are so far differentiated as to be set apart for the performance of certain specific functions for the good of the organism at large, the leucocytes that form the secretory cells are only slightly differentiated from the primitive leucocyte, and their functions are substantially the same as the primitive ones, but they have the additional property of converting the pabulum of their nutritive material into a functioning product in a special way. A gland cell is the singular thing that is creating out of its own protoplasm a new material, using its nutritive substance to elaborate the constituents of its secretion. A muscle cell uses its pabulum to differentiate movement; a nerve centre cell to differentiate impulses that originate reflex movements.

In the treatment of disease we have to do with these differentiated leucocytes, or modified amœbas. Sometimes the power to take oxygen is degraded, or the power to expel detritus from the innermost parts is impaired, or the power to rejuvenate itself is injured in some way by some adverse state, into other living matter. We are ever dealing with primitive elements when we approach a living thing, no matter how complex it may be in arrangement of its cells and tissues.

A partial death of a portion of the lymphatic system strikes at the root of organic life. An inflammatory condition may arise from various causes.

1. *Simple Adenitis*.—May be the direct result of a blow, walking, absorption of some irritating poison through an abrasion. Such an inflammation or irritation is very common at the elbow, axillæ, knee, groin. The chain of femoral glands may enlarge as the result of a wound on leg, foot, ingrowing toe-nail; while irritation of the penis affects the inguinal chain (bubo). The glands at the back of the neck frequently enlarge when there is irritation of the scalp, and the cervical glands become enlarged in diphtheria, malignant stomatitis, scarlatina, etc.

2. *Tubercular Adenitis*.—In individuals whose vital forces are greatly below par, where the tubercular bacilli are present in the blood, either as the result of an infection, or a special degradation of normal bioplasm into the bacilli, or from both, especially in children, the glands of the neck from some irritation will become inflamed, irritated, enlarge slowly, suppurate, the tubercular bacilli will undergo its usual changes, become caseous then calcareous. If there happens to be irritation of the bowels, the mesentery will take on an analogous condition, become engorged with the products of inflammation, and the microbe of tubercle, masses or chunks of the bacilli can be felt through the abdominal walls.

3. *The Microbe of Syphilis*.—The adenitis which almost invariably accompanies a soft chancre, or a gonorrhœa, is very apt, if the treatment be not correct, to be accompanied with a virulent bubo, which comes on about a week after infection; inflammatory symptoms run high, acute pain, rigors, fever, great swelling and sometimes suppuration. The true syphilitic germ, in the inoculation, the hard chancre, often migrates to the lymphatics of the groin giving rise to multiple bubo; as a rule the migration of the germ is painless, no suppuration. The induration proceeds slowly from gland to gland, in the inguinal chain till all are affected. They are never very large, are always hard, and can be moved about under the finger. Various other glands throughout the body become germ-laden and enlarged, as in indurated chancre of the lip, the submaxillary become indurated;

in chancre of the fingers in washerwomen the glands of the axillæ are enlarged.

4. *Cancerous Adenitis*.—In whatever part of the body a cancerous infiltration takes place the lymph glands in close proximity to the aggregation of germs become engorged, partly with products of inflammations, and partly with cancer germs. In grave cases they become a valuable element of diagnosis and prognosis. The most common examples are the enlarged submaxillary in cancer of the lip and tongue, the axillæ in cancer of the breast.

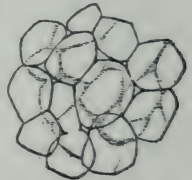
5. *Adenia, or Hodgkin's Disease*.—This affection is characterized by an enlargement of all the lymphatic glands of the entire body. They often attain great size, but do not suppurate, but there is invariably associated with it marked anæmia, vastly diminished red corpuscles in the blood, but no increase in the white, spleen and suprarenal capsules generally enlarged.

6.—In the plague, or relapsing fever, anthrax, glanders, or farcy, malignant erysipelas, dissection wounds, phlebitis from any cause, malaria, bite of an enraged man, etc., there is apt to arise a general enlargement of the lymphatic glands throughout the body, along with hypertrophy of the spleen, and an increase of the white corpuscles of the blood.

Treatment of all forms of adenitis require great energy and sound judgment. Within these few years past, it has been clearly demonstrated that the filling up of the lymphatics, as we have in adenitis, is chiefly due to the germs of disease, a concrete essence, an absolute and visible germ in all cases, whatever the form may be. The gland is but a bacteriological colony when irritated. So in all cases a rigid germicidal treatment should be inculcated, both internally and locally.

In all cases, comp. saxifraga, phytolacca, iodol, and special remedies to sterilize the microbe; locally plantain leaves, iodoform, sozoiolol, resorcin and ozone ciutment; peroxide of hydrogen.

An animal membrane
Adipose Tissue. or tissue, consisting of an aggregation of minute spherical pouches or vesicles, filled with fat or oil. The tissue itself is organic and vital, the vesicles secreting the fatty matter from the capillary blood-vessels with which they are surrounded; the secreted matter or fat is inorganic and devoid of vitality. The adipose tissue differs from cellular or filamentous tissue in having the vessels closed,



Adipose Tissue,
magnified.

so that the fat does not ooze through even when fluid. A considerable layer of fatty tissue under the skin, over kidneys and in or on the mesentery, around large vessels and nerves, around joints, is not incompatible with a high standard of health.

Fucus vesiculosus with dioxide of hydrogen strips the muscular tissue of a redundancy of fat.

By this term we mean the presence in the urine of an albuminous body, which is coagulated by heat or precipitated by neutralization. It was once regarded as a diagnostic symptom of Bright's disease, but recent researches have caused it to lose this its primitive meaning.

The variety of the pathological conditions under which albumen may appear in the urine is very great, as congestions, inflammation, mechanical obstruction to the circulation of the kidney; whenever disease germs are present in blood as the malarial microbe, the bacillus of tubercle, cancer syphilis; the germs of diphtheria, scarlatina, variola, erysipelas, etc.; in blood diseases proper, as anæmia purpura, and also in diseases of the heart, lungs, liver, in peritonitis, pregnancy, diseases of the brain and spinal cord, in epilepsy and various skin diseases, even after bathing.

For convenience, all conditions in which albumen may be found in the urine may be arranged under the following groups:

1. *Congestion of the Kidneys*.—Congestion of the kidneys may result from a chill to the skin, as in bathing, exposure to cold; from the elimination of some irritating poison, such as alcohol, uric acid, phosphorus, lead, cantharides; from the direct action of a microbe blocking up the kidneys, as we have in scarlet fever, diphtheria, typhoid, variola, erysipelas, or from vasomotor paralysis, the result of a concussion of the spinal cord.

Passive congestion may result from cardiac, pulmonary, hepatic disease; or from peritonitis, pregnancy, or from heart failure in anæmia.

2. Acute or chronic inflammation, as we have when the glands are literally blocked up with disease germs.

3. Degeneration, fatty, amyloid, cystic, forming deposits, usurpation of normal structure, with softening or thinning of the renal arterioles.

These are some of the causes, and it would be interesting to discuss the mechanism by which albumen passes into the urinary secretion, and what causes the transudation. Is there a physical change in the lining membrane, or is there some altera-

tion in the blood pressure, or the rapidity of the blood current? In all the states mentioned, from simple congestion up to contracting kidney, the walls of the glomeruli are actually permeable, permitting the passage not only of thin fluids and colloids, but even of semi-solids, and this too in parts of the kidney presenting no recognizable structural alterations. Even a slight relaxation temporarily induced will give rise to albuminuria, and it may occur in dyspeptic people, in weak, overgrown persons, without being an indication of actual or potential renal disease.

To arrest the escape of albumen, in addition to general tonics and nutritious diet, try first nitro-glycerine, then either erigeron or gallic acid and port wine; or convallaria maidis; or ergot, or corn smut; or aromatic sulphuric acid and quinine.

This is met with either acute or chronic.

Alcoholism. In *acute* alcoholism, the mucous membrane of the stomach and duodenum is greatly congested. Patches of aphthæ (*oidiumalbicans*) are formed upon it, and the mucous membrane of the stomach is covered all over with a thickropy mucus, heavily loaded with the sarcinæ ventriculi, slightly tinged with blood. The gastric juice is altered in quantity as well as quality. The brain, lungs, kidneys are congested and the pericardium and pleura are filled with bloody serum. In *chronic alcoholism*, there are always and invariably present chronic gastritis, congestion or cirrhosis of the liver, emphysema, or tuberculosis of the right lung, fatty degeneration and dilatation of the heart, atheroma of the blood vessels and interstitial nephritis. As the whiskey in the blood circulates as a free agent, it irritates and degenerates every organ, gland and tissue of the body, retards their working capacity, and arrests the normal metamorphosis. The poison has a special action on the brain, inducing in all cases chronic inflammation, with effusion of lymph, which causes thickening of its entire substance; besides the brain is literally steeped in the poison, which withers, whittles down the organ to a miserable state of atrophy, an anæmia. In long standing cases, cerebral softening occurs, and in such the viscera are fatty, the subcutaneous tissue and omentum being loaded with that non-vital element, if they are beer, ale or wine drinkers; while those who drink spirits are thin, spare, prematurely old, on account of the increase of the connective tissue.

Perpetual drinking gradually induces a tubercular diathesis, with the tubercular bacilli in blood. The blood in chronic alcoholism besides contains more fat than normal; one of the first effects of the alcohol is a true chemical combination with nerve

tissue, and as the ingestion of spirits is constant, both the gray and white progressively atrophy and harden. This is hastened by a state of poor blood.

Differential Diagnosis.—The greatest care must be exercised in making a diagnosis. The *coma* of alcoholism must never be confounded with that due to *uræmia*, or *apoplexy*, or *opium*, or any other form of cerebral irritation.

In inflammation of the brain, we have the firm, hard pulse, pyrexia, retracted abdomen, and that agonizing headache aggravated by noise, light, heat, motion, photophobia, all of which are absent in alcoholism.

Alcoholic tremor has often been confounded with shaking palsy, locomotor ataxia, and softening of the brain.

Prognosis.—If the patient is manageable, usually good. Death may occur in the acute form from active gastritis, or lobular pneumonia. Danger of passing off in a comatose state or from apoplexy. In chronic alcoholism there is always danger from chronic gastritis, ulcer of the stomach, degenerative changes in the brain, blood vessels and nerves, fatty liver and kidneys—which predispose to a long list of diseases that tend to shorten life. Insanity, impotence, epilepsy, organic brain disease are its frequent sequelæ.

Treatment.—In acute maniac delirium, wash out the stomach by a copious emetic of infusion of lobelia leaves and bicarbonate of soda, in repeated doses until free emesis is effected, hot infusion of capsicum between each dose, getting full free emesis, if possible; follow this with a saline purge, and warm bath, followed by friction and massage to the entire body. Subsequently induce sleep by repeated doses of sulphonal in 30 grain doses—dose to be repeated every half hour.

If sulphonal does not succeed, then try 15 grains of chloral hydrate with 15 grains of bromide of potassa in syrup of orange peel, which can be repeated. If this is not successful, then a hypodermic injection of $\frac{1}{4}$ of a grain of sulphate of morphia. There must be a remedy selected and administered to procure 10 or 12 hours of profound sleep.

On arousing from this sleep, the patient should be placed upon large doses of capsicum in alternation with tincture of green root of gelsemium or digitalis. At the same time abundance of fluid nourishment should be given, as essence of beef. The patient should be kept quiet, and diffusible stimulants like capsicum, prickly ash, ammonia, administered till he is tided over the crisis, when coca et celerina should be administered in teaspoonful doses every three hours, to appease or satiate the appetite for stimulants. Such is the most efficient treatment.

The effects of the prolonged use and abuse of alcohol are most disastrous in the production of a deteriorated race; in the creation of a type of nervous diseases of the insane group.

A partial or complete deficiency of hair usually
Alopecia. results from the presence of disease germs in the blood, or from indirect starvation of the follicular or peri-follicular tissues inducing a state of atrophy.

The epidermis suffers from defective nutrition, the derma contracts, hair follicles shrink, become patulous; efforts may be made by the nuclei, and abortive results at hair formation may be recognized at the base of the hair sacs.

The correct treatment of alopecia consists in imparting to the blood the elements of which the hair is made, such as avena and glycerite of sulphur, then stimulation to excite a state of hyperæmia in which growth results; this involves bathing, friction, rubbing, shampooing, etc., simply damping the scalp with the ozone hair restorer.

A scanty crop of soft, short, downy hair is peculiar to the microbes of syphilis and tuberculæ, and requires germicidal treatment and the local application to the hair and scalp daily of the following:

R _y	Ozone ointment,	1 ounce.
	Oil of boroglyceride,	3 drachms.
	Resorcin,	1 drachm.
	Chrysophanic acid,	10 grains.
	Mix.	

In the treatment of those cases no remedy has a higher and more established value than the Ozone Hair Restorer.

Partial, or complete amaurosis, or loss of
Amaurosis, or vision from some disease of the retina, optic
Blindness. nerve, or brain, the optical instrument, the eye, being in a normal or healthy condition.

The causes that are likely to affect the brain, optic nerve, or retina, are embraced under five distinct heads, viz., anæmia, hyperæmia, reflex irritation, poisons, organic changes.

General Symptoms.—Partial or complete loss of vision, without effusion in the cornea or on lens, or any form of opacity. This impairment of vision naturally gives the gait and countenance a peculiar expression. He walks with an air of uncertainty; his eyes, instead of being directed to surrounding objects, have an

unmeaning look, appear to be staring at nothing, or are in constant rapid motion. In partial amaurosis, movements of the iris sluggish, and pupil dilated; in total blindness, pupil greatly dilated, and iris immovable. When both eyes are affected, they are often unnaturally prominent, and of an unhealthy color, the sclerotic being often yellow and covered with varicose veins.

An examination of the eye with the ophthalmoscope usually reveals inflammation of the optic nerve, changes in the retina or brain. Those changes are variable, consisting chiefly of relaxation, effusion, thickening deposits and extravasation. Another class seems to depend on atrophy, or wasting of the retina, optic nerve, or brain. This atrophy may follow neuritis, or exist without. When due to tobacco, this shrivelling up or whittling down of retina and optic nerve proceeds to utter blindness without inflammation being present.

1. *Blindness due to anemia* will exhibit an impairment of vision, with all the symptoms of a diminution of red corpuscles in the blood, as vertigo, ringing in the ears, specks or spots before the eyes, pale face, lip, tongue, murmurs in the left carotid, and general debility. The causes that lead to this may be meagre, poor, or bad food, absence of sunlight, over-work, drugs, disease, fevers, long or excessive nursing, want of exercise, sexual excess.

Best cured by a removal of cause, building up of blood with abundance of best of food, fresh air, exercise, and by using compound tincture cinchona and mineral acids, or pill quinine, iron, hydrastin, nux, sulphate quinine and aromatic sulphuric acid.

2. *Blindness due to congestion or plethora*, or over-feeding and stimulation, with all the symptoms of that condition.

Best treated with removal of cause or causes, free purgation, heat to feet, blisters to nape of neck, followed by irritating plaster; alteratives, as iodide of potass in syrup of stillingia or phytolacca; and even here, cinchona or its alkaloids, because we have no drug equal to it in restoring the integrity of the optic nerve.

3. *Blindness may be due to reflex irritation*, as the irritation of teething, worms, ovary, uterus, pregnancy, but more especially self-pollution, or masturbation—this latter form usually common, as all the inmates of our prisons, refuges, asylums, boarding-schools, retreats, are addicted to this loathsome and degrading practice. Nearly all the young and middle-aged men and women to be seen on our streets with defective vision and glasses, have been inmates of some charitable college or institute, and exhausted, drained off, their nervo-vital fluid, and obliterated the finer cerebral convolutions of their brain, and are partially blind. The origin of the optic nerve being in the spinal cord, medulla, and

brain, the reflex centre, or bulb, suffers intensely, and the whole process of growth is arrested, and the perpetrator becomes a miserable victim of self-conceit, egotism and puniness.

Cured upon general principles, by removing cause, and treating for masturbation and for the eye; stimulants to nape of neck, quinine, glycerite of ozone, kephaline and other tonics.

4. *Blindness may be due to poisons*, as tobacco, chloral hydrate, opium, whiskey, belladonna, conium, syphilis, mercury, and the use of hair dyes and cosmetics, as the nitrate of silver, lead, bismuth, which act very disastrously upon base of brain along the ophthalmic tract. Much of the defective vision to be seen is due to the use of those agents.

A discontinuance of the use of the poison, with a general alterative and tonic course, is usually sufficient for a cure, if seen early and persevered in.

5. *Blindness may be due to organic changes in the retina, optic nerve, or brain.*—These changes may be inflammatory, and proceed on to softening of the nerve or its branches, or due to atrophy from anæmia or want of nutrition. This is the most hopeless form, as white softening, or ramollissement, is an irreparable affection.

General Treatment.—In all cases, if it is possible or practicable, the following plan of procedure should be carried out:

The bowels regulated; skin stimulated with daily baths; two open sores at nape of neck, one inch square, on each side of the spinal column; flannel clothing; appetite to be stimulated and a diet consisting of animal food, eggs, white-fish boiled, oatmeal porridge and cream—a brain diet, an important factor in a case. As the optic nerve not only originates in the spinal cord, but is freely blended with the medulla, the seat of reflex action, morning and night all the peripheral extremities of the nerves of the entire superficial portion of the body should be stimulated from half an hour to two hours with friction, shampooing, palpation and electricity. This faithfully performed, raises the standard of vitality of cord and bulb, and the patient sees better at once or after a few applications. The medical treatment is the same as for chronic inflammation and softening of brain—alteratives and tonics, iodide of potass, cinchona, and especially the ozonized preparations, as they tend to cleanse brain and optic nerve of all extraneous substances; glycerite of ozone, ozone water, kephaline. Treatment to be persevered with for six or twelve months; change of air and scene often of utility; other cases benefited by rest and quietness, especially those caused by exhaustion and nervous debility.

If a real organic change has taken place in the optic nerve, all

remedies are useless. In all cases there should be an avoidance of all malt or alcoholic liquors; all acro-narcotic drugs, especially tobacco, and hair dyes or tonics; and sexual congress only permitted at rare intervals. Probably of all causes that give rise to the great frequency of organic amaurosis, tobacco, sexual excesses and syphilis are the most common and detrimental, and most likely to produce degeneration of the optic nerve.

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An absence of the menstrual flow. It is
Amenorrhœa. met with under two forms:

1. *Retention of Menses.*—This may depend on a variety of congenital conditions, as arrested development, organic affections, malformations, such as absence or atrophy of ovaries, uterus. Those organs may be present, but vagina may be absent, or suffer occlusion, so that if the menses are secreted, they cannot find their way out. It may depend on some disease of brain, spinal cord, or blood. A large percentage of such cases can be rectified either with medical treatment or some surgical proceeding.

2. *Suppression of Menses.*—This is the most common form of amenorrhœa. The flow having appeared, been properly established for a while, has, from some cause, become suddenly arrested.

The front part of the uterus being very profusely supplied with branches of the sympathetic nerve in highly-civilized females, the menses, while on, are liable to cease or stop from violent emotion, grief, anxiety, or from cold, damp, exposure.

Instead of ceasing suddenly, as in those cases, it may disappear gradually, returning at the proper time, but becoming less and less, and then entirely stopping. It is liable to cease in acute and chronic disease, as in fevers, blood-disease, especially anæmia, cancer, tuberculosis, albuminuria. In all cases the greatest care should be observed, so as not to overlook pregnancy. The suppression is always attended with some constitutional disturbance; great, if sudden; not so well marked, if slow and gradual.

Treatment.—If the case is seen at once during an attack of acute suppression, there should be an effort made to re-establish the flow, by alcoholic vapor-bath, with hot mustard foot-bath; put to bed between blankets, with hot bricks to feet, and dry heat to vulva or over bladder, consisting of baked bran, or hops, or chamomile flowers, in bags. Aconite, with compound tincture of serpentaria, administered internally, with infusion of pennyroyal; no cold drinks nor ice. If several days have elapsed, it is useless to try the above, or any other means, but begin at once and prepare patient for next period. Bowels should be regulated, clothing warm, flannel round waist and hips, warm foot and hip-baths,

nourishing food. If there is any special disease it should be attended to, especially anæmia, with acetate of iron three times daily, with cinchona and mineral acids; and about a week before the expected period, begin with the compound betin pill, one or two three times a day; and if the case is stubborn, put mustard plasters on the nipples, for a short time before bedtime, for one or two nights. The compound betin pills excel all drugs in their mildness, efficacy, and certainty; they arouse the inert, sluggish uterus into active life, restore its natural movements, and impart tone and vigor; they are our best emmenagogues, and excel all other drugs in their prompt action. They supersede entirely those old and deleterious drugs, such as cotton-root, savin, aloes, ergot. As soon as the flow is established they are to be stopped, and resumed the following month about seven days before the expected period. Ladies who suffer from habitual suppression, or where the flow is scanty, or who dread early suppression, can maintain menstrual activity for a long length of years, and thus keep the freshness of youth in their nervous system and skin indefinitely. Of the long list of remedies noticed, there remain caulophyllin and pulsatilla, and of these much can be said of a favorable nature. Caulophyllin, the resinoid prepared from caulophyllum thalictroides, known under the various names of squaw root, pappoose root, blue berry, has been recognized as a valuable therapeutic agent from very early times, and has been highly spoken of by many physicians of note. Its name, "pappoose root," suggests the uses it was put to by the natives long before the cultured minds of our present physicians investigated its properties and catalogued its claims. There seems to be a general agreement amongst those who have studied its action that its effect is chiefly felt by those motor nerves which are connected sympathetically with the menstrual organs, and that this action is of a sedative character, allaying that irritable condition of the generative system which so often lies at the root of functional irregularities. As a remedy in these derangements, in "irritable neurotics," especially when they are marked by disturbances in the sacral plexus, it has undoubtedly acquired a sounder reputation than most of its competitors, and deserves a permanent place in the select circle of approved remedies. But its action, although often favorable when administered alone, is much more reliable when given in combination with pulsatilla (*anemone pulsatilla*, Pasque flower), which has long been known as a popular and effective remedy in uterine functional derangements. As pulsatilla increases the beneficial action of caulophyllin, so the latter increases the action of the former, and it is, therefore, when they are both combined that we get the most

perfect emmenagogue that our present state of knowledge has yet suggested. Indeed, it is not too much to say that this compound emmenagogue redeems from the charge of imposture the reputation of its dilapidated class.

Vicarious Menstruation may occur as a form of amenorrhœa; that is, the menses may be suppressed at the vaginal orifice, but are thrown off by the nose, mouth, eyes, ears, or blood-stains by the skin, by ulcers or by necrosis, if present, or by odors about umbilicus, or eruptions.

The real cause of vicarious menstruation is either inertia or atrophy of the uterus; so great that the uterine wave is abolished or abrogated. The cure consists in stimulating the uterus with hip-baths, horseback exercise, or moderate walking exercise, the betin pill, massage, iron, pulsatilla, cinchona, and most nourishing food.

The prolonged retention of urine in the bladder over a definite time results in its decomposition, in a change of its constituent elements, the most prominent of which are a fungus and carbonate of ammonia, which are taken up into the circulation, producing a special form of blood-poisoning. The retention of the urea and its conversion into carbonate of ammonia give rise to cystitis, a catarrhal and dysenteric state of the bowels, in which a greenish, alkaline, yellow fluid is passed from the bowels, with abundant spores of the fungus.

The causes which give rise to this state of fungus growth and decomposition are stricture, enlarged prostate, paralysis or atony of the bladder, pyelitis, sacculated kidney, cystitis, etc.

Old or young men, with enlarged prostates are the victims of this malady.

It is an affection which cannot be mistaken, even by the most superficial observer: the retention of urine, or, if a dribbling, its ammoniacal odor, alkaline reaction, containing immense amounts of phosphates; the breath and skin

are also highly ammoniacal. If no relief is afforded, there are rigors, vomiting, fever, with strong typhoid aspect; tongue dry, brown, shining; complexion sallow, dingy brown; headache;



Micrococci Ureæ (of ammoniacal urine). Present in cystitis, and is found in great abundance in the blood and in all the vital organs of the body, in ammonæmia.

insomnia; and, as the blood becomes more crowded with the spores and carbonate of ammonia, insomnia is more persistent; restlessness gives rise to somnolence, lethargy, with low, muttering delirium, with the ammoniacal odor more intense.

The most important point in the treatment is the removal of the cause; but as atony of the bladder and enlarged prostate are the common causes, time is needed. The patient must have immediate relief, or death will ensue. Relief is best afforded by the introduction of a catheter and draining off of every drop of the ammoniacal urine, subsequently injecting the bladder with a tepid germicidal solution of either boroglyceride or peroxide of hydrogen—if the latter, a few drops to the pint. This proceeding must be resorted to even when the patient seems to be sinking, because the moment the bladder is washed out a rapid improvement takes place.

The bladder must thus be emptied and washed out daily, and the patient placed upon the proper doses of either peroxide of hydrogen, or ozone water, or comp. oxygen, to neutralize the excess of ammonia present in the blood. Virginia stone crop operates well in alternation with the uric acid solvent; the pichi in that last compound operates in all cases most favorably; they should be used persistently. The enlarged prostate must be got rid of, and till that is effected, the urine must be drawn regularly off. I have found the following formula to be unexcelled to get rid of an enlarged prostate; thus, say about 7 P. M. insert one cocaine suppository; allow it to remain; before retiring wash out the rectum with about half-a-pint tepid solution of boroglyceride, which is to be passed off; as soon as that is effected, inject one tablespoonful of the following:

Ry Ozonized distillation of hamamelis, . . . ℥iv;
 Papoid, grs. xxxii.
 Mix.

This is to be permitted to remain over night. This mixture of ozonized hamamelis and papoid acts energetically upon the effused lymph which, in the process of chronic inflammation, has been effused into the interstitial structure of the prostate.

To be effective, it must be applied as above. The cocaine suppository produces anæsthesia of the prostate, a state most favorable for the dissolution or absorption of lymph. Follow it in about two or three hours with the papoid mixture. Peroxide of hydrogen has also been most successful.

Amyloid De- Or waxy or starchy usurpation of structure, is a peculiar affection occurring only in individuals who have suffered long from the presence of the microbe of syphilis, the bacilli

generation. of tuberculæ, the micro-organisms of cancer; prolonged osseous suppuration. This form of degeneration is decidedly an attendant upon old sores, wherever there is pus or muco-purulent matter present in the body, as in empyema, chronic bronchitis and pemphigus, malignant variola, dysentery, ulceration of the bladder, phosphorus necrosis.

Besides, amylosis occurs sometimes in chronic gout, rheumatism, malarial poisoning, alcoholism.

Although this appears to be the field of origin, still there is some mysterious cause, some terrible wreckage of vital elements, which so degrades or alters the living matter of our own bodies into a disease germ, which in some manner evolves starch granules or molecules; these are carried by the blood throughout the entire body and deposited only in weakened parts and increase in bulk by aggregation of molecules.

The microbe, which is present in all cases of amylosis, and which is pathogenic of the disease is:

The Bacillus Pyocyaneus.—This microbe is present in the blood in all cases, but is most abundant if pus or muco-purulent matter be present, especially if that be of a greenish color. Taken either from pus or blood, it appears in the form of slender rods, linked in twos or threes, or collected in irregular masses, spore formation present and active. Easily cultivated in liquid gelatine, in twenty-four hours the culture has the greenish appearance of pulp. The pigment or coloring principles is "*pyocanin.*"

Micrococci can be extracted with chloroform from the pus or washing of bandages—the microbes crystallize in the same fluid in the form of needles, rods, prisms.

The injection of this microbe into animals gives rise to amyloid degeneration.

The bacillus pyoganeus which gives rise to this species of degeneration is not a carbo-hydrate, but a nitrogenous body. The heart, spleen, intestines, liver, kidneys are most frequently affected—each one besides may be complicated with the presence of other germs, or the amyloid germ may exist alone.

The symptoms of general amyloid degeneration, present nothing very distinctive. Great and progressive debility, pale, waxy appearance, inability to get around, urine abundant, of low specific gravity, small amount of albumen, paraglobunuria, hyaline casts.

The treatment of amyloid degeneration is not by any means encouraging. The removal of causes is most important as the

destruction of the germs of syphilis, tubercles, cancer—any suppurating focus, by a general alkaline and tonic course—but when the proper structure of an organ is once usurped by starch granules it can never be restored.

Amyloid degeneration naturally takes place on the coats of arteries, which carry the starchy products in the blood, small arteries, especially the renal glomeruli, also the vessels of the spleen, liver, intestines and lymph gland.

Waxy degeneration of the intestine is usually a complication of waxy kidney and liver. The primary seat of amyloid deposit in the intestines is the arterioles. The small intestines are much more frequently than the large. When it takes place it entirely destroys the secreting faculty of the absorbents, causes the mucous membrane to become pale, shiny and slightly œdematous; on the application of the iodine test, small maroon-colored spots appear in the villi, where the earliest changes occur; later on the entire muscular coat becomes involved, until finally the entire walls of the intestine are fused into one homogeneous mass. Generally infiltrated of the solitary glands; Peyer's patches are less affected than the surrounding tissues.

The symptoms of amyloid intestinal degeneration are usually masked with those of waxy liver and kidneys with which it is invariably associated.

A general amyloid degeneration of the intestinal tract exerts a potent influence upon the general nutrition of the body—great exhaustion, emaciation, anæmia—a serous, persistent diarrhea are the best points in diagnosis.

Amyloid Degeneration of the Spleen.—The causes which give rise to waxy spleen are the same as predispose other organs to it, as the germs of syphilis, tuberculæ, cancer, chronic alcoholism, malaria, etc.

It is found deposited either through the entire spleen, or in nodules, or granules in large quantities, which causes the enlargement. On cutting the spleen, it is crispy, smooth, shining and gives the characteristic reaction to iodine.

Late in the disease anorexia, vomiting, hemorrhages.

Amyloid Degeneration of the Kidneys.—Chronic intestinal nephritis, invariably precedes starchy deposit in the kidney—it is a weakening process which permits an exudation from the blood, and is effused into all weakened structures simultaneously. The primary causes we have stated. When the deposit takes place in the minute arteries, the secreting tubes and cells soon become involved, waxy products appear on isolated patches, when an increase of size takes place, the kidneys become hard, crispy—the change is most marked in the malpighian tufts.

The increase of size is due entirely to the presence of starch bodies, which look like grains of boiled rice. All parts, the glomeruli, arterioles, veins and basement membrane of the tubules become infiltrated. In addition, fatty granular and hyaline bodies are found.

However slight or indistinct, the iodine test is most reliable—placed upon the degenerated tufts, it always gives the characteristic iodine reaction.

The usual method of the disease making its appearance is as follows: An individual suffering from tuberculæ, syphilis, cancer, rheumatism or some suppurative disease, begins to realize that he is losing flesh, strength, becoming weaker, more feeble, loss mental and physical, a general goneness on very slight exertion, shortness of breath, has a very pallid, waxy countenance and passes a very largely increased amount of urine—being compelled to rise several times during the night in order to pass it and in large quantities; weight in the upper part of the abdomen, with a general fulness, with enlarged liver, spleen and kidneys; œdema at the ankles, indigestion, occasional vomitings. Such a train of symptoms are significant, together with the altered, pale, waxy complexion.

The usual increase in the quantity of urine is up to about 100 ounces, with a very low specific gravity of 1005. Very little dropsy.

The nephritic trouble is simply an emunctory of the body weakened; anatomical changes due to a usurpation of the structure of a gland by starch. Recovery is impossible. It may be arrested, retarded, but never cured.

Our best remedies consist in a general alterative and tonic course, pushing special remedies, such as the iodide of potassium, iron and nux vomica.

Amyloid Degeneration of the Heart.—Waxy degeneration is never met with except in connection with similar changes in other organs of the body, and is invariably due to a constitutional cause; it consists in the formation of a shining homogeneous substance in the primitive muscular fibres, which gives the reaction of amyloid material. It is most frequently met with in the walls of the right ventricle, causing its cut surface to present the characteristic appearance of waxy metamorphosis. The primary changes take place in the connective tissue surrounding the muscle-bundles.

The presence of the syphilitic germ is the primary cause.

The principle symptoms attending it are cardiac failure, with waxy degeneration of other organs, as the liver and spleen.

Cardiac failure, with a syphilitic taint, affords good reason to suspect starchy degeneration.

The treatment, a general alterative and tonic course, with strophanthus, convallaria and other remedies to strengthen the heart.

Amyloid Degeneration of the Liver.—Seventy-five per cent. of all cases of waxy liver occur in males between 30 and 50. The presence of the microbe of syphilis in the interstitial structure of the liver is undoubtedly the chief cause. Malarial germ saturation of the liver is also a very prominent cause, as well as prolonged suppuration of bone and the micro-organism of tubercle in lung.

The degenerative process begins in the walls of the capillaries and minute arteries. The microbe causing the peculiar blood changes gives rise to the deposit of a substance resembling albumen in its reaction. Its reaction is characteristic, a watery solution of iodine changing it to a deep red-brown. The liver is always enlarged, hard, like a stone, non-elastic, and its substance somewhat heavier than normal. The liver cuts with a creaking sound, like bacon, hence the name lardaceous is applied to it.

Its advent is never well defined—rather obscure—occurring as it almost invariably does with other wasting diseases of the body. A sense of weight, fulness and constriction in the right hypochondrium, never amounting to pain, great discomfort; jaundice, ascites are not essential symptoms. When jaundice is present, it is due to an intermittent catarrh of the bile ducts. Later on in the disease, diarrhea and vomiting on the slightest irregularity in diet. Anæmia and progressive debility are ever present. There is a great increase in the white corpuscles of the blood—the patient has a peculiar waxy look and peculiar odor; fæces are pale, they do not contain any bile. The urine is highly albuminous, of a lower specific gravity, increased in quantity. These urinary symptoms increase as the disease advances.

There is a bulging of the hepatic and splenic regions, the area of dulness of both being greatly increased.

The prognosis in all cases is most unfavorable; it has no exact duration, but usually merges onward to a fatal termination.

General principles of treatment are strict attention to warm clothing, general hygienic surroundings, daily baths of iodine and ammonia are of importance, followed by massage. A most generous diet; but in all cases forbid saccharine, starchy and alcoholic food or drink. Vegetable tonics such as hydrastis, salix niger, comp. tincture of marticaria, cinchonia. Preparations of iodine kill the microbe, and are invariably of the greatest utility. These should be alternated with the chloride of ammonia, which always produces most salutary results.

Dropsy of the cellular tissue is the most striking **Anasarca.** symptom of chronic interstitial nephritis, and one which very naturally attracts the attention of the patient. It is common in both the large white as well as the contracting kidney. It seldom makes a decided appearance until the hypertrophied heart breaks down, when it appears with other signs of collapse of the whole body. It is first seen in a bagging below the eyes in the mornings, then in the legs and ankles, latterly higher up, indicating a failure of the heart to maintain the struggle any longer.

The dropsy of the cellular tissue is due in a great measure to obstruction in the kidneys, although in every case there is a decided heart failure.

A breaking down of the kidney, and heart failure; in addition, there invariably exists a watery state of the blood, accompanied with increased permeability of the capillaries, caused by the presence of urea, an acid toxic, in the blood. (*See Dropsy.*)

Poverty of the Blood.—A condition in which the **Anæmia.** red corpuscles are diminished or reduced to eighty, sixty or even lower than forty to the one thousand parts, instead of one hundred and thirty, which is the healthy standard. The liquor sanguinis is also poor in albumen, but may contain an excess of salts.

The common *causes* are poor food, over-work, absence of sunlight, deleterious trades, as operations in lead, mercury, phosphorus, the fumes of which are powerful agents in impoverishing the blood; disease, hemorrhages, drugs, atrophy of gastric glands, defective assimilation, lack of fresh air and muscular activity, malignant disease, imperfect nutrition and impaired sanguinification, excessive loss or drain of vital secretions, excesses, passions, mental shocks, and it may be due to parasites, as the trichinæ, tænia, and other micro-organisms that find their way into the alimentary canal by food and water.

The Ordinary Symptoms of anæmia are great debility, pallor, blanched appearance of skin and mucous membrane, loss of appetite, in some cases with an intolerance of food, often nausea and vomiting, constipation or diarrhea. As a rule, in the earlier stages of the disease the breathing is quiet, only on exertion, which produces marked breathlessness; but in the advanced



Red Corpuscles as seen in normal blood.

stage we have great difficulty in breathing. Attacks of syncope or fainting fits are liable to occur, but not so frequent as one would expect; the action of the heart is generally regular and quick, often very feeble; the impulse is often widely visible, undulating and thrilling; the area of cardiac dulness is increasing laterally, due either to dilatation of the heart or retraction of the lung. Aortic and pulmonary systolic murmurs, with palpitation of the large arteries of the neck, often visibly pulsate and are the seat of local murmurs. The jugular hum is seldom absent, and pulsation of the jugular vein is often observed. The pulse is soft and compressible, quick, jerking, empty. There may be enlargement of the thyroid, protuberance of eyeballs, with vertigo and nausea, volitantes or specks or spots before the eyes, albumen in urine, œdema and dropsical effusions into the chest, pericardium, peritoneum and cellular tissue; amenorrhœa; occasionally fatal syncope, coma.

There is usually no enlargement of either liver, spleen or lymphatics, and albuminuria is slight and transient.

As the disease is often due to hemorrhage, epistaxis, hæmoptysis, menorrhagia, hæmaturia, we are liable during an attack to have a recurrence which should be guarded against; but in the sanguine or hemorrhagic diathesis, this is so persistent that it is liable to occur even in the retina of the eye, being most abundant around the optic nerve entrance. It is frequently associated with white spots and areas due in part to leucocyte-like cells, in part to degeneration of retinal tissue. Slight febrile symptoms are the rule.

Anæmia is often divided into simple and pernicious, the latter term being applied to it when due to bad food, conjoined with pregnancy or lactation, or repeated pregnancies, or digestive or intestinal disorders. Malarial influences in the production of hæmaturia give us the best and most common illustration of pernicious anæmia. It is not well to call the profound blood change that is set up by direct nervous shock, fright, grief, very pernicious, as it is a factor of simple anæmia.

The cause for anæmia should be sought for in two directions, diminished activity of blood formation, or excess of activity in blood destruction.

The degree to which the hæmoglobin may be diminished without being fatal, is about one-fifth of its normal quantity. After the blood is drawn we observe irregular massing of corpuscles into pear-shaped, biscuit-shaped or globular forms, and the coloring matter accumulating in the corpuscle at one point, indicating a greater proneness to form changes in healthy blood. At the same time can be seen small fragments of corpuscular matter, evidence of the disintegration of the corpuscles.

In our diagnosis of anæmia neither the spleen, nor lymphatic system is to show any evidence of change; if they do, then it may come under another head.

The theory of the blood formation of the bone marrow has not been sustained. The alterations in the blood and marrow in the form of altered corpuscles are met with in cancer, and they seem to be dependent on the cachectic state rather than the cause of it, and not in anæmia.

There are three other blood diseases that bear a close resemblance and analogy to anæmia—a resemblance due to the factor common to all of them: the diminution of the oxygen-carriers of the blood. In anæmia, a decrease of red corpuscles; in chlorosis, an imperfect evolution of the blood; in leucocythæmia, an increased production of white corpuscles and an incomplete conversion of them into red; in pseudo-leucocythæmia there is deficient formation of red corpuscles; in leucocythæmia, hypertrophy of spleen almost invariably present; in pseudo-leucocythæmia, the lymphatic system greatly infiltrated.

Chlorosis is essentially a disease of nervous origin; centres of life are depressed, hence the process of cure is slow but progressive.

In the treatment of anæmia general principles must be observed as to the removal of cause, enjoining quietness or rest in recumbent posture, attention to clothing and secretions, abundance of fresh air and sunlight. The true aim in treatment is to introduce, as quickly as assimilation will take it up, the most nutritious food with mineral acids, iron, cinchona and other tonics. The nourishing diet embraces milk, raw eggs, restorative soup, raw beef, essence of beef, blood, fish, poultry, roast beef and mutton, at stated intervals with pepsin if digestion is feeble.

Our best remedies are those that increase blood formation most rapidly. Aromatic sulphuric acid and sulphate of quinine: one ounce of the former to thirty grains of the latter. Dose—fifteen to twenty drops thrice daily in water; or compound tincture cinchona and simple syrup, of each two ounces; to which add two drachms of muriatic acid.—Mix. Dose—a teaspoonful thrice daily in water. The greatest possible benefit is derived from peroxide of hydrogen in anæmia, it acts as a scavenger to the blood, it is a life-giving element, oxygenizes every tissue, increases the red discs.

Benefit will be derived from iron, provided it does not cause irritation or fever, or provoke constipation, the acetate or muriated tinctures or iron by hydrogen.

To prepare the acetated tincture, take a pound of lath nails and cover with good strong, sharp cider vinegar, or dilute acetic acid;

step for ten days, then strain. Dose—Half a teaspoonful in a glass of water three times in twenty-four hours, or fifteen drops of the muriated tincture in the same quantity of water, and as frequent. Iron by hydrogen operates well in the following combination :

Iron by hydrogen, thirty grains; sulphate of hydrastin, thirty grains; sulphate of quinine, twenty grains; solid extract nuxvomica, eight grains.—Mix. Make thirty pills. One every four hours.

In administering those remedies, select one preparation of iron to one of tonic; give each every four hours, two hours apart. Open bowels with nutritive enemata or suppositories.

As the patient progresses to recovery glycerite of ozone should be given, as it supplies deficiencies in the blood. It is an invaluable remedy in anæmia—aids powerfully in the restoration of the devitalized fluid to its normal constituency.

When recovery takes place, a change of air to the sea shore is good, fresh food if available, is judicious.

The term anchylosis signifies a fusion or union of the ends of bones in a joint, in which lymph, one of the products of inflammation, has been effused and become organized either into ligament or bone. This naturally divides it into two forms, *true* and *false*, the former in which the effused lymph has become thoroughly organized into bone; the latter in which it is simply ligamentous.

Bone or ligament, neither tissue in a joint being of original formation, nor so vital, is capable of absorption with modern remedies, and the aversion existing among a very large percentage of physicians against interfering with stiff or anchylosed joints is removed.

The precaution of removing the urate of soda or uric acid from the blood by the uric acid solvent should always be observed, as it is not desirable to have either of those agents liberated in the joint during treatment.

It has been demonstrated in thousands of cases that ozonized clay will excite and procure absorption of all adventitious matter in the form of fibrous tissue, that class of tumors in the breast, stomach, bowels, ovaries.

The action of the ozonized clay made into a poultice with cold spring water, and applied to either a true or spuriously anchylosed joint is destructive to the inherent elements of the lymph in whatever state it may be; has marvellous power of absorption of the disintegrating mass, and its prompt elimination from the body.

It acts by endosmosis, penetrates right to the mass, and will cause the lymph to gradually disappear.

The peculiar faculty in effecting this is, that the clay must produce *no* irritation, *no* pain, *no* redness of the cutaneous surface. It must be applied daily, and as it is very hygroscopic, will not retain its ozone very long unless in a dry state; it is best to mix a little, what is to be used at one time.

There are numerous old cases in which bony union is perfect—joint immovable; on these the clay will act well in diminishing the calibre of the effused products, but on the phosphate of lime it exercises no chemical action, hence in true ankylosis, forced rupture, a breaking up of organized products is often necessary.

The more general use of one of nature's products will speedily rid us of a class of deformity very common. It is well to bear in mind in the management of all cases of ankylosis that the secretion of synovia is much augmented by increased nutrition of the brain, so that in all cases, while guarding against the formation of uric acid, the vital elements of brain nutrition should be stimulated with oats, kephaline, etc.

A swelling, pouch, sac or tumor, caused by the
Aneurism. dilatation of the coats of an artery. It may embrace one or all the three coats of the vessel, and may extend a long distance. When all the coats of an artery are dilated, but not ruptured, it is called a *true aneurism*. Dilatation, with rupture of one or more coats, constitutes a false aneurism. The internal and middle coats are frequently ruptured or removed in patches by the detachment of foreign particles or the burrowing of disease-germs; the blood then comes in contact with the external cellular sheath, dilating it into a pouch or sac. The external wall of the tumor in this case condenses, acquires a covering by effused lymph, and becomes thick; and if the patient enjoys average health, the sac will become very firm. The division or rupture or tear of an artery may result in extravasation of blood into the areolar tissue, and thus form a diffused aneurism. Varicose aneurism can only happen when a vein runs over an artery, as when the brachial is punctured in opening a vein. The blood rushes into the vein, rendering it varicose; *nævus*, or aneurism by anastomosis, so common on the heads of children.

Causes.—The absence of support, inherent weakness of organization, a weakened or diseased state of the walls of blood-vessels, the deposit of morbid matter in the blood on the walls of an artery, as particles of starch, fat, calcarea, tubercle, and these, being washed away by the current of the circulation, leave the

spot to which they adhered weak or ulcerated, and impair the elasticity and vital power of resistance of the vessel; when, if the circulation is excited by mental or physical exertion, as coughing, straining, lifting, hoisting, pulling, rowing, jumping, the force of the circulation presses heavily on the weakened part, and a bulging or aneurismal sac is formed. Morbid states of blood are favorable for aneurismal tumors. If they arise from local violence, they are called traumatic, and spontaneous when they arise without local injury—a distinction of no moment.

Symptoms.—A sac, pouch, swelling or tumor, pulsating synchronously with the action of the heart, located over an artery, which, when equally compressed, is emptied of its contents, and when pressure is removed the blood rushes in with a whirring sound. They tend to increase in size, and if near the heart give rise to different morbid states of that organ.

Treatment.—Men, from their more laborious mode of life, are more obnoxious to aneurisms than females, and are better subjects for a spontaneous cure by coagulation, as their blood contains more fibrin and a much greater percentage of red corpuscles than women. We shall briefly enumerate the various methods of treatment before speaking of nature's method.

A ligature applied to the main trunk of an artery cuts off the circulation, the pulsation in the sac at once ceases, a coagulum is formed, which, if vital force is good, is gradually absorbed, and the whole mass degenerates into an impervious cord, the circulation being carried on by the collateral branches. This may all look well, but if there is disease of the artery, as there often is, a union of its internal coats may not take place, and when the ligature sloughs off in one or two weeks, secondary hemorrhage and death ensue; besides, it is only on the thigh in Scarpia's triangle, or in the arm over the brachial or about the head that it can be applied. It is not adapted for the internal forms which are so common.

Pressure, where it can be applied, is of great efficacy in diminishing the flow through the sac. It gives the fibrin of the blood a chance to coalesce and cause coagulation, which is ultimately absorbed. Electricity, applied by means of several needles inserted into the aneurism, produces instantaneous coagulation of its contents. It is best adapted to small tumors.

Nature's method is the best. Fibrinize the blood, restrain the circulation, and coagulation is certain. Begin by the administration of a rich animalized diet, beef, eggs, milk, cream. Improve the digestive organs and increase fibrin in blood with nitromuriatic acid and compound tincture cinchona, or aromatic sulphuric acid and quinine. After a few weeks, enjoin absolute rest

of mind and body, and put patient on digitalis to keep pulse at sixty, steady. Fresh, rich food, no alkalis; do not use aconite, or veratrum viride, or belladonna, for however valuable their action on the heart may be they keep up fluidity of blood. After the pulse has been kept at sixty, under care of a skilled nurse, for one week, use either ergot or carbolic acid internally for about a week, and coagulation of contents of the sac is almost certain. Under such treatment patient must retain the recumbent position, as that slows the heart's action about twelve per minute. The digitalis must be administered in from eight to fifteen drops in water, every three hours, never permitting contractions to exceed sixty. This drug not only slows the heart, but contracts or astringes the heart, arteries and veins; their calibre is smaller, and the tendency is for the blood, if rich enough, to clot in hollow organs, as the aneurism. This clotting begins on the walls of the aneurism and gradually merges to the centre until a clot forms. The ergot or carbolic acid must be very carefully watched, and discontinued if any bad feelings are experienced about the heart. Of all methods this is the best.

Aneurism of the heart is found in two

Aneurism, Cardiac. forms:

1. *The acute variety* depends on a laceration of the endocardium and muscular tissue, through which the blood passes to form a pouch. In this pouch fibrin is deposited, while at its entrance is a fringed margin with vegetations attached.

2. *The chronic form* results from some inflammatory condition of muscular fibre or endocardium. Walls of sac consist of endocardial and pericardial membranes unbroken, while the muscular fibre seems to be replaced by a fibroid tissue. Either kind gives rise to obscure and uncertain symptoms; passage of blood into sac may cause a murmur. Death usually occurs suddenly from rupture.

Aneurism of coronary arteries is not infrequent.

**Aneurism of Thoracic
Aorta.**

The symptoms of this form of aneurism are often obscure in their early stages, bearing a strong resemblance to disease of the heart. If the aneurismal tumor be large and is developed quickly, there is disturbed action of the heart, with some modification of radial pulse; dulness on percussion around portion of vessel from which

aneurism springs; cough, wheezing, difficulty of breathing, spitting of blood, difficulty and pain about back and chest, superficial veins of chest and neck swollen. If the aneurismal tumor becomes very large and pulsating, rises out of the chest, producing protrusion of sternum and ribs, then the diagnosis is easy. If the aneurism presses upon the trachea, there is difficulty of breathing and cough; when on one or both recurrent laryngeal nerves, aphonia, with troublesome cough, severe paroxysms of laryngeal suffocation, pain coming on at intervals; when on œsophagus, symptoms of difficulty of swallowing, engorgement of absorbent vessels and glands, inanition and symptoms of stricture. If the aneurism is in the ascending, near the heart, the patient suffers from angina pectoris, resulting from pressure on the plexus of nerves ramifying on each side of the aorta and communicating freely with the cardiac ganglia and plexuses of the ventricles.

Contraction or dilatation of pupil on the affected side, according as pressure is sufficient to irritate or paralyze branches of sympathetic nerve. Often blowing murmurs can be detected. If the heart be compressed by a tumor, so as to impede the action of the valves, a systolic or diastolic murmur will result. Pressure on aorta or on pulmonary artery may produce a murmur. In false aneurism there is generally a murmur both with entrance and exit of blood into the sac; or there may be one loud and rasping murmur from the passage of blood over the roughened inner surface of the vessel. In true aneurism, or the mere dilatation of a part of the wall, murmurs seldom audible. Even a small opening into the canal of an artery into aneurismal sac, and a roughened state of the arterial tunics from degeneration, will give rise to a murmur. A peculiar thrilling or purring tremor is often felt over the sternum.

The termination may be death from rupture externally, or into pericardium, or into the pleural cavity, or into the trachea, or into the bronchial tube; or the patient may die from exhaustion consequent upon long-continued suffering, or there may be a fatal destructive inflammation of lung, owing to the compression of pulmonary vessels or pressure on pneumogastric.

Aneurism of Abdominal Aorta.

Very common in ladies from falls, lifts, strains and bearing down efforts in labor. Patient describes it as a feeling as if something had given way; most generally met with just behind stomach. It exists from a mere distension of the descending aorta to a large sac; machinists, especially those pulling long heavy bars of steel, are common sufferers.

Empty the bowels; see the patients before they partake of food; lay them on back, knees drawn up, and the tumor can be easily made out. If large enough to interfere with the vermicular movements of the stomach, the case is not so favorable for a cure. If that organ be undisturbed, treatment will soon do its work in effecting a speedy cure.

In aneurism in chest or abdomen all bodily and mental excitement must be avoided, all prominent symptoms alleviated; generous, reparative diet to be allowed; not over one pint of fluid to be used per day; great attention to the secreting and excreting functions, and in the abdominal, the method of treatment by slowing the heart and fibrinizing the blood resorted to.

Aneurism Aneurism by anastomosis, or mother's mark, a formation of dilated arteries, veins or capillaries.
 or *Arterial Nævi*, met with most commonly in
Nævus. infancy and youth. The diseased vessels become enlarged, elongated and tortuous, forming tumor variable in size, irregular in shape, spongy, compressible and pulsating—a murmur being audible.

Venous Nævi give rise to irregular tumors of a purple color, which feel doughy, and are diminished in size by pressure.

Capillary Nævi are most common; for the most part they are congenital, begin usually as a red or purplish spot, which gradually spreads. They are generally met with on the scalp, or face or neck; rarely on other parts, and involve skin or subcutaneous parts, and of all sizes, from a strawberry up.

Treatment.—When very small and producing no disfigurement, and not increasing in size, they are best left alone, as nature often effects a spontaneous cure by a coagulation and absorption of their contents.

There are several methods of treatment, a removal by the knife, or ligature, which is rarely advisable; destruction with caustics, as brushing it over with ethiate of sodium, or nitric acid, or superphosphate of zinc; electrolysis and coagulation of blood by galvanism, or in the application of remedies to excite adhesive inflammation, as injecting with perchloride of iron, or vaccination with croton oil, or painting with collodion and tannic acid, painting with tincture of iodine.

Angina Pectoris. Cardiac neuralgia, or as some term it cardiac epilepsy, from the fact that some cases are accompanied with a warning, a partial death of the cardiac nerves, in which severe intermittent

pain is felt about the heart, with a sense of strangulation and a feeling of impending death, or it is a neurosis due to organic change in the nerves; occurs most frequently in advanced life; more common in men than women. It seems to be associated with ossification of the coronary arteries and fatty degeneration. The cardiac nerves are specially involved in cases of ossification of the coronary arteries, as they are in such close proximity throughout their whole course, for these nerves not only accompany the arterial trunks, but pass into the muscular parietes of the heart along with the coronary vessels; for nervous filaments can be traced as far as the third or fourth subdivision of the arteries; here we lose sight of them, even in the largest animals. The pain radiates or shoots through the connection of the cardiac plexus with the spinal to the brachial and cervical plexus.

Causes.—Disease of the brain, morbid states of blood, stimulants, tea, whiskey, tobacco, sexual excesses, mental excitement, heart starvation from impure blood, defect in organs of digestion and assimilation, mal-assimilation, heart badly nourished, over-exertion, mental or physical, loss of sleep, liver working sluggishly, brain under-fed, the weakened nerves of heart poisoned by products of mal-nutrition or disease-germs, as syphilis; the waste-laden or disease-germ blood produces spasm, worry, struggle for existence, etc. It is intimately associated with gout; albuminuria, diabetes and hepatic disorder.

Symptoms.—Generally the first attack comes on after ascending some slight acclivity, or making some slight exertion, or after a meal. It comes on with a sudden seizure of excruciating pain in the heart, shooting from the breast-bone to back, often accompanied by a feeling of constriction in the chest as if grasped by a vise. The pain is localized, still, it may shoot toward the shoulder, down the left or both arms, even down to the lumbar nerves. This brings the patient to a stand-still; he fears to breathe, but if he chooses to breathe he can do so freely enough; he feels a sensation as if of impending death, and a ghastly paleness overspreads his countenance. The pulse may be regular, or it may intermit or stop, or be feeble and irregular. After a few minutes pain suddenly ceases, and the patient is well, but dreads another attack or recurrence. At first there is often no lung difficulty, as asthma or emphysema or dyspepsia; it seems to be brought about by some trifling exertion, some emotional excitement of heart's action, but as it progresses it does not seem necessary to require an exciting cause, as it will come on when he is asleep, the patient waking up in a paroxysm of anginous pain—a pain so excruciating and commanding that no words can express its intensity; it is appalling; it unnerves the strongest mind, and death would

seem to be preferable to such suffering. The sudden violent pain produces sickness, faintness, depression of heart's action, pale and anxious countenance, coldness, cold, clammy sweat. As the struggle passes off patient regains his usual health, often appears quite well. Whatever produces depression in the function of the fibres coming from the posterior roots of a spinal nerve, and as its result pain or neuralgia, produces also depression of function of motor fibres coming from the anterior root of the same nerve, and as its result sub-paralysis of the parts to which it is distributed. Hence we have in angina pectoris two distinct sources of depression of the cardiac action; (1) we have the most depressing effect of a pain, the most acute and severe that the human body can experience; and (2) we have the action on the cardiac motor ganglia of the same cause which, acting on sensitive nerves, gives rise to this excruciating agony; for we cannot suppose that the depression of motor is any less than the sensitive ones; that is, that the epileptic paralysis of motion bears a relation to the acuteness of the pain, which is the index of the depression of the nerves of sensation.

Should death take place as the result of an attack, the heart will be found flabby, uncontracted, due to inhibitory paralysis. Death is not due to spasm, for if it was it would be instantaneous; whereas, it is gradual, a progressive lowering of the heart's action, becoming feebler and feebler until it ceases to beat.

The main theories that have been advanced to explain the phenomena of the seizure are, spasm of the heart, depression of cardiac plexus, dilatation of heart, and ossification of coronary arteries. Pain is a symptom of variable significance here; it is always intense, arising and ceasing suddenly, and accompanied with a feeling of approaching death.

Angina pectoris has no relation to fatty degeneration, in which there are faintings, cardiac asthma, feebleness of the pulse or of the cardiac impulse, with yellowness or pastiness of the complexion, and an arcus senilis.

Treatment.—This resolves itself into two distinct divisions—during the fit and intermission. During the fit our measures are but palliative, but much more ample than what our forefathers possessed. They had only the use of external stimulants and narcotics—vain hope where minutes are precious. Modern discovery has changed all this. We now have remedies that can be administered by inhalation or hypodermic injection, that can give the patient instant relief of that terrible pain.

Foremost among all our modern appliances for this dreadful breast pang, we place nitrate of amyl, a drug of great power, a volatile narcotic. To obtain a satisfactory result it must be fresh;

not kept in bottles, but in hermetically sealed capsules or pearls, a dose ranging from three to eight drops in each, opened, dropped on a piece of lint and inhaled. It is perfectly safe, and may be entrusted to the patient with the certainty that he will not injure himself by its use. It gives immediate relief, alleviates and removes the pain. It flushes the face, quickens the pulse and lowers the blood pressure on the heart.

If the nitrate is not procurable, or fails on account of its properties being lost in bottles, let the patient inhale a few drops of chloroform, and just as it begins to narcotize, inject hypodermically one-quarter of a grain of sulphate of morphia, so as to have the patient pass from the chloroform sleep into the morphia sleep, from which the patient will wake up in about eight hours, free from pain, but exhausted. Is there no danger from chloroform in fatty or flabby heart? No, not if carried to the point we desire. Nearly all cases of fatty or flabby heart are due to heart starvation, and are benefited by such a stimulant if carried to a certain point, just its slightest effect, from which the morphia at once reacts. No diseased condition need deter the careful and cautious use of the remedy. In reckless hands it is not safe, but with care it is all right. Angina is such a depressing disease that we need perfect narcotism of the nerve centres through which the action takes place—a perfect setting free from all depressing influences.

Ether is also excellent, but **not** rapid enough in its action.

Nitro-glycerine gives the **most** complete relief in angina; one to two drops of a one-per-cent. solution in serious cases gives the most complete relief from pain. Administer in water, and continue during the intermission thrice daily, increasing the dose to eight drops. It lessens the attacks, breaks their frequency and force. Lobelia, sambul, and other antispasmodics are of little utility.

However satisfactory our treatment may be with some of the above or other remedies during the paroxysm, it is during the intermission that the most striking results are to be obtained. During that period the most strenuous efforts must be made to improve the patient's general health, and especially to tone up his heart; avoidance of cold, damp, strong exercise, walking after meals, sexual intercourse and mental excitement; rest, warmth in open air, driving or sitting is to be recommended. His diet must be regulated, to consist of the blandest, most nutritious and unstimulating foods, as broiled beefsteak, boiled fish, eggs, milk, cream; avoid everything difficult of digestion, or that will give rise to flatulence, or stimulate and thereby weaken the heart. Prohibit tobacco, tea, whiskey, etc. The whole sys-

tem must be attended to. Mild laxatives; an active skin by sponging and friction. A healthy stomach and liver does much to improve the tone of the heart, but a healthy brain and pure blood will aid more. The irritating plaster, two pieces an inch square, or else repeated small blisters, of undoubted efficacy.

A very persevering course of vegetable alteratives and tonics should be resorted to, as *phytolacca* and iodide of potassa, *stilingia* and iodide of sodium; mineral acids and cinchona, quinine and iron. Either the irritating plaster or belladonna plaster to be worn constantly over the heart; the former is preferred; some are partial to the latter.

While pursuing an alterative and tonic course, changing remedies weekly, and keeping two open sores at nape of neck freely discharging, then a special class of remedies are to be given to improve the faulty nutrition of the heart. We shall enumerate a few of those remarkable drugs: *digitalis*, arsenic, sulphur, quinine, phosphate of iron, *nux vomica*. *Digitalis* in small doses, not exceeding four drops of the tincture thrice daily, is invaluable in promoting the nutrition of the heart. Fowler's solution, in four-drop doses after meals, is invaluable in cardiac neuralgia and weak heart, being a special tonic to the nerves of the heart. Quinine, iron, *hydrastin* and *nux* increase the nerve nutrition, render them less liable to pain, and are especially valuable in all cardiac neuroses.

More recently cases have been most successfully treated with sulphate of *sparteine* and *strophanthus*.

Domestic animals, as the cow, horse, sheep, goat, **Anthrax.** camels, poultry, etc., like man, if placed in a condition adverse to their vitality, are liable to have the primary elements of their nutrition degraded, changed or altered into a disease germ, a giant form of bacteria, which, either in their own bodies, or if communicated to man, have wondrous power of growth and reproduction in the blood.

The bacillus anthrax is peculiar to cattle, and may be communicated either by close contact, food or water, or otherwise, from one species to another, during which the microbe acquires an intensity, virulence and activity which is typically fatal to life. Its migration from animals to man is attended with most fatal results. The micro-organism is so very tenacious of life that it will live for centuries in the wool, hair, hides, dried flesh, or blood of the affected animals. The causes are adverse states, as exposure, insanitary conditions, over-crowding, bad, meagre food, neglect; essentially contagious and infectious.

Anthrax may attack man in three different ways—malignant pustule, anthrax œdema, and internal anthrax.

The malignant pustule is usually the result of inoculation, and is most frequently met with on the hands, arms, face and neck, or some exposed part of the body, and commences as a small red point or pimple, which may be painless or attended with a stinging sensation like that of a wasp-sting. A small papule speedily forms, which becomes covered by a flat vesicle which enlarges and usually bursts, discharging a clear bloody fluid; a central black eschar forms at the base of the discharged vesicle, and a crop of other smaller vesicles form around it. The surrounding tissue becomes inflamed, so that the vesicle is seated on a hard base, with a sort of erysipelatous blush and swelling extending for a considerable distance.

The central eschar enlarges, and the corona of vesicles, as well as the inflammatory sore, enlarges, and the œdema becomes quite great, so much so that if seated on the face, the head, neck, and shoulders become involved in the general doughy swelling. The lymphatics of the neck are seriously involved.

If the patient weathers the crisis, the central slough separates and the wound granulates and heals.

The constitutional symptoms are those of a malignant poison,—rigors, high fever, nausea, vomiting, prostration, sleeplessness, labored breathing, exhaustion and delirium.

Death may occur early or not for several days.

Internal anthrax is as rapidly fatal with or without internal lesions. It is usually brought about by the bacteria giant cells finding their way into the blood by the air, food and water. Lesions, or rather colonies, of the micro-organisms are found in the bowels, liver, spleen, brain and blood.

The symptoms of the internal are prostration, vomiting, dysphagia, pain, uneasiness in abdomen, colic and diarrhœa, the latter often bloody from the first; collapse and cyanosis.

Death is often quick.

The symptoms of the form without internal or external lesions are those of extreme prostration and malignancy.

After death in any of the forms the blood is found filled with large bacteria. Thrombosis of blood-vessels by masses of bacilli, not uncommonly an artery or vein being filled with a clot or plug loaded with germs.

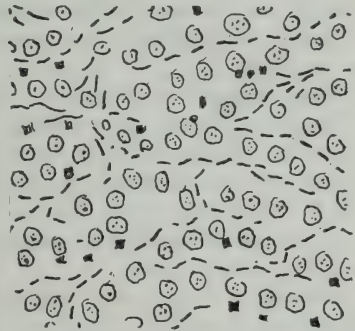
The recognition of anthrax is often difficult and obscure, unless we have a good history, as a wool-sorter, butcher, tanner, or hair or wool operative, or an attendant upon diseased cattle, or drinking water into which the refuse of an alpaca, or mohair, or tan factory empties, or is close by.

The prevention of anthrax among our domestic animals is of national importance,—the mode is simply good food and care, an avoidance of overcrowding, and all insanitary states, abundance of pure water, cleanliness, ventilation, etc.

The blood of all suspected cases of anthrax should be at once examined, and if there are present in that fluid stiff and long rods as seen in the annexed diagram, and those rods multiply by division of spores and grow into long, homogeneous looking, straight or twisted filaments, then our diagnosis is positive, as the germ is pathogenic of the disease. To aid this the spleen is usually large, full or engorged with the germs.

The disease can be best studied in its pustular form in a factory in which wool is used, or alpaca, mohair, or the fleeces of our own domestic animals who have died

from the disease. If the serum or any exudation from the pustule is placed in the field of the microscope it will give us the annexed appearance.



Bacillus Anthrax as seen in the blood of a wool-sorter.

Bacillus anthrax, the degraded bioplasm of cattle changed under adverse circumstances into a giant bacteria, give rise to splenic fever, cattle plague, malignant pustule, wool-sorter's disease. A thorough knowledge of this bacillus is of the greatest importance to the human race. Its morphological and biological characteristics have been thoroughly worked out. It is one of the best of all microbes to study out, to cultivate, and give one an appreciation of germ evolution.

The bacillus anthrax will grow in a nutrient fluid at almost any temperature; besides, it will grow in water and cast off spores, which become permanent seeds. The effusions, effluvia from mouth and nostrils of affected animals, being germ-laden in a pasture field where decaying animal and vegetable matter affords nutrition, the bacillus will grow on the surface of the soil. The treatment of anthrax must be highly germicidal, and carried out according to the indications present; no time for experimenting, as it runs its course with amazing rapidity. If there be fever, antifibrine, in sufficient doses to equalize circulation.

Peroxide of hydrogen is a remedy of rare value, administered



Bacillus Anthrax as seen in the pus of a pustule on the hand of a wool-sorter.

every two hours in alternation with 15-grain doses of resorcin. These two remedies seem to be capable of annihilating the germ; and, to the pustules on the hands, face, or elsewhere, a paste made of either iodol or resorcin with an equal quantity of ozone ointment. If a good preparation of peroxide of hydrogen is not obtainable, then some of the following remedies should be used: Con. ozone, in 15 drop doses, alternated with 15 grains of resorcin every two hours respectively. Concentrated ozone, two ounces; chloroform, one ounce. Mix. Keep constantly applied over spleen.

Concentrated tincture of kurchicine is a remarkable germicide in anthrax, kills the microbes, and virtually grasps the patient from the abyss of death. It must be administered in precisely the same manner as in malignant malaria—not a drop of water given till the drug has done its work, which will be known by an extremely profuse, fetid sweat, prostration, when beef tea and brandy must be freely given.

Mysteriously strange, obscure, sudden death, occurring in the families of woolen operatives, tanners, alpaca and mohair sorters, should in all cases be regarded with extreme suspicion, and the slightest evidence of indisposition on their part promptly attended to.

Loss of the cerebral faculty of speech and of **Aphasia.** the power of expressing thoughts by writing or gesture. A simultaneous loss, in a greater or less degree, of the memory of words or acts, by means of which words are articulated, and also of intelligence.

That transitory form so common in the recovery from fevers, typhoid and diphtheria, due to congestion or anæmia, from which recovery always takes place, is not what we desire to notice; it is the form that is permanent and due to softening of the brain from embolism or thrombosis, hemorrhage, or poison of syphilis, or due to the absorption of lead, nitrate of silver in hair dyes, or the inunction of bismuth and arsenic in face powders, or to the terrible effects of nicotine in tobacco. These agents in their use cause irritation and softening of the posterior portion of the third frontal convolution of the brain on the left side.

Symptoms.—It may come on either slowly or suddenly, and may or may not be associated with germinal softening. It is ushered in by loss of the power of speech, which may be regained and recur again and again. In some cases words are recovered and employed and ultimately lost. Again, speech may make a temporary return under excitement, and then leave. Movement of lips, tongue and larynx may be healthy. There may be con-

sciousness of what is wished to be expressed, and yet complete inability to express the thoughts by speech, writing or even gesture. The patient may know the use of an object, but cannot name it. They may read, but if they understand what they peruse they forget directly, as they will pore over and over again the same page. There is the greatest possible diversity in the impairment of the mental powers, usually hemiplegia and a complete breaking down, with the worst form of cerebral disease.

In cases clearly due to the use of hair dyes, face powders, tobacco, syphilis, gout, if not of too long standing, there may be hope from the general treatment of chronic inflammation of the brain; especially, plasters and blisters to nape of neck, with alteratives and tonics. Iodide potassa in alternate use with ozone-water. These two remedies are of infinite value in clearing the brain of such deleterious compounds. When aphasia is due to the use of the peroxide of hydrogen as an auriferous hair dye, no remedy is of any avail.

Loss of Voice from Functional, Blood or Organic

Aphonia. *Disease*, operating upon the vocal cords, varies in degree from a slight hoarseness to complete dumbness. There are numerous varieties, as *aphonia* from absence of tongue; *aphasia*, the loss of the cerebral faculty of speech by disease of the base of brain from nitrate of silver, lead, bismuth in hair dyes and cosmetics, and disease-germs as syphilis, tuberculæ, diphtheria; *aphonia* from warts, tumors near the glottis; *aphonia* from the different forms of chronic laryngitis: *aphonia* from loss of nerve power, as in typhoid, and *aphonia* from irritation reflected, as in teething, worms, masturbation.

It is unnecessary to describe them all as they are spoken of under their respective heads. There are two forms, however, that might be enumerated—functional and organic.

1. *Functional Variety*.—Reflected irritation tells badly on the larynx. Children often lose their voice in teething, worms and the like; women who suffer from uterine, ovarian or other forms of irritation of the genito-urinary organs suffer much and often. The irritation of the clitoris with hypertrophy of that organ causes a wonderful harshness of voice, rough and masculine. Males of effeminate type, sensitive disposition, are great victims of aphonia, if addicted to masturbation. The squeaky voice, with or without loss, is notorious. Some men will suffer from aphonia from sexual excess or a gonorrhœa. If this reflected or functional form is permitted to continue long, the vocal cords are liable to suffer atrophy or paralysis, to become flaccid and powerless.

2. *Organic Form.*—This is apt to be present in old cases of chronic laryngitis, perforating ulceration in the syphilitic or mercurial form. It might also follow diphtheria, morbid growths, disease of blood and brain. •

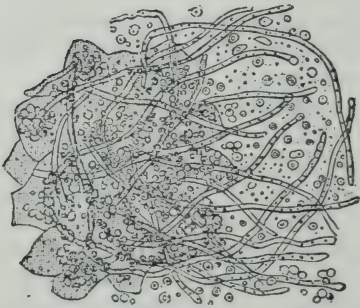
Treatment.—This requires great tact and good judgment. The removal of causes is of vast importance; teething, worms, irritation of the organs of generation, male and female; the destruction of all disease-germs in the blood, appetite promoted, nourishing diet, shower baths, irritating plaster to nape of neck, equable temperature, 75° , moist atmosphere, inhalation of warm, atomized sprays of ammonia, tincture of hydrastin, gargles of chlorate of potass, bayberry, iodol and oxygen.

General alterative and tonic course of treatment, using freely such remedies as glycerite of ozone and kephaline; phosphated tincture of oats, saxifraga, phytolacca; and as tonics, quinine, iron, hydrastin, nux vomica, fluid extract black willow bark. If the cases do not yield, large doses of bromide of potass, calabar bean, and tincture of green root gelsemium, to diminish irritation of cerebro-spinal axis; atomized sprays of peroxide of hydrogen.

This affection is one of the most common of all **Aphthæ.** diseases due to the presence of a disease germ.

This is not surprising when we realize the fact that 75 per cent. of our entire population suffer from tuberculæ, and 50 per cent. from the syphilitic germ.

Aphthæ, properly speaking, consists in a degradation or alteration of the living matter of nutrition of the mucous membrane of the mouth into the disease germ *oidium albicans* and *leptothrix buccalis*. A pure change of bioplasm in the mucous and sub-mucous coats, which first exhibits itself to the naked eye as a point of redness, small, round, then effusion takes place which elevates it into a vesicle or blister. There may be only a few or a crop of them, they may remain isolated or coalesce and form patches. They may take place on the lips, gums, cheeks, tongue, palate, tonsils, or extend downwards through the œsophagus.



The Oidium Albicans of Aphthæ.

Causes are very numerous, all disease germs in the human blood, more especially the microbes of tubercle, syphilis; the poisons of mercury, lead, etc.

Simple mal-nutrition will so change the embryonic elements of nutrition into the disease germ the *oidium albicans*, which when once evolved, is capable of independent existence with prodigious powers of reproduction.

Associated with the evolution of the germ, there is usually profound constitutional debility.

The germ may be evolved as the result of simple mal-nutrition, then there is no real diagnostic mark but the mal-nutrition and ordinary symptoms of inflammation and ulceration.

When the bacilli of tubercle act as the predisposing cause, the diagnosis rests chiefly upon the peculiar mottled cheesy appearance; usually there are associated with it laryngitis, bronchitis, pulmonary tuberculosis.

The syphilitic form is recognized by the copper-colored appearance of the ulcers in which the germ is imbedded.

That due to mercury and lead has a slate-colored, metallic hue in the ulcers and also a peculiar fetor of the breath.

The form peculiar to infants, *Infantile Aphthæ*, is very apt to arise from the imperfect cleansing of the mouth, or the child being permitted to lie with the nipple in its mouth. Particles of milk lodging in the crevices of the mucous membrane become sour or rancid, and give rise to irritation of the mucous membrane; or it may be due to heated milk from over-work on the part of mother, or the lactiferous fluid may be bad. It may come from diseased children kissing each other, or diseased adults kissing healthy babes. Once the disease germ is developed in the child's mouth, the nipple of the mother becomes similarly affected; vesicles forming, then cracks and fissures, filled with colonies of *oidium albicans*.

The general health suffers. The child becomes irritable and restless; some fever, debility, cough, vomiting, diarrhea, and general want of nutrition.

The small white blisters become ulcers on the tongue, cheeks, gums, palate, tonsils; breath is fetid, and if they extend down there may be difficulty in swallowing; and if there be much debility, the case may merge into ulcerative stomatitis or *can- crum oris*.

All forms highly contagious and infectious.

Treatment.—In the treatment of all forms of *aphthæ* we must recognize the pathology of the disease, an innervation of the powers of life, a condition of constitutional debility which predisposes to this peculiar degradation.

So in the treatment a strenuous effort must be made to improve the general health by a tonic and alterative course—such tonics as preparations of cinchona and mineral acids, *avena*

sativa, glycerite of kephaline, remedies to correct the mal-nutrition, and alteratives, as comp. saxifraga.

All insanitary states avoided and a most generous scale of dietetics prescribed.

In the form of mouth washes or gargles, such germicides should be used as will annihilate the germ, painting the microbe patches with either aromatic sulphuric acid, or tincture of siegesbeckie orient or distillation of jequirity, and then using washes of either infusion of hyssop and resorcin; or solution of boroglyceride; or of comp. oxygen; or a few drops of peroxide of hydrogen added to water; or chlorate of potassa, or chlorate of carbon; or infusion of hydrastis, and boroglyceride.

If the aphthæ has descended, there is usually great prostration or debility, and germicides must be administered internally. In such cases either the glycerite of sulphur or ozone act promptly, kill the oidium albicans, and heal up the diphtheric-looking appearance of the mucous membrane which had been so completely riddled soft, loose, friable by the germs.



This term is applied to an engorgement of blood, **Apoplexy.** with or without extravasation of blood, in or upon any organ, as the brain, *cerebral apoplexy*; in or on the cord, *spinal apoplexy*; in the lung, *pulmonary*; and so on with other organs.

As generally used, the term denotes an exhausted state of the cerebral pulp, either with anæmia or congestion—the state of vital exhaustion so great as to cause the patient to fall down as if from a blow.

Causes.—Anything that tends to exhaust the vital integrity of the brain, whether that cause may be predisposed to by hereditary tendency, peculiar types of conformation, aggravated or intensified by sedentary habits, high living, protuberant bellies, large heads, florid features, short, thick necks, high shoulders, a predisposition to hemorrhage. Apoplexy is also engendered by disease of the liver, heart, kidneys, ossification and calcareous degeneration, and deposits of cerebral blood-vessels, gout, intemperance, embolism, impure air, tight neckties, stooping posture.

Varieties.—*Nervous or simple apoplexy*, fatal with a trace, is rare; the *sanguineous*, or that accompanied with extravasation of blood into the brain, very common; and the third form, the *serous*, in which the serum effused is simply present and has no relation to an attack. A stroke or an attack is usually followed by stupor or coma, and the comatose condition may cease in various ways. It may gradually pass off, leaving the patient well;

or it may terminate in incomplete recovery, mind impaired and some part of the body paralyzed; or it may terminate in death. In the latter case, on examining the brain, we find either no appearance of disease, or else extravasated blood is discovered in the ventricles, or pons varolii, or to a certain amount in the centrum ovale majus, or in sac of arachnoid, or there may be a copious effusion of serum into ventricles or beneath arachnoid, with or without cerebral softening. That form which is fatal without any trace is very rare. That in parturient women is generally a clot embolism from ergot.

Morbid Anatomy.—Cerebral hemorrhages are of all sizes, from minute capillary extravasations to large clots containing several ounces of blood. Preceding the hemorrhage, the ruptured vessel is the seat of miliary aneurisms, due to arterio-capillary fibrosis, which begins in the perivascular lymph spaces, and extends to the tunica intima. Microscopic deposits, or aneurismal dilatations, globular, sacculated or fusiform, are developed in innumerable numbers, and it is through their ruptured walls that the hemorrhage occurs. Besides, it is often due to fatty and calcareous degeneration.

The general locations of extravasation are the intraventricular nucleus of the corpus striatum, optic thalamus, cerebellum and pons varolii.

If the apoplectic clot is not immediately fatal, change will take place in the clot—the serum will be absorbed—the clot may undergo fatty or other forms of metamorphosis, and it may become encysted.

Warnings.—Frequently there are no premonitory indications or threatenings; when there is, they are characterized by headache, vertigo, muscæ volitantes, or transient blindness, or double vision, ringing in the ears, a feeling of weight and fulness in the head, often bleeding from nose, fits of nausea, occasional sense of numbness in limbs, loss of memory, great mental depression, incoherent talking, drowsiness, indistinct articulation, and partial paralysis of foot, limb, face, eyelids.

An attack usually begins in one or other of three forms:

1. Patient falls suddenly down, deprived of sense and motion,



Cerebral Apoplexy.

Horizontal section of the cerebrum through a clot in the left optic tract.

A, A. Clots from hemorrhage.

B, B. Area of tissue stained with blood pigment.

like a person in a sleep; flushed or even livid; breathing stertorous, pulse full but slow, much below the natural standard; often convulsions, or rigidity, or contraction of the muscles of the limbs on one side.

2. Sudden, and it may be excruciating pain in the head, pallor, sickness, faintness, often vomiting; frequently the patient falls to the ground in a state of syncope, coma. In other cases, instead of falling, the pain in the head is accompanied by a slight and transient loss of consciousness, then headache, with heavy oppressed feeling in the head, which terminates in forgetfulness and coma, from which recovery is rare. Clot of great size is generally found in the brain.

3. Or it may come on with all the symptoms of cerebral hemorrhage, paralysis of one side, loss of speech, but no loss of consciousness. The paralysis leads to coma, or it may pass off and the patient recover; or it may pass off and death suddenly occur in a few hours or days, or it may terminate in another attack.

Apoplexy has well marked and general characteristics; its duration varies in all cases from a few hours to as many days. Complete and total unconsciousness; pulse generally at first imperceptible or small, but as the patient rallies, stronger and fuller as the shock wears off, but slower than natural and often intermittent; respiration is slow and embarrassed, or stertorous; frothy saliva flows from the mouth, and in bad cases the body is covered with a cold, clammy sweat; face is either congested, swollen, livid or very pale; eyes dull, glassy, pupils insensible to light, often one contracted or the other widely dilated; ptosis, or dropping of eyelids, or squinting, according to the nature of the effusion and its location; teeth firmly clenched, power of deglutition lost or impeded, bowels constipated, motions passed involuntarily, involuntary micturition. When it is of the sanguineous type, it is not unusual for neck and even shoulders to show congestion and lividity. Incomplete recovery is almost always followed by paralysis.

Treatment.—If the condition in any of its three forms is suspected, the patient should be warned to guard against all bodily exertion, as running, jumping, lifting, hoisting, or violent mental emotion or passion, or straining at stool; and tea, coffee, tobacco, whiskey, beer and venereal excitement strictly forbidden; heavy meals or much animal food, stooping, tight neckties, hot baths, and even extremes of temperature to be avoided. Diet to be nutritious but light, bedroom cool, well ventilated, to sleep on a hair or straw mattress with head high; hair kept short, shower or cold water bathing, daily moderate exercise, bowels to be open twice daily. Two points of irritation between shoulders kept

discharging, at least one inch square; a little capsicum in socks. If there is vertigo, bleeding at nose and headache, bowels more active, bromide of potassa, tinctures of aconite and belladonna administered. If not speedily relieved, wet cups to nape of neck and shoulders. If anæmia is predominant, cinchona, mineral acids, with nutritious, easily digested food.

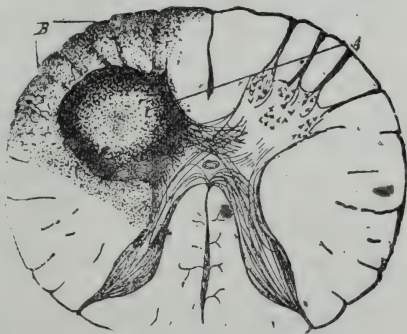
Suppose an attack to have taken place, and that it is of the sanguineous type, with coma, labored breathing, pulse slow, imperceptible almost, the face turgid with blood, almost purple or black, neck ecchymosed, etc. Then our treatment would be precisely the same as for acute inflammation of the brain: shave the head and apply hot water, wet cup nape of neck and shoulders; mustard roller to feet and limbs, free purgation with compound powder of jalap and senna, with a few drops of croton oil, and repeat it; head high, and if stertorous breathing continue to be placed on right side; then veratrum viride with bromide of potassa; otherwise, general principles.

Suppose it is an attack with anæmic syncope; no pulse, sighing respiration, cold clammy skin, pale face, etc.; we must stimulate; warm water to head, no cups nor free purgation, but stimulants. An effort must be made to rouse the patient with stimulating enemata, nutritious diet, and a course of treatment similar to chronic inflammation of brain.

Effusion of blood into the cord may take place
Apoplexy, at any part, and in a small or great degree, either
Spinal. in its substance or from its membranes. It may be a result of active inflammation or of concussions, blows, falls, over-exertion, degeneration of coats of blood-vessels, as fatty, calcareous caries of the vertebræ.

A meningeal hemorrhage may extend quite a distance in the cord, but generally is circumscribed; a clot of varying size may involve either the gray or white matter, or both.

The symptoms will vary according to the seat of lesion. Acute and sudden pain in back, sometimes in head; of ten severe convulsions; difficult breathing if high up, with heart's action depressed, with



An effusion of blood with the substance of the cord.

pale and cold skin; if not high

up consciousness not impaired, the spasm then being confined to limbs. Effusion into substance of cord produces paralysis in all parts supplied with nerves coming off below its seat. If hemorrhage be very slight, loss of power occurs slowly. If effusion is suspected, a further amount is to be checked by perfect repose and application of ice in an intestine along the spinal column. Subsequently, the galvanic cautery followed by poultices, the faces of which are covered with aconite and belladonna liniment. Large doses of bromide of potassa and calabar bean with general alteratives and tonics, guarding all points very carefully.

Extravasation of blood into the lung tissue

Apoplexy, is usually greater in amount than what takes
Pulmonary. place in the brain—usually there is a complete laceration of tissue, or a cavity of considerable size with the blood in it either completely or semi-coagulated. The apoplectic extravasations are never much circumscribed, usually a mass of blood in shreddy œdematous infiltrated parenchyma. It may prove immediately fatal, if the pleura is extensively perforated. If the patient does survive the accident, recovery takes place either by adhesion of the torn surfaces of the lung after the absorption of the extravasated blood, or by the formation of a capsule of connective tissue around the clot, after which the latter undergoes a cheesy, cretaceous or pigment degeneration, and remain permanently imbedded in the lung.

Diffused pulmonary apoplexy may occur from a very large infraction; it results from disease and degeneration of arteries. A branch of the pulmonary artery may suffer from a small aneurismal condition, and give way through slight exertion, as running, jumping, a fall, fractured rib, gun-shot wound. Disease of the coats of the artery may cause it, or erosions from the devastations of the cancer germ, or the bacilli of tubercle. Common in males three to one after the twenty-first year.

Symptoms.—Profound collapse, profuse hemorrhage, extreme difficulty of breathing, lividity, are the chief symptoms. Asphyxia, convulsions, due to the bronchi being filled with blood.

It is often difficult to determine this from other diffuse pulmonary hemorrhages. It often goes unrecognized until a post-mortem is made.

Recovery is rare, and only possible when the rent in the lung is slight.

Treatment.—The diffuse form of pulmonary hemorrhage is not amenable to treatment, as the patient dies from the hemorrhage and shock. Diffusible stimulants with quinine may be tried, administered freely.

A genus of entozoa or intestinal worms. The **Ascaris.** species are very numerous, one of the best known is the *ascaris lumbricoides*, commonly called the round worm, which occurs in the intestines of man and some of the lower animals, and bears a striking resemblance to the common earth worm. When once in the alimentary canal, to which it gains access by its eggs being incorporated in some article of food or drink, it produces a deterioration of the general health and reflexly irritates the brain, giving rise to cerebral anæmia, which is indicated by the pale face, dilated pupil, indigestion, fetid breath, cough, grinding of teeth, rolling of head, spasms.

An immense number of remedies are in general use for the expulsion of this parasite, the most effectual of which is *santonine*. It does not in all cases kill the worm, but acts by making their dwelling-place disagreeable to them.

One or two grains of pulverized santonine should be triturated in five or ten grains of sugar of milk and administered every other night on retiring, in water, followed the morning afterwards with a dose of comp. syrup of rhubarb and potassa to move the bowels.

As a general tonic to the intestinal tract, so as to brace it and prevent the eggs of those parasites lodging in its folds, the ozonized extract of stone crop should be administered for six or eight weeks.

Ascaris vermicularis, or thread worm, is a very

Ascarides. common species, both in children and adults. It infests chiefly the lower portion of the colon and rectum, great numbers often being present. They are white in color, not more than half an inch in length.

Their presence is indicative of great inherent weakness of organization, and their generation due either to eggs swallowed in food or drink.

They occasion intolerable itching, irritation, loss of sleep and impairment of the general health.

In the treatment of ascarides an effort must be made to improve the general health by all possible means. A most generous diet, gentle exercise, a judicious use of tonics and alteratives. The patient should be placed upon the internal use of Virginia stone crop for three months.

Before the usual daily evacuation of the bowels, an injection of any one of the following agents, infusion of quassia, golden seal, wormwood, goldthread, stone crop, or a solution of boroglyceride; resorcin, naphthaline, will be found of great efficacy.

On retiring in the evening the bowels should also be copiously injected, so that its contents may pass off; then about two ounces

of ozonized witch hazel injected and permitted to remain over night. In this way a speedy cure is effected.

An effusion of serum into the cavity of the abdomen may arise from numerous causes, although the two principal are peritonitis and disease of the liver

1. In acute, but more especially in chronic, inflammation of the peritoneum, effusion of serum takes place in great abundance, but the inflammatory process may subside, leaving the cavity of the abdomen pretty well filled up with fluid, when effusion still progresses onward owing to a distension or unravelling of the peritoneal fibres or sacs.

2. All morbid states of the liver, whether it be an inflammatory process or due to the gland being blocked up by disease germs or microbes, causing an interstitial death or destruction of the hepatic cells, with either hypertrophy or atrophy of the gland. Microbial engorgement of the liver is a more common cause of enlargement than either alcohol or mercury. Enlargement is a more fertile source of effusion than atrophy, from the obliteration or wiping out of its proper structure by fatty, amyloid or cystic degeneration, blocking up the portal vein, obstructing its normal circulation.

In addition to those two principal sources of dropsy of the abdomen, there are always more or less exosmosis of serum from the blood in disease of the heart, spleen, kidneys, anæmia; besides, it is often the result of extensive burns.

The recognition and diagnosis of ascites are not by any means difficult. The history of the case and the physical appearances are good points as to whether the dropsy arises from an obstructed or clogged-up liver, or from chronic peritonitis. If from the liver, the sallow or yellow skin, congested conjunctiva, brown-coated tongue, cough, dulness on percussion of the upper lobe of the right lung, pain in shoulder, liver indurated either small or large, drowsiness, urine loaded with bile; whereas, if from chronic peritonitis, none of the above symptoms will be present, but the upper portion of the body will be greatly emaciated, features pinched, countenance anxious, skin shining, superficial veins dilated, abdomen greatly enlarged.

Ovarian cysts sometimes become enormously enlarged, so as to fill up the entire abdominal cavity, and the diagnosis is often difficult; at a late period generally, however, it can be made out.

A good plan is to cause the patient to stand up, spread the fingers of the left hand over the right side of the abdomen of the patient, and tapping gently with the right hand the left side of the abdomen; a wave, a sense of fluctuation can be felt undulat-

ing from side to side. This fluctuation or vibration is most valuable and reliable. Bowels might be emptied with a dose of oil, then the patient placed in the recumbent posture, then on percussion there is resonance, bowels floating on the top of the fluid. In the recumbent posture, if there is water in the cavity of the abdomen, there will be a sense of suffocation from the water pressing up against the diaphragm; great difficulty of breathing; respiratory murmur cannot be heard so low down as in health; tubular breathing; apex of heart elevated and pressed to the right side. Very generally there is swelling of the feet and limbs; if the heart and kidneys suffer, œdema of the face and arms. There is a general depreciation of vital force,—debility, emaciation, prostration, want of appetite, sleeplessness, inability to lie down, invariably ending fatally when due to organic disease of the liver.

In the treatment of these cases, success usually attends our efforts when due to peritonitis; but when due to organic disease of the liver, the effusion may be removed again and again, but it will re-accumulate, because the cause does not permit of removal.

The removal of the water from the cavity of the abdomen is effected thus:—the patient must be built up in every possible manner, placed upon the richest diet, and every possible means taken to improve his general health. A few days before any strenuous effort is made to remove the effusion by the three emunctories of the body, the patient should be either placed upon an infusion of digitalis, or upon the tincture of strophanthus. The action of either of these two remedies gives tone to the heart,—unlocks the flood gates of the body. These remedies should be followed up with *diaphoretics*, of which the alcoholic vapor bath is probably the best; *diuretics*, of which hair-cap moss, squills, bitartrate potassa and apocynum are efficient; hydragogue cathartics, as mandrake combined with nitrate and bitartrate of potass; squirting cucumber.

These means failing, an alterative course should be tried; all remedies failing, then the abdomen should be tapped.

This term is generally used to designate suspended animation, produced by the non-conversion of the venous blood of the lungs into arterial. **Asphyxia.** The supply of air being cut off, the unchanged venous blood of the pulmonary artery passes into the minute radicles of the pulmonary veins, which require arterial blood to excite them; more or less stagnation takes place in the pulmonary capillaries, and death frequently ensues from this cause. Besides, the non-oxy-

genized blood is very poisonous to the brain, and has no stimulus to the ventricles of the heart.

It is believed that asphyxia occurs before the oxygen has disappeared from the blood, because it is held by the hæmoglobin so firmly that the tissues cannot obtain it. Thus, suppose no oxygen is admitted by respiration. It is well known that all the blood in the body passes through the heart and lungs in the time of one complete circulation, that is, in about twenty seconds; and we have it on eminent authority that in this time one-third of the oxygen is used up by the tissues. According to the percussion theory, the stroke of the left ventricle arterializes the blood, that is, liberates the oxygen from the hæmoglobin, and this arterialized blood is carried to the tissues. The hæmoglobin does not get sufficient time to recombine with the oxygen, because of the successive strokes of the heart and the vibrating thrill kept up in the arterial ramifications. The free oxygen is used up by the tissues in the capillary circulation to the extent of one-third. After leaving the capillaries, the two-thirds of oxygen again recombine with the hæmoglobin, and in this condition return to the heart, along with one-third of hæmoglobin that has lost its oxygen. In ordinary circumstances this one-third would again obtain oxygen from the alveoli of the lungs; but if all the oxygen there has been used up, of course it cannot obtain any oxygen. The blood flows from the lungs to the left ventricle, when it is again arterialized, and again sent out through the arteries; but as there is now a large amount of free hæmoglobin present in the capillary circulation, it will seize hold of a part of the oxygen, and the tissues will obtain less than the usual supply. With each successive circulation, the amount of oxygen available for the tissues will become less and less, until the tissues receive none, because all the oxygen set free by each beat of the left ventricle is seized hold of in the capillary circulation by the reduced hæmoglobin. The tissues die from want of oxygen, because there is too much reduced hæmoglobin present, a substance having a greater affinity for oxygen than the tissues possess, a result that would probably occur, as in drowning, in the time of six or eight complete circulations, that is, in three or four minutes.

Causes.—Whatever prevents the ingress of air into the lungs, as effusion of lymph in acute laryngitis; congestion of the lungs in pneumonia; drowning, strangulation; obstruction of the larynx by foreign bodies; inhalation of chloroform, carbonic acid gas, other poisonous gases; narcotic poisons; injuries to the medulla oblongata; dislocation of the spine in cervical portion.

In all forms the treatment resolves itself into the removal of

foreign bodies, or water; allowing an ingress of pure air into the lungs, and in inducing warmth and circulation.

Asphyxia from Drowning.—The first effect felt by a drowning person is an urgent feeling of anxiety in the chest; the pulse becomes weak; the respirations become less, and the blood of a venous hue. The venous blood acts as a narcotic poison on the brain—produces insensibility, loss of voluntary motion; surface becomes of a livid hue; the heart ceases to beat; the sphincters relax; body sinks to the bottom.

If life is utterly extinct, the pupils are dilated, jaws clenched, fingers and thumbs contracted, face pale.

Reanimation may take place from five minutes to three-quarters of an hour after immersion.

Asphyxia from Strangulation.—The first effect of tightening the cord around the neck is the suspension of respiration, and engorgement of the brain with blood; then sensibility decreases; epileptic convulsions come on—suffusion, lividity, turgidity of the face and upper part of the body; eyes open; features distorted; hands clenched; sphincters relaxed. If the air is not perfectly excluded, the sufferings are: engorgement of head and brain greater. The action of the heart becomes more active as the death-struggle progresses, and continues beating after respiration has ceased.

Asphyxia from Poisonous Gases.—Carbonic acid gas is the most common—burning charcoal.

The usual symptoms being a deep sleep, with intense, throbbing headache, with weight and heat, especially about back of head; strong pulsations and tightness across the temples; vertigo; increased action of the heart, and often violent palpitation; confusion of ideas; failure of memory; nausea; hysteric sobbing. If the vapor has been breathed for some time, the symptoms will be: noises in the ears, partial or total loss of vision, disturbance of the senses.

Asphyxia, under the above conditions, depends upon accumulation of carbonic acid gas in the lungs, the want of oxygen in the blood—the natural stimulus of living tissue.

Appearances which Indicate Death.—Total suspension of breathing and heart's action; eyelids half closed and pupils dilated; jaws clenched; tongue appearing between teeth, with frothy mucus about the mouth and nostrils; fingers semi-contracted, with coldness and pallor of the surface.

Treatment of Asphyxia from Strangulation or Suffocation, Anæsthetics, Gases, etc.—

RULE I. *To Maintain a Free Entrance of Air into the Wind-pipe.*—Cleanse the mouth and nostrils; open the mouth; draw

forth the patient's tongue and keep it forward; an elastic band over the tongue and under the chin will answer this purpose. Remove all tight clothing from neck, chest or waist. Make sure that there is no foreign body lodged in pharynx, larynx or œsophagus. If water is there, place patient on abdomen, over a hog'shead and give half a dozen rapid rolls. Then

RULE 2. *To Adjust the Patient's Position.*—Place the patient on his back, on a flat surface, inclined a little from the feet upwards; raise and support the head and shoulders on a small, firm cushion, or folded article of dress, placed under the shoulder-blades. Supposing natural respiration has ceased, proceed—

RULE 3. *To Imitate the Movements of Breathing.*—Grasp patient's arms just above the elbows, and draw the arms gently and steadily upwards until they meet above the head. (This is for the purpose of elevating the ribs, and thus expanding the chest and drawing air into the lungs.) Pressure on the breast-bone will aid this. Repeat these movements alternately, deliberately and perseveringly, fifteen times in a minute for two or three hours, or until a spontaneous effort to respire is perceived; immediately upon which, cease to imitate the movements of breathing, and proceed to induce circulation and warmth. Should a warm bath be procurable, the body may be placed in it up to the neck, continuing to imitate movements of breathing. Raise the body in twenty seconds in a sitting posture, and dash cold water against chest and face, and pass ammonia under the nose. Patient should not be kept in the bath longer than five or six minutes.

RULE 4. *To Excite Inspiration.*—During employment of above method, excite nostrils with snuff or ammonia, or tickle throat with a feather. Rub chest and face briskly; dash, alternately, hot and cold water on them.

RULE 5. *To Excite Circulation and Warmth.*—Wrap patient in dry blankets and commence rubbing limbs upwards, firmly and energetically. Friction must be continued under dry blankets or over dry clothing.

Promote warmth of body by application of hot flannels, bottles or bladders of hot water; heated bricks, etc., to armpit, over stomach and heart, between thighs and to soles of feet.

On restoration of life, when power of swallowing has returned, a teaspoonful of warm water, warm brandy and water, or coffee, should be given. Patient should be kept in bed; disposition to sleep encouraged. During reaction, large mustard plasters to chest and below shoulders will greatly relieve distressed breathing.

In cases where the base of the brain is weak, or where the narcotic, or gas, or anæsthetic operate with peculiar violence upon that part of the nervous organism, the jaws become not only

clined, but immovably rigid, so that the mouth cannot be opened; then the following method of resuscitation must be enforced. It is of special utility to the drowned.

The Method of Artificial Respiration for the Treatment of the Drowned.—RULE 1. The moment patient is taken out of the water instantly turn him downward, with a large, firm roll of clothing under stomach and chest. Place one of his arms under his forehead, so as to keep his mouth from the ground. Press with all your weight for three or four, or five seconds, each time upon the patient's back, so that the water is pressed out of lungs and stomach and drains freely out of mouth. Then:

RULE 2. Quickly turn patient, face upward, with a roll of clothing under back, just below shoulder-blades, and make the head hang back as low as possible. Place patient's hands above his head. Kneel, with patient's hips between your knees, and fix your elbows firmly against your hips. Now, grasping lower part of patient's naked chest, squeeze his sides together, pressing gradually forward, with all your might, for about three seconds, until your mouth is nearly over patient's mouth; then with a push, suddenly jerk yourself back. Rest about three seconds; then begin again, repeating these bellows-blowing movements with perfect regularity, so that the foul air may be pressed out and pure air drawn into the lungs, about eight or ten times per minute, for at least one hour, or until the patient breathes naturally.

Note.—The above directions must be used on the spot, the first instant the patient is taken from the water. A moment's delay, and success may be hopeless. Prevent crowding around patient, as abundance of fresh air is important. Once he breathes be careful not to interrupt it. If they are very long apart, carefully continue between them the bellows-blowing movements, as before. After breathing is regular, let patient be rubbed dry, wrapped up in warm blankets, a little brandy and water can be given in small occasional doses, and then be left to rest and sleep. If no physician is near, any bystander can carry out these rules, as it requires no expert.

The above method is undoubtedly the best for the ejection of fluids from the stomach and thorax; with it there is no need in opening the mouth, which is usually closely clinched, and of drawing the tongue forward, which is impossible, the position of the patient obviating this necessity. The compression is most complete, and capable of the most delicate adaptation; it can be performed by one person in almost any situation, and continued as long as there is any use. It is the essential method in drowning, as it empties the water-logged thorax, relieves the filled

bronchi, releases the immovable diaphragm, and thus makes respiration possible.

In the first position, a roll of clothing under the stomach and thorax makes shoulders the highest point; the nostrils and mouth the lowest. The displaced fluids run downwards, cleansing the upper air passages, which are perfectly drained. Then the pressure upon the back causes a complete ejection of the fluid, and we have a free passage for air established; an open airway and imitation of the natural movements.

The best method of compression is to place the thumbs at the bottom of the cartilages of the ribs along their front part. The force then applied to the ribs is through the medium of the thoracic walls, so distributed as to give no shocks, no violence, but cause the ribs to move in their intercostal spaces.

A person of the most average intelligence can easily understand the two rules laid down. The kneeling position is not tiresome; the parts to be pressed are raised to the hands; the weight of the body is the chief force, and there are intervals of complete rest. It is true, the rate of respiration is one-half slower than other methods; but even with that, there is more oxygen supplied than a partially asphyxiated person can breathe, or bear, or assimilate; besides, it has the advantage of allowing better diffusion and minimizes superfluous disturbances.

It is of especial advantage in drowning, because in that form of asphyxia the jaws are inseparably clinched, the slippery tongue is receded into the pharynx, and the epiglottis has fallen back so that no air can enter, and our first method cannot be carried out. It is very doubtful whether it is not the best for chloroform and syncope; it is certainly the quickest.

In asphyxia from chloroform, same management, and cloths wrung out of boiling water over heart, even to vesication.

Intense Cold.—Cold acts chiefly from without, freezing inwards, causing serous congestion of the three great cavities, with giddiness, inability to see, weakness and rigidity of limbs; almost imperceptible respiration and pulse; tendency to profound sleep, or coma. Patient must be placed in a room without fire, and an attempt made at restoration of circulation and sensibility by rubbing the body with snow, or ice, or cold water. Frictions with flannels, long continued; very gradual application of warmth; a stimulating enema, warm milk, with capsicum, coffee, beef-tea or warm wine.

Syncope.—Fainting, sudden prostration. Remedies are: recumbent posture, to slow heart twelve or fifteen beats per minute; head low, cold air; cold water dashed over head and chest; smart beating on chest with a wet towel; friction or mustard

plasters over region of heart; small quantities of ammonia or brandy.

The syncope in anæmia and chlorosis must be cautiously treated, with brandy, wine, carbonate of ammonia and beef juice, given both by the mouth and rectum, with artificial heat over the heart and extremities. The recumbent position should be maintained until the action of the heart is nearly normal.

Narcotic Poisons.—Patient to be placed on side, head slightly raised; cold affusion; heat to extremities; stimulating application to chest and back; the use of stomach pump. The antidote with tea, or coffee, or solution of acetate of ammonia, or one drop of a one-per-cent. solution of nitro-glycerine upon the tongue will often excite the heart to action.

An irritation of the nerves that supply the circular muscular fibres of the bronchi, causing spasm or contraction. This irritation may be in the periphery in the bronchi, or in the medulla oblongata, so that paroxysms or fits may be induced by reflex or direct mechanism, that is to say, the stimulus to contraction may be central in the medulla, or it may be in pulmonary or gastric portion of the pneumogastric, or in some other part of the nervous system, besides the vagus, and being transmitted to the medulla by incident, is thence reflected by motor filaments.

A very good plan is to arrange causes under three divisions: (1.) Central causes in the medulla oblongata. (2.) Peripheral causes in the bronchi, lung, stomach, heart. (3.) Affections of blood.

(1.) Often hereditary; peculiar types of conformation; idiopathic.

(2.) Reflex; disease of heart, stomach, lungs, alimentary canal, skin.

(3.) Germs in blood irritating the weakened cerebral bulb or periphery, as tubercle, syphilis, rabies, gout, etc., so that asthma has always at the root of it some central nervous irritation, or some peripheral source of it.

The causes embraced under these, then, are very numerous, as diseases of the chest and abdomen, some latent skin disease, certain winds, changes in atmosphere, especially dryness, with increase of oxygen and diminished electricity; inhalation of disease-germs or irritating substances, the micro-organisms of plants, flowers, hay, malaria, gout, rheumatism; non-acclimatization or incompatibility to soil, location or country. If there is no apparent cause, blood-germs, as syphilis, rabies, tuberculæ.

An asthmatic is thin, of a nervous temperament, round-shouldered; countenance expressive of attacks of suffering; cheeks hollow; voice rather hoarse; slight cough; suffers from nervous dyspepsia.

Symptoms.—Languor, lassitude, debility, headache and drowsiness, often digestive derangement; or it may occur suddenly without any of those signs. Most generally the patient falls into a sleep, when he suddenly awakes with a sense of suffocation or constriction about the chest; smothering and difficulty of breathing increases until there is a most fearful struggle for breath. Patient gets right up in the sitting posture and assumes various positions to facilitate respiration. Chest becomes distended to its utmost limit. The contractions of the circular muscular fibres of bronchi are so great that they offer a perfect obstruction to the entrance or exit of air. On placing ear to the chest, no natural breathing audible, but dry murmurs, loud wheezings, shrill whistlings are heard. Pulse becomes small, feeble, almost imperceptible; eyes staring, protruding from sockets; countenance anxious; lips purple; temperature of body falls to nearly 80° Fahr. But after a while of intense suffering, the skin becomes bathed in a copious sweat. After that usually the spasm breaks and the patient obtains relief. Cough, with some expectoration; paroxysms ceases, and patient falls asleep.

One attack may follow another, or there may be a series of light attacks violent enough to keep patient up in his chair to midnight. Attacks may come on every night or at long intervals—often periodical. Asthma is very capricious, kept up by some climates, some aromas, gases, houses, beds, etc. During the interval or between attacks patient enjoys moderately good health. Men are more frequently attacked than women.

Asthma, denominated hay, ragweed, roses and the micro-organism of plants and trees does not differ in symptoms. The bacilli of the vegetable kingdom acts as an irritant to the periphery of nerves in the bronchi; it is reflected to the bulb and transmitted back—hence the spasms.

The duration of asthma is apt to be tedious if not arrested promptly at the start. Its effects or results are, thickening of the circular muscular rings, with effused lymph, causing a permanent narrowing of tubes and wheezing respiration; dilatation of the air vessels into sacs or pouches, as in emphysema; dilatation of ventricles of the heart from embolism; general breaking down of the nervous system, nervous dyspepsia, alkaline diathesis, etc.

Treatment.—During the attack, if the stomach is loaded, an emetic of lobelia; or if suffering from constipation, copious enemas. Then the great object in treatment is to relax bronchial

spasm. For this purpose some of the following remedies should be tried, selecting one until one is procured that is effectual.

Lobelia, useful in a number of cases; when it produces nausea and collapse the attack often ceases. Compound powder is best form.

A cup of strong coffee will often ward off an attack; so will a strong glass of hot whiskey punch.

Inhalation of chloroform or other anæsthetics, like ether, are of little utility. Iodoform dissolved in ether and inhaled may be useful if due to catarrh.

A dose of two grains of iodide of potassa, the same of carbonate of ammonia, with twenty drops of tincture of belladonna, may ward off an attack.

Sulphate of sparteine is an effective remedy in asthma—it begins to act in about thirty minutes after it has been taken by the mouth, and its action lasts from about five to six hours. This rapidity of action, at first consisting in a stimulation of the heart, rise of arterial tension not occurring until a little later, indicates the use of sparteine in asystolic conditions of valvular disease where a speedy effect is desired, giving it superiority over more slowly acting drugs in asthma.

In these conditions, too, a small dose should be employed (one-sixteenth to one-quarter of a grain), since in these doses sparteine seems powerfully to stimulate and regulate the heart with the smallest rise of arterial tension, perhaps not more than is the normal accompaniment of increased cardiac force.

Diuretic effect is most marked with fairly large doses, half a grain to two grains; with small it is not so evident, but is often present. Flushing of the surface of the body occurs in from one to two hours after administration in most cases.

Nitrite of amyl, five drops on a cloth and inhaled, or iodide of ethyl, six to ten drops inhaled; either one increases the bronchial secretion, gives instant relief. Their effects are transient but often curative. Nitrite of amyl in alcohol operates like a charm, as follows: Alcohol, half an ounce; water, one ounce and a half; nitrite amyl, three drops.—Mix. Add to half a tumbler of ice or cold water and drink at once. The alcohol keeps up the action of the nitrite of amyl for some time. Such a combination relaxes the arterial vessels to their minutest subdivision, relaxes organic muscular fibre.

One or more drops of a one-per-cent. solution of nitro-glycerine produces, within a few minutes, a diminution of tension and wonderful relief in breathing. Its effects are marked and durable.

The fluid extract of quebracho is used most successfully in asthma. A teaspoonful, repeated every ten minutes, relieves the difficulty of breathing.

The fluid extract of *euphorbia pilulifera* has a most decided effect in nearly all cases of asthma.

Catalpa of most use in chronic nervous cases

Members of the medical profession are disgusted with the endless complications and combinations of antispasmodics, and have sought other remedies, as *jaborandi* and its alkaloid, *pilocarpin*. The powerful revolution which that remedy produces in the distribution of the blood, has a most beneficial effect in asthma, attracting the blood to the skin and salivary glands, and by diminishing its volume through the copious perspiration and salivation. The interstitial changes in the lung after its exhibition is followed by amelioration of all the symptoms. Its use requires care and caution. The alkaloid, by hypodermic injection, is preferable to the fluid extract, in doses of about one-third of a grain. During the action of drug, recumbent posture.

Antispasmodic fumes may be used in the absence of better remedies; they owe their properties chiefly to ammonia, or some acro-narcotic, nitre paper, stramonium, belladonna and lobelia; cigarettes produce when inhaled intense hyperæmia, as may be seen in the buccal, pharyngeal, laryngeal mucous membrane of habitual smokers, and exudation which tends to soften and detach obstinate mucus. With such remedies, we endeavor to overcome spasm; and with the use of the bromine compound as laid down under hooping-cough, in doses of a teaspoonful every three hours, we make an effort to ward off attacks, and in the interval we try curative measures.

Curative Treatment.—Great care and diligence to ascertain cause or causes. If there seems to be a catarrhal condition, treatment as laid down under that head; if there are latent germs present in the blood treat accordingly. Dogs licking children's hands, in whose mouths the germ of rabies are often present, is a fruitful but unthought-of cause of asthma in adult life. Powerful alteratives, as iodide of potass and ozonized glycerine; indeed, these constitute the most certain way of curing asthma, whatever its origin may be. Blisters or irritating plasters to nape of neck on both sides, an open sore. If there are any reflex conditions, remove them. If digestion is weak, cinchona compound and mineral acids, pepsine, gentian. If there is evidence of malaria, tincture iodine, green-root tincture of gelsemium with quinine. If no cause can be discovered, a general alterative and tonic course.

Rosin-weed and a large list of worthless drugs are now discarded in the cure of asthma.

Every possible means taken to improve the general health by tonics; the most nutritive diet, regular mode of life; daily use of

the cold shower or sponge bath ; removal of dyspepsia ; meals to be taken at such hours that digestion may be completed before retiring to bed. Flannel clothing. To sleep on hair or straw mattress ; bed in all cases to be insulated from the floor or wall by glass castors, so as not to permit the electrical forces to be drawn off. A suitable house, location or climate selected.

As to the effects of asthma, thickening of the rings of the bronchi, alteratives, irritating plaster are of great utility ; other terminations managed on general principles.

One of the most common diseases of the spinal cord, and consists in an increase of its interstitial connective tissue, forming a ribbon-like sclerosis of the white posterior columns and horns of the cord, and posterior roots of the spinal nerves, leading to gray degeneration, with peripheral structural change in the cranial nerves.

**Ataxia
Locomotor.**

These changes usually begin in the lateral part of the posterior column in the upper lumbar and lower dorsal regions and extend upwards and downwards, and in old chronic cases the sclerosis may even extend to the medulla oblongata,

Ataxia is most frequently met with in men (rarely in women), generally between the ages of twenty and fifty.

Neurasthenia acts as a *predisposing* cause ; whereas, anything which will impair the integrity of the nervous system, as cold, wet, mental and physical overwork ; masturbation, sexual excesses ; depression of spirits ; deleterious food ; insanitary conditions ; poor blood ; prolonged lactation ; the use of tobacco ; suppression of the menses ; blows ; falls ; concussions, act as exciting causes. It may either be an attendant or a sequela of disease germs in the blood, more especially the microbe of syphilis ; pneumonia, diphtheria, fevers, and the like.

Ataxia is generally ushered in with nervous prostration, followed by a gradual disturbance of sensation, loss of co-ordinating power of the lower extremities, with indications of paralysis. There is sometimes temporary diplopia and color blindness, with unequal contraction of the pupils. The course of the disease is slow and progressive. In a large majority of cases, in the premonitory stage there is intense pain in the limbs, of a sharp, tearing character ; incontinence of urine ; spermatorrhea or nocturnal pollutions ; sexual hyperæmia ; but most generally there is a perfect loss of sexual desire. Extreme weariness, nausea, vomiting, aching in the stomach, with a sense of formication and numbness in the skin, with a tightness or girdle sensation round the body are present in a number of cases ; while in another class we

have rectal, vesical and nephritic neuralgia, with cerebral disturbance.

The nervous disturbance is very variable, a sense of numbness in the hip, a pricking sensation in the knee joints, a sensation of some soft substance between the feet and the ground, an unsteadiness of gait; walks like one intoxicated; if the feet are brought closely together, the eyes closed, the body will sway to and fro and then fall; patient is compelled to watch his feet while walking. Later on he throws out his feet and hands with forcible, irregular, jerking movements. The loss of co-ordinating power is so great that the patient by and by is unable to walk. Marked loss of sensation in feet and legs and of temperature. Sensation blunted, senses impaired, but the higher cerebral faculties are rarely impaired. The abolition of the tendo-reflex is one of the diagnostic signs of the disease.

A peculiar inflammatory affection often attacks the joints, knee hip, shoulder, elbow, which often terminates in a complete disorganization of the articular surfaces. Paralysis of the sphincter muscle of the bladder and rectum, bed-sores and numerous other distressing symptoms.

The recognition of the disease is based entirely upon the symptoms enumerated, and it cannot possibly be confounded with any other malady.

The efficacy of treatment depends a good deal upon the stage at which it is commenced. An alterative and tonic course is the most reliable. The utility of comp. saxifraga, phytolacca, in alternation with cinchona and the mineral acids cannot be doubted. The glycerite of kephaline, tincture of oats, comp. tincture marticaria, in alternation with tincture of belladonna, cannabis Indica, phenacetin merit a trial.

Locally to the lumbar region of the spine, an irritating plaster 9-inch x 6-inch, longways across, should be worn so as to keep up an absorbent action, but never to cause an ulcerated surface—on about one half the time, off the other.

The use of electricity, by faradization and otherwise, is of little benefit compared with warm baths of sulphuret of potassium, alternated with cold baths and massage. These are of great efficacy.

The suspension treatment is barbarous in the extreme; there is nothing in it to commend it to common sense, far less science. Bowels should be scrupulously cared for, well regulated.

The diet and mode of life should be such as is most conducive to the highest degree of health. Everything which will preserve nerve-force and prevent exhaustion.

Atelectasis. Pulmonary collapse or atelectasis is a condition of the lungs in which there is a partial or total absence of air in the alveoli.

Congenital atelectasis occurs in feeble infants or those born prematurely, where the nares or other parts necessary to respiration are plugged with mucus.

Pulmonary collapse is more rare in adults than in infants. Any disease or condition which weakens or obstructs the power of inspiration may induce it, such morbid states of the brain, light clothing, paralysis of the vagus; syphilitic disease of the cord; in bronchitis, that is the catarrhal-pneumonic form, in which the bacilli are abundant, where they crowd the bronchi and tenaciously aggregate together, forming a plug in a bronchus—not permitting air to enter. Collapse from aneurisms, hydrothorax, tumors, pus, air, very common.

From the total mortality of infants nearly thirty per cent. is due to collapse.

The pathological condition of collapse or where lung substance has not been penetrated by air is, engorged with blood, looks like a piece of liver "splenified," will sink in water; fatty degeneration, cell and germ proliferation soon occur in the collapsed part. The entire lungs may be affected or only part.

It may be suspected or recognized in the new-born by feeble breathing, very slight motion of the chest, a low, almost inaudible whining cry, lividity and coldness of the extremities, constant sleepiness, often muscular twitchings and convulsions. Child cannot nurse. Since the foramen ovale and ductus arteriosus so often remain open in congenital atelectasis, anomalies of the circulation may cause asphyxia, convulsions, suffocation and death. Blood clots often form in the cerebral sinuses. When collapse occurs in advanced life during the progress of acute capillary bronchitis or some other affection of the respiratory organs, there is labored breathing, dyspnoea, frequent cough, with muco-purulent expectoration, frequent respirations, from seventy to one hundred per minute. Passive hyperæmia and œdema of the extremities are common results of pulmonary collapse. The pulse is small, feeble; the skin cool, urine scanty. An interval between inspiration and respiration.

The physical signs are, an absence of intercostal movement, dulness or percussion over the collapsed lung; respiratory sounds feeble or absent. Later on bronchial breathing and bronchophony. Rales due to associated bronchitis, coarse and sonorous.

Its recognition from pneumonia is easy: there is no fever, no flush on the cheek, no prune-juice expectoration—from the

tubercular bacilli, in which there is hectic, wasting, cough, microbe in sputum, etc.

Well-marked atelectasis is very fatal, especially if complicated with the mycelium of hooping-cough, or the germs of pneumonia or pulmonary tuberculosis, or asphyxia.

Treatment.—In the new-born the treatment should be the hot bath, followed by dashing cold water on the nuchal region, which excites strong inspiratory impulses; kept rolled up in warm flannel, 80° F.

Rubbing, friction, stimulating liniments, massage; a reapplication of the bath.

The salts of ammonia and potash are most admirable remedies.

Small doses of lobelia and bloodroot are most admirable drugs, to relieve bronchi, carried to emesis to dislodge clot or plug.

In all cases tonics, stimulants and active nutrition are indicated.

Blows, violence, strains, tension of blood-vessels measurably weaken their coats and predispose them to disease. This may involve a large area of a vessel, but most generally it is limited to points or patches. If there be extraneous or adventitious matter in the blood, as there is in tuberculosis, syphilis, cancer, gout, rheumatism, lead poisoning, chronic alcoholism, waxy, fatty, calcareous and other forms of degeneration.

Atheroma.

Some of these states or conditions give rise to an inflammation or irritation of the internal coats of the vessel, which give rise to the multiplication of cellular elements. Granular, fatty degeneration of these speedily give rise to arterial sclerosis. When this commences, first the internal and by and by the middle coat follows, a point or focus of deposit which comes from the blood current. This deposit, a mere pellicle at first, takes on a yellow, atheromatous condition.

The changes begin in the centre of the patch; when duly completed it contains a putty-like mass of cholesterin crystals, fat granules and crystals of fatty acids. When there is little or no fatty change in the patches the process is called "*sclerosis*," and they are stained dark brown. When these processes progress slowly, calcareous granules infiltrate the *tunica intima*, and later on form thin, friable, calcareous plates just underneath the original internal pellicle.

Arterial sclerosis is peculiar to advanced life and to males; any artery of the body may be affected, but the larger trunks are more susceptible to this change. When so, they become still more enlarged, irregular, friable.

Nature frequently makes an effort to rid the vessel of the offending material. Then the stiffened calcareous coats break; chinks are formed, into which blood flows, which after a time becomes melanotic. In large vessels the middle coat often disappears entirely, connective tissue taking its place. Destruction of the middle coat almost invariably gives rise to aneurism.

The symptoms of atheroma are often obscure: heart failure, mechanical rigidity, pulse almost imperceptible, coldness of extremities, extreme debility, dry gangrene; apoplexy, epilepsy, dementia, petrification.

Special organs may atrophy, lungs become emphysematous; general bankruptcy of all parts of the body.

The diagnosis is often difficult; if near the heart, paroxysms of angina pectoris; other parts, different symptoms. Calcification of arteries gives rise to aneurism.

Atheroma is justly regarded as an incurable disease, but if it were possible to recognize it early enough much good might be effected by charging the blood frequently with proper doses of comp. oxygen, hydrogen peroxide, which has the effect of causing a dissolution of the deposit, whatever it may be.

A want of nourishment; a morbid condition
Atrophy. resulting in deficient nutrition of the body, or a part of it; a decay or waste of substance. If certain causes exist it may attack any organ, gland or tissue.

Atrophy of the Brain.—Cerebral atrophy may be congenital, or the result of old age. It may follow cerebral hemorrhage, or softening, or induration, or tumors, or chronic inflammation, or effusion. Injury, or destruction of vessels, or calcareous degeneration induces atrophy. Masturbation wipes out the typical fissures of thought and invariably brings about a shrinkage; so do sexual excesses, but not in such a marked degree. The use of alcohol, opium and tobacco induces anæmia of the brain, which is followed by atrophy.

The infantile form of marasmus of the brain is generally due to defects in the parents, as tuberculæ, syphilis, mercury; to maternal impressions, injuries.

Brain liable to be atrophied is irregular, hard, misshapen, owing to defective fœtal development.

Physiologically the brain begins to diminish in size and weight after the sixtieth year, in drinking men and masturbators much earlier.

Slight atrophy belongs to old age, but interstitial wasting of the connective tissue belongs to habits and germ-laden blood.

The greatest waste of brain substance in any known disease is paralysis of the insane, where the cerebrum is often only one-half its size and weight.

Cerebral atrophy is attended by a general failure of the mental faculties and senses. Memory is first impaired, movements are unsteady, then accompanied by tremor. Patient sleeps the greater part of the time. Incomplete paralysis accompanies these atrophic changes. Epileptiform seizures are often frequent.

Such symptoms as headache, vertigo, irritability of temper, decided weakness of memory, thickness of speech, change in the voice, hallucinations of untold riches, terrible outbursts of rage, followed by complete imbecility.

Atrophy of the brain in time involves the medulla, implicating the life centres situated therein; deglutition and respiration are much interfered with.

Senile atrophy can never be mistaken for any other brain lesion, as it comes on slowly and steadily in advanced life, and is progressive. Congenital atrophy is very apt to terminate fatally about the fourth year.

Improvement of the general health is the most important indication in treatment. Gentle exercise; bathing twice daily, followed by massage and faradization of the entire body. The diet should be generous and the bowels carefully regulated, and some of the following cerebral stimulants should be tried: Tincture *avena sativa*; glycerite of kephaline; ozonized water, etc. General alteratives and tonics.

Atrophy of the Heart.—This consists in a diminution in the size and weight of the heart. It is described as simple, concentric and eccentric; but these terms are scarcely necessary, as all cases of true cardiac atrophy are concentric; that is, are accompanied by a diminution in the capacity of its cavities. In some cases, wasting of the cardiac muscle is attended by an increase of intermuscular connective tissue; in such cases, there is a decrease in the size, but a very marked diminution of its contractile power. A decrease in size and number of the muscular fibres often takes place, due to morbid states of the pericardium, which is often adherent, indurated, puckered, opaque. The tendency of all forms of muscle waste is to fatty degeneration; when the cardiac muscle reaches that point it is called yellow atrophy. In atrophy due to old age, the heart muscle is brown, due to extensive pigmentation.

The common causes of cardiac atrophy or wasting are an impoverished brain, exhausting disease, germ-laden blood, as in phthisis, syphilis, cancer; typhoid or any morbid state, accompanied by defective nutrition, may produce atrophy of the heart-muscle;

old age, pressure from pericardial effusion, morbid growths, aneurisms operate by pressure, causing constriction, fibrous thickening of the pericardium, atheroma, thrombosis, may cause atrophy. It is not infrequently congenital, associated with the dwarfed intellectual faculties of children whose fathers may have been inebriates.

Cardiac atrophy is easily recognized by the decreased area of dulness over the region of the heart, its diminished contractions and respirations; enfeebled heart-power; impulse feeble; sounds indistinct; lowered temperature.

That form which results from local interference with the nutrition of the heart, as adhesions and thickening of the pericardium, tumors, presents symptoms nearly analogous to those of a fatty heart.

The prognosis of any special case will depend upon the cause and extent of the atrophy; when it passes into fatty degeneration, which is known by its irregular action, sense of suffocation, or by the presence of pericardial adhesions or effusions, the prognosis is most unfavorable; the atrophy of old age is not necessarily fatal.

In the treatment of atrophy of the heart, physical exercise and mental excitement and study must be avoided. The diet should be generous to a fault, highly animalized, indulged in freely.

Some of the following remedies should be tried, so as to stimulate or promote growth of muscle fibre:

Iron, arsenic, mineral acids, preparations of cinchona are invariably serviceable in all cardiac affections attended by feeble nutrition and heart failure.

Sparteine sulphate excels all known remedies as a cardiac tonic, and cactus, strophanthus, convallaria are also good.

Atrophy of the Lung.—Is commonly due to senile changes incidental to old age; emphysema; general marasmus; hydrothorax; pressure from tumors.

An atrophied lung is small, dry, anæmic; pigmented, or marbled by lines or dots; some degree of fatty degeneration always present, most invariably accompanied with numerous complications.

The most prominent symptoms are difficulty of breathing; œdema and coldness of the extremities; cyanosis; a pigeon-breast appearance of the thorax, moving as if it was in one piece.

Atrophy of the lung admits of no treatment.

Atrophy of the Prostate.—The greatest therapeutical use of fl. ex. of the saw palmetto, even greater than its nutritive action, is the restoration of the glandular structure of glands. Atrophy of the testes is a common result of spermatorrhœa, masturbation,

sexual excesses, varicocele, but atrophy of the prostate is much more rare; still it is common, generally associated with prostaticorrhœa, from self-abuse or imperfectly cured gonorrhœa. No greater calamity could befall a man, for when it exists the force of ejaculating the semen is impaired or entirely gone. Besides, when the gland wastes or withers, there is a deficient or scanty secretion.

Cases of this kind occurring in practice require nice tact and judgment; remedies used must have a vitalizing effect on the entire genito-urinary tract, as well as a general alterative and tonic course. It is true the saw palmetto and kephaline excel all other remedies, but it is not to be understood that when these drugs enter the body that they intelligently avoid all other parts and reach directly to the prostate and brain. No; they have an effect upon the entire body, more or less. Not a gland that is not stimulated when the palmetto is administered, not a fissure of the brain that is not roused into activity under the influence of the ozonized glycerite of kephaline. Those two remedies are indicated in all prostatic affections, in atrophy, prostaticorrhœa, inflammation, congestion, etc.

In addition: direct medication of the prostate can be effected by the introduction of ozonized urethral bougies prepared either from damiana or salix niger, and also by the use of rectal suppositories prepared from the same agents.

Atrophy of the Testes, due to varicocele and like causes, best treated by local stimulation, bathing the scrotum with oil of palmetto berries; wearing a suspensory; a general constructive treatment.

Atrophy of Muscles.—Muscular structure may waste its fibres, become small, pale, inelastic, and its proper texture usurped by fat. This may happen from non-use; from injury to their nerves; from the presence of microbes, eating up the neurine or pabulum of nerves, as in fevers and microbial disease; from the presence of the amylobacta of rheumatism; from shocks, concussions of the spinal cord, and a variety of other causes.

Its recognition is easy; there is wasting, a decided decrease in size of the affected parts, its temperature diminishes, sensation impaired, numbness, formication, imperfect nutrition; if the patient is young it fails to grow in proportion to the rest of the body.

The process of wasting may or may not be painless. If the nerves are irritated by disease germs circulating in the blood, there will probably be pain.

The wasting of muscular structure, if not arrested, is progressively onward to fatty degeneration; that is, the muscular fibres

are usurped by fat, a non-vital, inelastic body, devoid of contractility and all power of motion.

This can be easily ascertained by placing the positive pole of a battery near the insertion of the muscle supposed to be affected, and the negative near its insertion, permitting a pretty strong current to run, gradually bringing the two poles within about four inches of each other. If muscular fibre be still good, the muscle, in a few seconds, will bulge up or contract at its centre between the two poles of the battery. If muscular structure has degenerated, that is become usurped by fat, the muscle will remain quiescent and exhibit no sign of contractility.

Treatment.—Once it is positively ascertained by the above test that the muscle has lost its contractility and undergone fatty degeneration, no known remedy is of any avail; but if there be a slight motion or evidence of contraction between the poles of the battery with a fair current, a cure can be effected if the cause can be removed. Suppose slight evidence of contractility exists, a careful examination should be made to ascertain whether or not there exists in the blood or other vital structures of the body any microbe or disease germ, such as the microbe of syphilis, cancer, tubercle or the bacillus of fevers, or diphtheria; and if such exist the patient should be placed on special bactericides to kill the microbe, and a general tonic course, embracing such remedies as cinchona, mineral acids and very nutritious, highly-fibred food.

To the affected muscle or muscles, massage, which will embrace stimulating frictions, baths, electricity for a specified time, once or twice daily, so as to stimulate growth of muscular fibre, and this to be continued for a period of some months.

If there be pain, there are microbes present, nibbling at the withered or blighted nerves, hence the need of potent germicides. If those germs have caused stiffness rigidity, they should be managed on general principles.

Consists of an irritation, inflammation, with a shining, glistening redness, or excoriation of the covering of the glans penis and inner aspect of prepuce. Some call it balanitis when the glans only are affected, and balanitis-posthitis when both glans and internal lining membrane of prepuce are involved. The distinction is unnecessary and altogether uncalled for, as the two conditions are essentially the same.

Causes.—Excessive sebaceous secretions around *corona glandis* often give rise to it in boys and virtuous young men, and cause

anxiety, which ignorant or knavish physicians will magnify into something venereal, so as to extort a fee. Rubbing of clothes, chafing in hot weather, masturbation, a natural rankness in some women, will cause it in highly-organized and susceptible men; catamenial discharge, and the venereal germs. From whatever cause it arises, it can be communicated to the opposite sex by contact; as the parts, whether dry or freely exuding muco-purulent matter, are freely covered or filled with bacteria. Antiseptic precautions should be rigidly observed; destruction of the dressings, and great cleanliness, especially about the hands, lest any of the matter reaches the eye.

Symptoms.—Heat, redness, itching about the glans. In some cases it is of a smooth, shining redness; in others, a muco-purulent discharge. On uncovering the glans, by drawing back the prepuce or foreskin, patches of redness and excoriations are perceived, with flakes of curd-like matter. If there be swelling of fore-skin, or if its sphincter fibres are irritated, it may be contracted, so that it cannot be drawn back over the head of the penis, so that retraction is impossible, and then there is phimosis. There are many reasons why the foreskin should be drawn back in cases of this kind; there may be a perforating ulcer, a chancre, or an abscess, or mortification may be taking place; bubo from the irritation may take place; there may be a gonorrhœa, or an indurated or infecting chancre.

Vulvitis in women is an analogous affection.

Treatment.—Draw the foreskin gently back; make a wash of permanganate of potass, ten grains to the pint of water, or a tablespoonful of boroglyceride to the pint; take a small sponge, saturate with the wash, and squeeze it so that it drops from a height of twelve inches on the affected part. Continue this douching till the pint is used; do it three times a day. After having performed this, press gently a fine piece of muslin, or silk, on the affected part, so as to dry it; then smear over glans and prepuce with ozone ointment. When the foreskin can be drawn back, this plan will effect a cure in a few days. The ozone-ointment could be spread on a thin layer of cotton-wool if desired. In cases where the foreskin cannot be drawn back, take a small gonorrhœal syringe, and inject round and round it with same wash. If an ulcer, or chancre, or gangrene is suspected, circumcision, slitting up of prepuce; or sometimes it can be relaxed with a warm poultice and belladonna. If there is danger of contraction, a little cotton-wool smeared with ointment should be kept applied.

Mothers should be instructed to draw back the foreskin in the daily ablutions of the child, and apply a little oil to unite with

the sebaceous secretion, and then wash off. Young men should follow same practice every day. This would not only promote health, vigor, and growth of the penis, but would do much to prevent masturbation, nocturnal emissions.

It would have a salutary effect. The oil need not be used unless there is the white, cheesy secretion; it will suffice to drop cold water on its neck, with the foreskin retracted, or drawn back.

Bites of Rabid Animals and Venomous Reptiles.

The poison of venomous reptiles and rabid animals is a living microbe, which when introduced through the true skin enters the circulation, where it grows with prodigious rapidity, excretes ptomaines freely. The micro-organisms from all bites either have a tendency to destroy the blood or by their ptomaines the nervous system. In the former case, a species of erysipelatous inflammation of the skin and cellular tissue is predominant; in the latter, a peculiar train of nervous symptoms, as intense pain in the wound, radiating in the course of the nerves; prostration, faintness, rapidly followed by feebleness of pulse, bilious vomitings, difficulty of breathing, profuse sweatings, jaundice, convulsions.

The treatment of the bites of all rabid animals should be: a ligature above and below the bitten part to prevent if possible the ingress of micro-organisms into the blood, or nerve cells; wet cups, hot fomentations if cups are not handy, free incisions with abundance of hot water, peroxide of hydrogen, to encourage free bleeding and annihilate all microbes; after the wound has bled freely and been thoroughly cleansed of microbial matter, it should be dried, and wood ashes or caustic potassa freely applied, then irrigation with ozonized vinegar, followed again with a spray of peroxide of hydrogen, or chloride of ammonia in a poultice.

Immediately, or as soon as possible, bactericides should be administered so as to render the blood so thoroughly sterilized that no microbe can live in it. This can be effected with a variety of remedies, subsequently mentioned.

In the case of bites by rabid animals, giving rise to erysipelatous inflammation, the microbe may be in the cellular tissue or blood or both; the nearest lymphatics are apt to become engorged with the microbial mass, which gives rise to abscess and doughy swellings.

In cases of this kind free incisions cannot be resorted to too early, followed by germicide poultices, as charcoal and yeast; linseed meal and resorcin.

Before the application of these poultices, the entire affected surface should be painted with an ointment of salicylic acid and creasote, or oil of boroglyceride.

In another class of cases the germ of the reptile or snake becomes imbedded in a nerve or its neurilemma, and grows with great rapidity, so prodigious that either the germ development or its ptomaine may cause death in twenty minutes, the entire nervous system becoming perfectly paralyzed, the cutaneous surface shrunk and withered and as white as snow, constriction of chest, threatened paralysis of the involuntary muscles often taking place a few minutes after the bite. In all such cases there is no time to wait on the action of drugs, and the quickest and safest plan is to procure anæsthesia of the nervous system for ten or twelve hours by the copious drinking of good brandy or whiskey until perfectly drunk. It must be given in half-pint doses every few minutes to obtain the desired result. It is most extraordinary the quantity necessary to be given in some cases. During the quasi-suspension under whiskey there seems to be no pabulum for the germ elaborated, and it dies in the body, the bitten person recovering from his anæsthesia or stupor well.

A still more certain method is to combine liquor potass with the brandy or whiskey. The liquor potass completely neutralizes snake poison. It should be given in the brandy in ten, twenty or thirty drop doses sufficiently often. The brandy stimulates, rouses, carries the potash into the blood, and enables it to overtake and neutralize the poison in the blood. The saturation of the system with the alkali until the secretions are alkaline is the point to be aimed at. The permanganate of potassa has the same power, but owes its property to the potash alone.

To all bites of venomous insects, as wasps, mosquitos, spiders, and poisoning with ivy, sumach and other agents, a saturated solution of muriate of ammonia, or better still concentrated ozone or peroxide of hydrogen.

Boils
or
Carbuncles.

A boil or carbuncle is an oil-gland of the skin filled with lymph, and interspersed through that lymph are to be found the *staphylococcus pyogenus aureus*. The microbe is pathogenic of the malady, bears cultivation well in chicken broth. Carbuncles only differ from boils in their size, they contain the same microbe. The pus of either will inoculate and reproduce the original in either man or animal.

The primary cause is depression of the vital powers and the exciting causes are malnutrition, derangement of stomach and

bowels, and a degradation of normal living matter into bacteria, which pass into the blood and find their way into the oil-glands of the skin, probably in search of free oxygen. The cause of the malassimilation may be overcrowding, bad ventilation, filth, bad diet, as pork, meagre, or insufficient or sameness of food, indeed, anything that depresses the stomach.

Symptoms.—Brown-coated tongue; nausea; loathing of food; constipation; fetid breath; heats and colds; fever, with headache and languor; inflammation of an oil-gland on nape of neck, back, limbs, or anywhere where glands of that class are numerous; gland fills up with the lymph and bacteria, and resembles a sugar-loaf, apex pointing inwards and broad base on surface; vary in size from a pea to a large pear; the largest are usually met with on back. The gland is a regular cyst or sac, whose lining membrane is a secreting one. By proper treatment, before lymph breaks down, they may disappear; but if they progress, lymph breaks down, patient has a rigor, then throbbing, and suppuration goes on until either relieved by nature or art. In some cases there is a large crop, great constitutional disturbance and danger; in other cases, a solitary one may create quite alarming symptoms.

In the treatment of all cases of boils or carbuncles, we have a bacteria-coated tongue, very sluggish liver, and in order to excite a healthy action of the alimentary canal, it is good practice here to administer a rousing emetic of lobelia; and in order to cause rapid absorption of the drug let the patient drink abundance of tepid alkaline water, or warm water to which bicarbonate of potassa has been added. This will aid in cleansing the stomach, and the lobelia has a most marvellous effect in retarding and even retrograding microbe evolution. This should be followed with an alcoholic sweat; and the bowels freely opened with a saline cathartic.

For a tonic to promote an appetite and keep up a brisk stimulating action on the liver, a teaspoonful of the following mixture should be administered every four hours:

Compound tincture of cinchona; simple syrup; of each two ounces; nitro-muriatic acid, two drachms. Mix. Bowels kept free with salines, or a dose of the phosphate of soda at bedtime.

Some bactericide should be given between the respective doses of the cinchona mixture, such as either tincture of lycopodium glycerite of sulphur, or peroxide of hydrogen, or ozone water, or brewer's yeast, resorcin, creolin, sulphide of calcium.

Some remedy to sterilize or annihilate the microbe. The lycopodium or glycerite of sulphur has a most remarkable action upon the microbe of boils, so have the other remedies enumerated—one selected which the physicians deem best.

Locally, if case is seen early, before any indication of the formation of pus, and the patient is desirous to prevent an abscess, the boil may be injected with either peroxide of hydrogen or glucozone, which will destroy the bacteria, and the lymph will be absorbed; or another plan, a paste of the solid extract of belladonna and resorcin, equal parts, might be tried; or it might be painted with concentrated ozone and chloroform. Even more energetic discutients might be applied, such as ozonized clay, iodized oil, iodol, etc.

If there is the slightest speck or point of softening, any evidence that a change to perfect downward evolution has taken place, that suppuration is inevitable, there are several plans which can be adopted. In resorting to surgical procedures, it must be borne in mind that the shape of the boil is like a regular sugar-loaf cone, and for a perfect cure a complete riddance of the germ colony, the sac with its contents must be exfoliated or thrown off, or destroyed, as its contents are extremely contagious, liable to affect healthy parts.

A most excellent method is to protect the adjacent parts, all around the boil, wipe the surface of the boil dry, then take a stick of caustic potassa and apply, burning down into the substance of the boil. This should be done thoroughly. Subsequently the action of the caustic potassa must be neutralized with vinegar, and an antiseptic poultice applied; latterly it should be healed up with black salve or ozone ointment.

Another good method is to make a crucial incision down through the boil and divide it into four parts; subsequently treat as above.

Electrolysis may be tried, but it is simply a method of less painful cauterization.

The diet in boils should be the best, and very generous, including beef, mutton, poultry, eggs, milk, with abundance of vegetables and fruit.

Brass Founders' Disease.

Operatives in copper, zinc and tin are liable to several morbid conditions from the inhalation and absorption of the fumes of the metals. Most generally the metal has an affinity for the fine delicate nerves of the duodenum and brain, like lead and bismuth, but workers in brass have a regular cachexia produced by the metal, a feeling of languor and depression, peculiar sallow hue of skin, with anæmia, and febrile attacks like intermittent fever.

The attacks, however, do not come on with regularity. In the stage of chill there is usually constriction or tightness about

the chest, and in the last stage, which is followed by a profuse sweat, the linen is usually stained with the eliminated metal, and it has a brassy odor.

Poisoning by brass and tin is much more common than is generally supposed. Many of the indescribable derangements of the digestive tract are due to minute portions of those metals finding their way there from various culinary articles, as kettles, pots, etc., and also from the cocks and spigots of soda fountains, mineral-water bottles, and ordinary water-pipes. An oxalate of tin is to be found in every article preserved in tin cans, as tomatoes, peas, asparagus, which is exceedingly toxic and capable of producing a well-marked train of symptoms, identical in their character with brass poisoning. The preservation and cooking of edibles in tin and brass vessels is a prolific source of disease, and measures of some kind should be adopted to arrest the spread of this latent form of poisoning.

Treatment.—Workmen should avoid the fumes of zinc and brass; iodide potass unites with them freely and causes their elimination. In some cases lobelia emetics are of great efficacy, followed by cinchona and mineral acids; bowels to be regulated and alkaline baths used daily.

The degree of heat that can be borne by

Burns, Scalds. the human body without causing injury depends very much upon the medium through which it is applied, as well as the organization of the individual. The degree of partial death inflicted upon the body may be embraced under three grades, as *erythema*, *vesication*, *ulceration*.

The danger of burns depends a good deal on their intensity; the extent of surface injured; the degree of disorganization; the importance of the part, the age and power of vital resistance of the patient.

Symptoms.—There is the shock; state of prostration or collapse, which is often dangerous. The pallor, coldness, sighing respiration, shivering, feebleness of pulse, and other indications of imperfect reaction and exhaustion, followed by fever with congestion or effusion in or upon brain, lungs, bowels; or it may be reflex, and produce spasms, convulsions, or there may be the tedious, dragging symptom of hectic during the stage of cicatrization or otherwise. Besides the above, the arrest of the insensible perspiration of the skin naturally gives rise to a tendency to serous effusion in one or all of the three great cavities, and if the burn partakes of the character of a blister, there are grave changes

that take place in the blood, especially if the blister is extensive. The serum in the blister is found not to be water from the blood, but rich fibrinous liquor sanguinis—and this exudation of blood plasma causes the blood to be thicker, more concentrated, and its relative proportions of corpuscles and plasma modified to even a fatal extent. This concentration of the blood reduces the blood pressure, and retards the flow of lymph, and interferes with the general nutrition of the part.

Treatment.—The first point is to bring about reaction by diffusible stimulants and artificial heat to the extremities. After reaction, open bowels with castor oil or cascara. If reaction is imperfect then administer aconite and serpentaria for fever. If there are reflex symptoms, as spasm, antispasmodics by mouth and rectum, followed by bromide of potass and calabar bean. Pain must be relieved with hyoscyamus and opium. Repeat until comfortable. Any congestion of brain, lungs, bowels to be treated on general principles. If tonics are required, let them be cinchona and ammonia. Give plenty of fluid nourishment, as milk, beef-tea, raw eggs, juice of raw beef, or raw beef extracts. In all cases relieve pain and nervous irritability.

Locally, to burns, nothing can excel the carbolic acid and olive oil; one ounce of the acid to six or ten of the oil, according to age and thickness of skin. It stimulates, destroys micro-organism, and aids healing; saturate lint and apply. The following is excellent in burns or scalds: Boroglyceride paste, eight ounces; two-per-cent. solution of cocaine, one ounce; resorcin, half an ounce; mix; absorbent cotton, a sufficient quantity to hold the above in suspension. Apply to any burn. Instant relief of pain, all inflammatory symptoms arrested, bacteria destroyed. Any application that will exclude air from the injured surface should be applied until this is procured; as molasses, lard, and flour, vinegar or starch, and white oxide of zinc and oil. In burns of the second degree (blisters) do not puncture nor interfere with the cuticle. The great danger of burns in this stage is due to the amount of liquor sanguinis in the blister, and death is due to the blood changes so induced in that fluid. This, of course, is best remedied by the juice of meat. The dressing in all cases should be changed thrice daily, and precautions taken against deformity.

Inflammation or partial death of the mucous
Bronchitis. membrane of the bronchial tubes. It may be acute or chronic, and affect the larger or smaller tubes, or both; or one or both lungs throughout, or only a portion of them.

Bronchitis, Acute. A very dangerous form of inflammation, accompanied with great fever and prostration, and danger of a spread of the inflammation

to the vesicular texture of the lungs, or a plugging up of the bronchi with effused lymph and collapse, or inflammation of the substance of the lung with blood, lymph, liquor sanguinis, etc.

The causes are usually cold, damp, wet, exposure to vicissitudes of weather, inhalation of irritants, etc.

Symptoms.—Shock, with indications of prostration, violent headache, with rigors, and a high grade of fever; pulse often 140; respirations from thirty to forty; heat 105° up; a sense of intense soreness or rawness over the affected part; tightness or constriction of the chest; hurried or excited respiration, with rough wheezing; incessant hacking, dry cough at first, afterwards expectoration of viscid, glary, frothy mucus, and afterwards of muco-purulent matter; pulse, although frequent, is weak; tongue heavily coated, nausea, great anxiety, with indications of prostration and collapse.

Inflammation of the main trunk or large-sized tubes is attended with much less danger than the smaller branches. In the smaller branches, there is a greater tendency, in a fit of coughing or excitement, for the tube or tubes to be blocked up by thick viscid, tenacious phlegm, which, on taking a deep inspiration, is liable to be pushed down; acting as a cork, preventing the air from reaching a lobe of the lung, hence collapse. A portion of lung not filled by air becomes quickly hepatized or vesicular, emphysema is produced; so that in either case we have a vital organ incapable of aeration.

On percussion of the chest in bronchitis, the lungs should exhibit resonance and clearness from top to bottom; at least, no marked aeration should be detected, with the exception of increased resonance in emphysema, or the dull, flat sound of hepatization in collapse.

On auscultation, in the early stages, dry sounds or rales can be distinctly heard, like air rushing through a red hot tube. If heard over the main trunk or large branches, it is called *rhonchus*; if over the small branches, *sibilus*. Rhonchus to the large, sibilus to the small. Sibilus bespeaks danger; rhonchus almost free from it. These dry sounds are usually only heard the first few days, for once the inflammation has terminated in effusion and its products have poured out from the inflamed membrane, those dry sounds are displaced by moist sounds, called large crepitation, if over the large tubes; small crepitation if over the small. So rhonchus and large crepitation are the dry and moist sounds

of large air passages ; sibilus and small crepitation of the smaller branches. Its duration, under good treatment, should not take over a few days.

Treatment.—Recumbent posture in bed, temperature, 70° Fahr., air to be moistened by hot steam. If stomach is badly deranged and tongue foul, a gentle emetic of lobelia ; if there be constipation, open bowels quickly with enemas and salines. Diet to consist of warm beef tea, warm gruel, or warm milk and arrow-root, warm mucilaginous drinks, as flaxseed tea, wine whey ; heat to feet. Mustard is to be applied over chest and back, large plasters, followed with hot poultices of flaxseed meal and glycerine.

There are several methods of breaking up the attack. If seen early, one is by the administration of large doses of tinctures of aconite and veratrum every half hour, till pulse is seventy, and then at less frequent intervals. This is a good plan, another plan is to administer either antipyrine, or antifebrin till temperature is normal ; still another is to give small does of lobelia until the patient becomes slightly nauseated and pulse down, and then at less frequent intervals. And a fourth good expedient is to use jaborandi or its alkaloid ; the former in fluid extract, or, if the latter, by hypodermic injection. If jaborandi or pilocarpin be used, the patient must cease drinking and spit out his saliva freely. The powerful revolution which this latter remedy produces in the distribution of the blood, has an instantaneous effect in attracting the blood to the skin, relieving the bronchial mucous membrane. Its action is quick in giving relief ; besides, it favors the expulsion of the obstructing plug in the air passages, prevents the formation of viscid mucus, prevents the swelling of the large bronchial glands and initiates reparatory process in the bronchial tract. In an urgent case the four methods might be combined. As soon as the urgent symptoms are perfectly controlled, an alkali, such as the muriate of ammonia or chlorate of potassa, or carbonate of ammonia or potassa. The effects of alkalies are very marked, indeed. They soothe, soften and aid expectoration, and if given in combination with an acid, the dry rales subside and are replaced by moist ones ; expectoration copious, and cough less frequent and less troublesome. Convalescence to be established upon alteratives, as the ozonized glycerine, phytolacca, and tonics, like quinine and mineral acids.

may be a sequel of an acute attack,
or it may come on of itself from the
same causes that produce the acute,
or from the presence of microbes in the blood.

Symptoms.—General symptoms of nervous prostration, languor, lassitude, debility, face white, features sharp-pointed; nervous dyspepsia; phosphates and chlorides in urine; great emaciation, harassing cough, even habitual; great difficulty of breathing, shortness of breathing; sometimes a sense of soreness or rawness, in other cases this is absent. The lungs in ordinary cases should be clear from top to bottom, but as it generally assumes one or other of two forms, this may not be the case. One form, without expectoration, tends to emphysema; the other, with copious expectoration, leads to pulmonary consolidation. The former will have unusual resonance on percussion; the latter, dulness. If there is expectoration, it is copious, and aggravated by exposure to cold or damp, bad living or change of temperature. There is little rhonchus or sibilus in chronic bronchitis, but abundance of moist crepitation, large and small. In all cases the nutritive disturbance proceeds from the surface of the bronchi and gradually spreads to the stroma of the lungs, terminating in atrophy or in sclerosis. Dilatation of bronchi, with condensation of surrounding tissue, often results; sometimes a sort of bronchial catarrh, with excessive muco-purulent discharge. The winter coughs or colds, recurring annually, are but the precursors of more permanent forms of bronchial inflammation. When

interstitial substance of lung is greatly affected in either form, non-aeration of



Conferva of bronchitis as found in the sputum of all chronic cases.

blood to a limited extent, which gives rise to a blueness of nails or lips, slate or even livid appearance of skin, especially of the lower extremities. It is essentially a chronic affection, lasting years, seldom directly fatal, but may be so by the causing of other diseases.

In chronic bronchitis there is always a true ulceration of the bronchial mucous membrane, and a degradation of the living matter concerned in its nutrition into bacteria, which are found in great abundance in the sputum; not however in such immense quantities as in chronic laryngitis, still, enough to place chronic bronchitis as a somewhat contagious disease.

There are invariably present in every case of chronic bronchitis, no matter whether it be simple, tubercular, syphilitic, the vegetable microbe, the *conferva*. It is the presence of the original germ, and this latter, which renders it such a stubborn malady.

Treatment.—This is varied, but embraces certain well-defined principles. A warm, moist atmosphere, which contains a small

amount of oxygen, is the most suitable; flannel or silk clothing, especially next to skin; daily bathing, alkaline or acid, followed by inunction of warm olive oil to the amount of three or four ounces; diet and drink to be warm and of the most nourishing kind, such as milk, eggs, boiled fish, broiled tenderloin steak, with abundance of cooked vegetables. Warm food and drink are powerful expectorants, and in all cases it is well to have the patient drink a cup of hot coffee or milk before getting up, or warm beef tea. Stomach to be looked to with tonics, and bowels carefully regulated. All physical and mental exertion or excitement to be guarded against. On the front and back of chest there is no liniment or stimulant that can equal the irritating plaster. It should be worn as much as possible, at least one-half the time. If the irritating plaster cannot be tolerated, then painting the chest with concentrated ozone should be resorted to.

As it is a chronic disease there should be a persistent course of alteratives and tonics, changing them weekly; the tonics before meals, alteratives two hours after. Such alteratives as ozonized glycerine, compound syrup phytolacca, ozonized saxifraga, with iodide of potassa, and tonics, ozone-water, solution of quinine, tincture cinchona, compound golden seal.

Besides the above there must be a treatment with expectorants and bronchial stimulants, so as to arrest or mitigate cough and promote a healing process in the bronchi. For this purpose various preparations of ammonia are expectorants, such as muriate of ammonia in syrup of squills, carbonate or citrate of ammonia in syrup senega; chloride or bromide of ammonia in syrup of ipecac.; nitric acid and compound tincture cinchona; tolu, conium, and belladonna; balsam copaiba dropped on sugar; cubebs and extract horse-radish; benzoate of ammonia in port wine; lobelia and blood-root.

It is impossible to mention a single curative remedy; whichever affords the greatest relief should have the preference.

Besides the above, the greatest benefit is to be derived from the inhalation of moist, warm, medicated antiseptic vapors several times a day. The remedies to be of any utility must be antiseptic; such as sulphurous acid, creosote, chlorate or permanganate of potassa; tincture of benzoin, benzoate of soda, resorcin, naphthaline, creolin, concentrated ozone, boracic acid, carbolic acid, and a variety of others. The inhalation of stimulating antiseptics proves very beneficial in all cases, and is one of our valuable aids in cure. The action of a disinfectant and stimulant on the ulcerated surface, with its destructive influence on the germs, is of great benefit; and one thing can be said of it

—that it in no way interferes with the use of constitutional and internal remedies. It is best to be used frequently, for half an hour or more at a time, and as often as four or five times a day, but in no case must either its use or strength excite any cough. The physician will find himself taxed to the utmost in the selection of the particular remedy to be used; and the patient will be required to second his efforts by a persevering adherence to the treatment prescribed by him. There should be at least three inhalations per day; the remedy used every time should be a germicide.

Alteratives, tonics, inhalation, and a very free use of expectorants is undoubtedly the best method of treatment in patients under forty-five years of age. When chronic bronchitis occurs over that, the use of expectorants is of doubtful efficacy, often injurious.

Bronchitis Senilis is a peculiar and dangerous form of chronic bronchitis, occurring in persons over forty-five, or in the aged, and is due to natural decay or degeneration of the bronchial mucous membrane, as a result of age. It is spoken of under various names, as *catarrhus senilis*, bronchitis of the old. It seems at first to consist of a general inflammation of the capillaries of the tubes, followed by atrophy and interstitial death; sometimes comes on in an acute form, attended with great danger; more generally it is insidious, making its appearance with great difficulty of breathing, and excessive secretion of frothy mucus. Its symptoms and treatment are the same as chronic bronchitis, with the exception that, as a general rule, expectorants operate badly, aggravating the symptoms, whereas under tannin or vegetable astringents there is a remarkable amelioration.

Bronchitis, Infantile, consists usually in acute catarrh, laryngitis, bronchitis, general and capillary. It is usually due to cold, and is easily recognized by its tendency to asphyxia, difficulty of breathing, great congestion of the skin, perpetual cough, general restlessness, increasing prostration, and in fatal cases, somnolence, muttering, delirium, coma.

General management as to warm, moist atmosphere, warm bath, oil to chest and throat, aconite and belladonna for fever, and a free use of lobelia are our best remedies. One heaped teaspoonful of pulverized green lobelia, and the same quantity of

carbonate of potassa to a teacupful of boiling water, allowing it to cool and settle; and begin by administering half a teaspoonful every hour, half hour, or less frequent, giving it largely morning and night to procure free vomiting. The vertical position of a child's stomach during the early years enables it to vomit easily; and this act is indispensable in children, because they swallow the products of inflammation, lymph, mucus-purulent matter, etc., which, in themselves, tend to aggravate the symptoms and keep up a sort of hectic fever.

There are no remedies so useful in infantile bronchitis as lobelia and potassa; the latter softens, while the former keeps up free expectoration.

As the case improves, ipecac, tolu, senega, squills, wild cherry, etc.

This is simply a form of chronic bronchitis, in
Bronchitis, which there is a drying up of the lymph and
Plastic. muco-purulent matter in the tubes, in which they
 become solid in the shape of the tubes, tubular
 concretions of exudative matter within bronchi.

Symptoms.—The same as the chronic, to which are to be added expectoration of casts of tubes, or of moulds of notable size, preceded by a great difficulty of breathing, dry, hacking, racking cough, followed by hemorrhage, and the hæmoptysis often excessive. Small casts are expelled easily, while large ones, especially if fibrinous, are not easily got rid of, as they are congealed and adherent, sometimes a pure congelation of lymph or blood. Such bodies, by their irritation, often give rise to renewed irritation. It is even more troublesome and intractable than the chronic form.

Treatment, same as for chronic, with the exception that such remedies as carbonate of potassa, chlorate of potassa, muriate of ammonia, iodide and bicarbonate of potassa should be given more freely and repeatedly; hemorrhage arrested with digitalis in preference to gallic acid or iron.

Usually chronic, and due to the inhalation of
Bronchitis, particles which irritate, inflame and ulcerate
Mechanical. bronchi. For example: file-makers, knife-
 grinders, carpet-shakers, dust of coal in
 miners, cotton, woolen and silk operatives in factories, and other
 occupations. It is customary to so designate the bronchitis.

Chronic bronchitis occurring when there are disease-germs or morbid states of blood ; germs are apt to colonize in the weakened, ulcerated mucous membrane of the bronchi, and greatly aggravate the difficulty. We have the vibrios of typhoid fever irritating a feeble bronchi tract ; the latent germs of rabies, the germs of syphilis, tuberculæ, etc., gout, rheumatism and other blood poisons. According to the germ or poison present, the bronchitis is so named. The symptoms are much worse, usually double, especially the emaciation or wasting debility is very great ; night-sweats, copious or excessive mucus-purulent expectoration. Alteratives and tonics, same as *chronic bronchitis*, and special drugs to destroy germ or neutralize blood poison in each individual case.

Especially in the tubercular and syphilitic forms, these microbes in their growth and development excite so much thickening as to form a false or germinal membrane around the tubes—these are occasionally thrown off, creating great constitutional disturbance and danger by hemorrhage. The microbes also excite more ulceration from the germs eating the tissues, follicles, glands and coats of the tubes, causing great excavations—germs active in destruction, freely excreting ptomaines which give rise to hectic, great suffering, rapid emaciation.

The profession at large should in all cases search out in the sputum for the proper germ, and in seventy-five cases out of a hundred, they will find in all cases of chronic bronchitis, that either the microbe of syphilis or the bacillus of tubercle is at work in the production of the grave lesions that exist.

Hay fever, summer catarrh ; often severe, with asthmatic symptoms superadded ; due to the micro-organisms of plants, or bacilli of hay and other grasses, causing a degradation of the normal bioplasm of the respiratory mucous tract from nose down to the air-vessels.

Symptoms.—Quite complicated ; headache, suffusion of eyes, sneezing, irritation of nose, fauces ; larynx, bronchi, often greatly congested ; cough, and the other physical signs of acute bronchitis. It is a sort of combination of acute catarrh, with sub-acute laryngitis and bronchitis.

Treatment.—Removal of cause, if possible. Quinine is the best preventive. If chiefly catarrhal, a solution of boroglyceride in infusion of golden seal with nasal douche. Some of the following remedies to give relief—compound lobelia, ammonia in

some form, citrate of caffeine, belladonna, etc. If they fail, general treatment for *chronic bronchitis*.

This is characterized by an enlargement of **Bronchocele.** the thyroid gland. The entire gland may be affected, or its centre, or either lobe. The swelling is usually unassociated with pain, and causes little inconvenience, beyond the deformity it produces, unless it presses upon the adjacent parts.

Causes are very varied. It may be due to water impregnated with lime or magnesia; to tuberculæ; to irritation, reflected from the organs of generation to the nerves that supply the thyroid, causing enlargement and congestion; to uterine disease, or an anæmic condition of blood.

It is a true hypertrophy and is divided into three forms, according as the vascular, glandular or connective tissues are involved.

1. *Vascular Goitre* is most common in this country, and consists merely of engorgement, congestion from suppressed menstruation, masturbation, gonorrhœa, amenorrhœa.

Branches of the sympathetic nerve covering the anterior portion of the uterus, clitoris, penis, are reflected over the mamma and thyroid, hence the connection. Besides, the gland, from its peculiar function of aiding in controlling the circulation in the brain, is very profusely supplied with blood-vessels and is liable to take on congestion from very slight causes. Vascular goitre often terminates in rupture of vessels, blood absorbed and recovery. In other cases calcareous degeneration may take place.

2. *Glandular or Cystic Goitre* consists in a development of the glandular capsules and their distension, and is filled with a gelatinous fluid.

3. The entire transformation of the structure of the thyroid into a calcareous or chalky mass.

Symptoms.—The whole gland may be swollen or only the centre or side of it. Frequently no inconvenience but the deformity. In other cases distressing symptoms are produced by the pressure upon surrounding parts, and respiration and deglutition may be rendered painful and difficult by the compression of the trachea or œsophagus. In other cases severe constitutional symptoms, as anæmia, palpitation, mental depression, dyspepsia; irregularity of uterine function, as scanty menstruation, profuse leucorrhœa.

Its duration is somewhat tedious; much more common among women than men.

Treatment.—The cause must, if possible, be ascertained and removed; such as water, or irritation, or disease. Then a general alterative and tonic treatment inculcated, with the very best of food. Whether caused directly by tuberculæ or not, that condition is inseparable from it; hence special drugs for the destruction of that germ, such as iodine and bromine in their various forms, tincture of iodine, iodine and glycerine, iodide of starch, iodoform. Bromine is not so active. Fluoric acid in an alternated solution is acquiring great repute in the cure of a great number of cases. Locally, ozonized clay is extremely efficacious, taking care to cause no redness of the skin.

The bursa mucosa are membranous sacs situated about the joints, particularly the large ones of the upper and lower extremities. They lie under the tendons, act as cushions, their internal lining membrane secrete an oily fluid which is designed to lubricate the surfaces over which the tendons play.

In consequence of irritation, such as pressure, bruises, sprains, contusions, etc., the secretion becomes excessive, and they swell, become inconvenient from their size. They are generally round or oval.

An effort should be made to excite absorption by pressure; by painting with colorless iodine; by concentrated ozone. All failing, a seton should be inserted through it.

A bunion is simply an irritation, inflammation with thickening of the bursea mucosa at the ball of the great toe.

To these the gutta-percha solution with iodole; or else the collodion and tannic acid might be conveniently applied.

is a term applied to irritation, inflammation of the lymphatics of the groin. It may consist either of a simple irritation, or may depend on absorption of venereal germs into the lymph channels.

Causes.—It may be caused by a simple inflammation of urethra, by balanitis, by masturbation or sexual excesses, long walks, horseback exercise, in-growing toe-nail. It may be due to the presence of the venereal germ, chancres, etc.

Symptoms.—The gland swells, becomes indurated and tender, fills up with lymph, and when the lymph breaks down, a suppuration takes place; there are rigors and pain, burning, throbbing. In some cases, fever and great difficulty in walking.

Pathology.—The contents of bubo are microbial, if not the

germs of syphilis or tubercle, then the microbe. *Streptococcus pyogenus* is always and invariably present.

Treatment.—In order to prevent the irritation of the lymphatics of the groin, all applications to any morbid condition of the genital organs should be of a soothing nature. No caustics or irritants should be used, or, if used, those should be selected that cause no pain; all applications to be of a soothing character.

There are various remedies and modes of management, if they once form, in order to prevent suppuration.

Gentle pressure, with plantain leaves next the skin, or iodoform ointment, or phytolacca, or stramonium ointment, with iodide potass. The ozonized clay, without pressure, or hot poultices.

If it is soft in centre, if pain is throbbing, poultices; if desirous of hastening it forward, slippery-elm poultices, hot, with a good quantity of bicarbonate of soda in them during day, and linseed poultices during night. It may open itself, or have to be opened. In either event, it must be borne in mind that it must heal from the bottom; that its internal lining membrane or sac must be destroyed, as it is a true secreting membrane; so, if opened by the knife, the incision should be made in four different directions, so as to destroy its sac and permit it to heal from the bottom. If it opens itself, then, after its contents have been thoroughly evacuated, inject the sac with tincture iodine and iodide of potass, so as to destroy the secreting faculty of the internal lining membrane of the sac.

The practice of aspirating buboes in the face of such an amount of microbial matter, is essentially wrong—even injecting them with peroxide of hydrogen is not admissible; free openings and counter openings is the rule.

Bullæ, are either superficial or deep-seated elevations of the skin, having fluid contents, differing in color, shape and progress, and varying in size from a pea
or Blebs, up to that of a goose's egg.

Blebs are described as large vesicles; but this fails to explain their pathological character. Bullæ, blebs, vesicles may contain serum, lymph, blood, pus; and be variously colored according to the character of their contents. They may be of various shapes, globoid, hemispherical, oval, crescentic, conical. They may be situated upon an apparent sound skin, or there may be an inflammatory areola.

Bullæ may persist or rupture; they may dry up, or degenerate into ulcers; they may collapse after the escape of their contents.

and their sac become adherent to the base from which it was originally raised. Vesicles represent the second stage of burns or scalds, their contents are the liquor sanguinis of the blood; but when they occur in the most depraved or debilitated states, as in syphilis, tuberculæ, leprosy, erysipelas, gangrene, their contents are the microbes or micrococci of the respective disease germs, which act as the factor of the eruption.

The treatment to be successful must be essentially germicidal, adapted to annihilate the special germ present, and at the same time eminently constructive.

Calculus. Calculus, or stone, a hard concretion, formed within the body in consequence of the deposition of the solid matters which usually remain in solution. The concretions found in the brain, gall duct, kidneys, bladder are calculi. Urinary calculi is a disease of all ages, but most common in advanced life in the male sex; more frequent among the gouty; those who lead an indoor life; very rarely met with among those who live in the open air, eat little animal food, or use no alcoholic drinks.

The early stage of calculi generally presents itself in the form of gravel, shown by the passage of small portions of a gritty substance which may be seen in the urine as a deposit of little sand, or like grains of cayenne pepper. When such deposits occur frequently in passing urine, either in the warm or cold state, we may apprehend the formation of calculi; especially if there be symptoms of irritation of the kidneys and adjacent organs.

The chief varieties of calculi are: Uric acid, ureate of ammonia, soda, lime, phosphate of ammonia, magnesia, lime, oxalate of lime, carbonate of lime, cystine, xanthic bile and all its chemical constituents.

Calculi, Under certain conditions, such as with an excess of amylaceous, carbonaceous, saccharine food, malt
Biliary. and alcoholic drink, together with monotony, indoor life, imperfect ventilation, non-aeration of the blood takes place; the bile becomes thick, crystallizes, forms an obstruction to its own escape, it is absorbed in great quantities, constituting the phenomena of jaundice.

The chemical composition of the human bile: water, 850 parts; bile salts, 91; fat, 9; cholesterin, 2; mucus and coloring matter, 29; salts, 7, in 1,000 parts. The secretion of the bile is continually going on, but somewhat retarded during fasting and acceler-

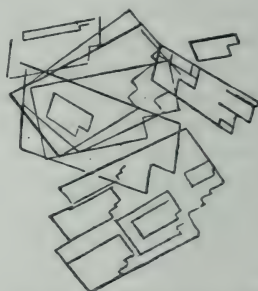
ated during the taking of food. The bile formed in the hepatic cells is discharged into the minute hepatic ducts, passes into the larger trunks, and from the main hepatic duct into the duodenum. The gall-bladder is a true reservoir for holding the bile, for the wants of economy.

It is supposed that an ordinary-sized man secretes from twenty to forty ounces of bile in twenty-four hours.

A thick, clotty, or crystallized condition of bile may arise from a variety of other causes, not so common in early life, unless due to malaria, but after thirty-five very common among the sedentary, or in those who lead a physically inactive life, much more common among women than men. Pain, paroxysmal over the region of the gall-duct, with vertigo, nausea, vomiting, biliary-coated tongue, injected conjunctiva, constipation, favor the idea of the formation of biliary calculi.



Section of a large gall-stone, showing successive layers.
A. External crust.—B. Intermediate portion.—C. Nucleus. Natural size.



Crystals of cholesterol from gall-stones, showing the characteristic plates, with one corner wanting. $\times 200$.

In all cases, calculi are made up of either a deficiency, or redundancy of certain elements of the bile; a scantiness of its watery elements, it may coagulate; an excess of cholesterol, it may crystallize.

When the symptoms of gall-stone passing the duct are present, the curative indications are to facilitate its passage into the intestines, to relieve pain and prevent inflammation, which the presence of an extraneous body if large is calculated to produce in the duct. This is best effected with large doses of gelsemium. Dose after dose relaxes the duct and favors the expulsion of the calculus. Warm bath, hot fomentations, are of great benefit.

Between the attacks, solvents should be tried, to cause a chemical disintegration of the calculi, and for this purpose the ozonized uric acid solvent should be preferred above all other remedies. Under its influence the calculi break up, disappear, without any trace in copious, bilious evacuations, which it produces. I have

used this remedy in several hundred cases and found it an excellent solvent for those stones. It is well enough one or two days of each week to administer compound tincture of cinchona and nitro-muriatic acid, with phosphate of soda, sufficient to keep the bowels free, but in all cases, five days out of seven, the patient should be placed upon the uric acid solvent ozonized. There is little doubt in my mind that this remedy owes its powerful solvent properties to the combination in it of *chionanthus virg.* and dioxide of hydrogen. The same preparation is efficient in nearly all dormant states of the liver. Diet has a marked influence upon the quality of the bile, vegetables and fruit have a marked influence upon the bile, with lean meats proportioned to the wants of the system.



A. Section of a gall-bladder filled with biliary calculi. This bladder contained 260 gall-stones. At B are single calculi showing facets.

One of the most prevalent affections among men of all ages and stations of life. It is true that it is often a sequel of gonorrhoea, the germs migrating back to the compressor urethra and prostate. Masturbation, excesses, dalliance, perversion of the sexual appetite, the wearing of condoms, irritation of sedentary life, the use of velocipedes, instruments, drugs, passage of concretions, uric acid, stricture, licentiousness, reading modern literature, keep up a species of continued congestion of the prostate and mucous membrane of the urethra, which later on assumes the status of inflammation, penetrates deeply into the follicles of the gland. Then appears a moisture, sexual congress becomes imperfect, increased frequency of micturition, bearing down uneasiness in the perinæum and anus, slight pain or rather uneasiness at termination of micturition, tenderness around the prostate on the passage of a sound, an inability to urinate when making the attempt. Progressively onwards the case progresses, for it never remains stationary. There is increased micturition, with a diminution in the force of the stream, with dribbling after urinating, the lesion extends to the neck of the bladder, which, when partially

**Calculi
of
Prostate.**

full, causes frequent erections and erotic desires with nocturnal seminal emissions. Later, partial or complete impotency. These cases diverge into numerous channels; in some there is a discharge of mucus from the urethra, in which spermatozoa often appear when straining at stool and also in the urine flakes, prostatic shreds, consisting of pus, prostatic epithelia, spermatozoa. A rectal examination reveals the prostate large and tender, with pain in the back. Reflexly this irritation is transmitted to the base of the brain, causing a state of mental incapacity, nervous bankruptcy. Here then is the affection which afflicts nearly all, young, middle-aged and old men—one that is sapping our very vitals as a nation.

Nations owe their longevity, progress and courage to the integrity, strength and vigor of their sexual power. The damaged prostate is a greater manufacturer of diseases and death than the glaring gin palace and secret brothel, as the condition of our male population demonstrates.

The treatment of this affliction should be general and local; all stimulants should be avoided; nourishing food and tonics are indicated; bowels regulated; urine kept slightly alkaline; moderate exercise, and sound elevating mental culture, and in general re-invigoration and construction of the brain.

In chronic urethral and prostatic hyperæsthesia few remedies operate more beneficially than the introduction of the soluble ozonized gelatine damiana bougies, inserted right up to the neck of the bladder, permitted to remain and dissolve about three times a week.

The cocaine suppository exercises a sedative influence over the motor sexual and urinary centre in the spinal cord; this influence extends along the anterior portion to the reflex centre, but if there is reason to suspect an atonic condition of the prostate ducts, such a motor stimulant as phosphated tincture of oats is indicated.

If this state of chronic irritation be not effectually cured, it will inevitably terminate in hypertrophy of the prostate, with calculi.

Calculi of this gland are either of the phosphatic or mulberry variety. The same treatment as for hypertrophy.

Pichi, as prepared in the uric acid solvent ozonized, has a wonderful effect upon the prostate, causing it to disgorge calculi.

Hydrogen peroxide also operates well, administered in alternation with iris versicolor and phytolacca.

Electrolysis of the prostate is of great utility.

Calculi, Concretions in the kidney vary much in size and composition. They are found in all ages, but most
Renal. common in the adult male, and in all parts of the kidney—in the pyramids, cortical substance and pelvis.

Owing to mal-assimilation, perverted nutrition, to the presence of microbes and their ptomaines; to destructive metamorphosis; there is an excess and precipitation of certain elements, which are either in excess, or fail to be eliminated. Usually they begin in this way; certain elements are in excess, either uric acid, phosphate or oxalate of lime, constituting one or other of the three forms of gravel. A precipitation takes place of either uric acid or oxalate of lime. A colloid material composed of mucus, or a blood globule exist in all as a starting point; these molecules attract others, they increase by aggregation of molecules.

Certain constitutional states are favorable for the elements of precipitation, and all that is necessary is a point of attraction and aggregation.

The cause of calculi appearing in the kidney is often very obscure, but uric acid deposits are the most common; but deposits of lime and triple phosphates are common. This leads us back to the primary cause, the formation of uric acid and phosphate of lime and the constitutional conditions favorable to their development.

Renal calculi vary greatly in shape and differ in their composition, and may be deposited in the tubes of the pyramids, in the cortical substance, or in the pelvis of the kidney.

In adults, the urate of soda in the form of crystals; in the aged, carbonate and phosphate of lime.

All the different urinary calculi may be impacted in the uriniferous tubes, rendering them impervious; they vary in number and in size, from a pin's head to a walnut. A kidney may contain one or a great number; large ones may fill the whole pelvis; small ones constitute kidney gravel. A calculus impacted in the pelvis of the kidney may assume a large size and produce great anatomical changes.

The presence of calculi in the kidney gives rise to uneasiness, to a dull, aching pain in the loins; to occasional twinges of sharper pain after motion or exercise of any kind; pain in the groin, retraction, possibly pain in the testicle of the affected, aching, amounting to pain, in the anterior part of the thighs, itching at orifice of the urethra.

Urine contains pus, blood and epithelium from the kidney. All symptoms aggravated by anything which disturbs the patient.

The passage of a portion of the stone, or the whole of it, in-

variably gives rise to renal neuralgia, which manifests itself in sudden intense pain in the kidney, constant desire to micturate, tenesmus of the bladder, great retraction of the testicle, collapse.

How to Diagnose a Stone in Kidney, and its Character.—There will be severe backache; traces of pus in the urine. After exercise, especially on horseback, bloody urine. There will likely, if stone is any size, be epithelium of the pelvis of the kidney, as well as blood corpuscles. The diathesis will guide us as to the kind of stone. But the nervous irritation is so great, in all cases, that if it begins as uric acid, it at once becomes phosphatic; the reflex nervous irritation creates that diathesis. Health suffers, loses strength and flesh. Stone gradually becomes larger; excites suppuration; fills up the body of kidneys, and renders them use-

less as secreting organs, and gives rise to uræmia. In addition to the above, there are the minor symptoms of kidney irritation; itching at the orifice of urethra, aching in thighs, retraction of testicle.

Passage of Stone into and through the Ureters.—A patient suffering from the above symptoms has a sudden seizure of intense pain in the kidney, with nausea, vomiting and great prostration; a partial suppression of urine; symptoms increase; pain moves down along the course of the ureters, and the moment stone drops into



Vertical section renal calculi, showing the different layers. *a*, uric acid nucleus; *b*, oxalate of lime; *c*, phosphates of lime, and magnesia and ammonia.

the bladder all is well. In addition to the above, there may be all the indications of kidney irritation, and even hæmaturia.

Indications of the Presence of Stone in the Bladder.—Severe attacks of pain in the bladder, perinæum and at glans penis, either brought on or aggravated by exercise. Frequent micturition from the irritable bladder, or there may be continence or incontinence of urine; or even if patient can make water freely, there is a feeling as if bladder was not thoroughly emptied in the act of urinating. Urine is likely to contain pus to a greater or less extent, often thick, ropy, tenacious, muco-purulent matter, and perhaps blood. Always blood corpuscles and vesical epithelium under microscope. The act of micturition suddenly stopped, in large percentage of cases, by stone being forced against the neck of the bladder, when, if the patient suddenly throws himself upon

his hands and knees, thus causing the stone to move away, the flow of urine returns; tenesmus, prolapsus of the rectum, very common. None of those symptoms are to be positively relied on, not one, until a metallic sound or silver catheter is introduced, when the bladder is full, and the stone felt by its impulse on the fingers, and the peculiar click is heard by the ear. One examination should not suffice, it should be made at least three times, on different days, before a final opinion is given.*

Treatment of Stone in the Kidney, if Uric Acid or Red Gravel is the Cause.—Plain, nourishing food, milk, eggs, fish, animal food, nothing to increase uric acid; avoid alcohol; mucilaginous drinks, linseed tea, infusion of marsh mallow; daily bathing, flannel clothing; belladonna plaster over kidneys; check hemorrhage; alteratives and tonics, selecting saxifraga, hydrangea, iodide potass, solution of potassa, citrate of potash in alternation with nitric acid in compound tincture cinchona, benzoic acid and borax. Undoubtedly the uric acid solvent ozonized is the most active agent known to cause a stone to crumble. To relieve pain, if it drops into ureters, inhale a little chloroform. When patient feels slightly exhilarated, follow with hypodermic injection of morphia, and discontinue the chloroform.

If the stone has reached the bladder, and is small, patient might be encouraged to take copious warm mucilaginous drinks, with nitrate of potass and cream of tartar; go into a hot bath; take a large dose of tincture of green root gelsemium; dry off; smear perinæum with extract of belladonna; let urine accumulate, and then discharge it forcibly. If that fail, an attempt might be made to dissolve it, if acid, by injecting alkalies or alkaline solution; if a phosphatic calculus, acid solutions. Injecting solvents into the bladder must be done carefully; the water must be tepid, and not too strong of either the alkali or the acid; just strength enough for stomach; the liquor potass, say a drachm to four ounces of water; nitric acid dilute, from fifteen to thirty drops to four ounces; used about three times a week. At the same time

* In order to ascertain the constituents of calculi, the following methods are adopted:

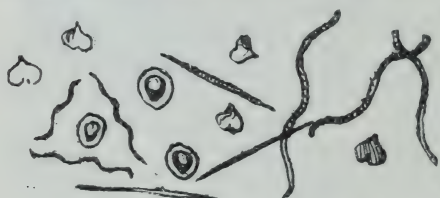
Powder the stone and apply heat. If it disappears, it is in all probability uric acid, or compounds of uric acid. If there is any doubt, the murexide test may be applied. If the stone does not disappear upon being incinerated, it is composed either of phosphates or of oxalate of lime. If it is the triple, or ammonio-magnesian phosphate, the application of heat to a piece of the original stone will melt it into a bead; if it does not melt, it is either phosphate of lime or oxalate of lime. If it is oxalate of lime, the incineration will convert it into carbonate of lime, which, in acetic acid, will dissolve with effervescence; if it is phosphate of lime, it dissolves without effervescence. Thus, with very little trouble, we may, with sufficient accuracy for practical purposes, ascertain the composition of a calculus. The bases are not ascertained, but this is not necessary.

the patient should be placed upon an alterative and tonic course, with iodide potass in a vegetable alterative, and nitric acid in compound tincture cinchona as a preference. In the interval, patient should be encouraged to drink freely of an infusion of hydrangea and saxifraga with the uric acid solvent; three remedies of great value in causing the disintegration of all calculi, especially the phosphatic; they are true solvents, causing the stone to break down into a mealy powder, which is easily passed by the urethra. Their action is purely chemical; they perform what no other remedy or combination of remedies can perform. Their best effects are to be obtained by infusion; fluid extracts become worthless; ozone water has a powerful effect on the more solid forms, and reduces them to a pulp, which is gradually eliminated by the urine. (*See Diathesis.*)

Cancer is a term which is applied to a diathesis in which certain elements of the blood are degraded, altered or changed into a disease germ of the most malignant species, thus giving us one of the most appalling blood diseases in the whole range of medicine. In weakened parts of the body this germ localizes, and receives

different names according to the presence or absence of certain adventitious tissue, as *schirrus*, or stone cancer; *medullary* or brain.

Cancer in its varied forms is most generally met with when vital force is on the wane, flickering out in the



Microbe of Cancer.

great bulk of cases between forty-five and fifty. Among 1000 cases noted, forty-three is the average. This climacteric period of life is obnoxious to the most remarkable changes in both sexes. Numerous though those cases be, the male is not exempt from alteration in structure of pink marrow, lymph canals, bone gland and impairment of function, although it is the female who essentially suffers at the change. The extra source of nerve deterioration, or defect of vital elements of brain at this period, gives the elements by which normal living matter is change or altered, degraded into a diseased germ. Six females to one male are the proportion or excess affected, and this can be accounted for by their isolation, monotony, grief, worry, care. When the primary elements of nutrition are altered into a disease germ, there is besides atrophy of the red corpuscles an excess of the colorless

discs; and the force behind, the creative power of the blood is deteriorated, there being a defective organization which gives rise to this degradation of normal bioplasm in the blood.

The predisposing causes which give rise to this change in the bioplasm of our blood are somewhat obscure. In some cases it depends upon peculiar type of conformation, and is hereditary, and like all germ diseases it is pre-eminently contagious and infectious.

The large number of cases that are met with in every-day life are acquired in and under the various defects and vices of our highly civilized state; thus we have it more prevalent in sections or localities noted for high mental culture, especially if the nervous system has been enfeebled by grief, anxiety, worry, overwork. The peculiar innervation is very obscure and in many cases can be traced to sexual neurasthenia, masturbation, sexual excesses; in other cases it can be looked for planted with the germs of syphilis or the toxical effects of mercury; to the defects of modern sanitary science, to open sewers, imperfect drainage and ventilation, impure drinking water, adulterated food, isolation, monotony or sameness of living.

How much the degenerating action of alcohol, or withering effects of tobacco, or other habits, have to do in creating this diathesis, it is impossible to estimate or even appreciate.

To a greater or less extent the cancer germ must exist in the blood prior to the appearance of any malignant growth, it may be a longer or shorter period, or appear as if it was simultaneous; but a constitutional taint, a diathesis, cancerous germ-laden blood, must, in the individual, precede the appearance of the tumor and operate as a pre-existing cause in the blood. Cancer is never a local disease, without the germs in the blood.

The exciting causes which bring the diathesis or germs into an active, local, breeding cancer, are local irritation, such as an injury, blow, bruise, contusion, disease, the use of tobacco on lip and tongue, violence of any kind, so that it causes the vessels to lose their contractility, or tonicity, which state enables the liquor sanguinis of the blood with the germs to pass through their coats or walls by a process of exudation or exosmosis, and deposit themselves in devitalized or weakened structure where they form a colony or nest.

The most common seat or deposit of cancer germs is in parts most subject to irritation, those in exposed locations, as the female breast, the eye, the tongue, the lips, the genital organs, bones, liver, stomach, uterus, rectum, œsophagus, lymphatic glands, etc.

Etiology.—The anatomical structure and relation of the part

and other conditions, together with the special form of degradation to which it owed its origin, have much to do with the character and mode of formation; thus *scirrhus*, or hard cancer, is most frequently met with in the female breast, uterus, stomach, extremities; *encephaloid* (brain-like) medullary or soft cancer, anywhere; *melanotic*, charged with a brown or black pigment matter; *epithelial* or *epithelioma*, on the skin and mucous membrane, on lip, anus, tongue, uterus; *ostoid*, or bony, anywhere. The degree of growth of a cancer depends entirely on the amount of degradation of living matter in the blood, the amount of irritation present, and the status of local depression. If the lymphatics are greatly engorged, vital force sadly deteriorated, it renders a cure more difficult.

Any swelling, tumor, infiltration, may be properly termed cancerous, if it completely infiltrates the texture in which it arises, spreads, invades the nearest lymphatics adjacent to the part affected; when there is pain in it, stinging, darting, or sharp lancinating; or if it is ulcerated and open, the odor of the dead germs in the pus or discharge resembling the hydrosulphate of ammonia; in the urine always persistent, dead cancer germs, best seen with microscope of 2000 diameters. If it is internal, as the stomach, the pain is anterior to posterior. The diathesis or cachexia is not always well marked, but if present should consist of indescribable languor, or goneness, a sinking sensation at pit of stomach, a peculiar fetor of breath; pale clay-colored stools; straw-colored or muddy skin; pearly conjunctiva.

The cancerous diathesis is infectious and contagious. The affected or germ-smitten radiate or breathe off germs to contaminate all in close proximity. The egress of germs is chiefly by the breath, urine, stool and from the skin, or by direct contact, inoculation.

Diagnosis.—Many, very many individuals are literally swarming with cancer germs, their blood and tissues saturated, the lymph channels crowded, but they in blessed ignorance live along to a good old age and die, without any cancerous tumor or growth being visible. That mysterious languor, that indescribable headache, that goneness, those aches, indigestion and in many cases Bright's disease, which are incapable of explanation, could all readily be detected by a careful microscopical examination of the urine, sweat, saliva, and blood of the individual so complaining, and in ninety-nine cases out of one hundred cancer germs will be detected.

In making a diagnosis, it is not necessary to note the mental irritability, the contracted features, sallow skin, pearly conjunctiva, the odor of the breath, the sinking at the pit of the stomach,

the clay-colored stools, nor the dry, husky skin. It is sufficient that we have a thickening induration, or infiltration, or tumor, and in that there is pain of a sharp, lancinating character, with intervals between, and that it resembles a needle or knife; that if the cancer colony is in the chest or abdomen that there is pain anteriorly and posteriorly—direct through; that if the cancer is on the face, breast, or other exposed part, and is ulcerating or disintegrating, then there is soreness, rawness, gnawing, as well as the intermittent pain, and the smell or odor of the discharge is most significant. Besides, in the cancer-juice and urine the cancer germ can be seen with a very low power. We cannot well speak of diagnosing such varieties as long as covered by skin. The *medullary*, or acute, or brain-form may be known by the intensity and frequency of pain; if covered, lobulated, doughy; if exposed, one mass of cancer germs; the *hard*, or stony feel of *scirrhous* having an excess of fibrous tissue and a few cancer cells, and in the early stages little pain; the *epithelial*, or cancroïd is easily known from its location, occurring where skin and mucous membrane meet; the black pigment matter of melanosis; the great excess of blood-vessels in fungous hæmatodes; the fatty feel of the lardaceous; the bony hardness of the ostoid; the jelly or gelatinous material of colloid; the leathery patch on skin of keloid. As to the engorgement of the lymphatics, they simply afford us an indication of the state of the blood as regards germ growth—if heavily engorged, germs abundant and active; if slightly, germs few and inactive.

The characteristics of cancer are definite, and different from all other growths or swellings, inasmuch as it is made up partially or wholly of malignant germs. There is a large number of growths or tumors—some simple and others compound—made up of the healthy tissues of the body, as fat, cartilage, and bone, which, when occupying their proper places, are essential to the perfection of the animal system; but when misplaced, may interfere with normal functions or locomotion, it is indispensable to remove. But cancer has no counterpart in the healthy body, the very existence of its germs, or their localization, sufficing to constitute disease; and more than that, their colonization in any part of the body is destructive, as they use up or convert healthy tissue into their own nutrition and growth.

Cancer, although a large micro-organism, and quite weighty, nevertheless is contagious and infectious. It can be carried into a healthy organism by air, water, milk; or by contact, and may remain in the blood and tissues in a latent condition until favorable conditions exist for their growth. The cancer germ has wonderful capacity for resisting death, due to some inherent

power it posses. We do not mean that it has the tenacity of life of the small-pox germ, neither has it its great power of growth or dissemination.

The symptoms of cancer are well defined. The change of normal cells into this malignant germ is usually attended with extreme languor, lassitude, debility, goneness; strength and energy much impaired; the skin assumes a dirty yellow hue; the secretions are arrested, the conjunctiva of a pearly whiteness, features contracted, sinking feeling about stomach, stools clay-colored; great loss of strength and energy; general wasting, with mental irritability. When the germ escapes from the circulation and forms a colony, then we can detect a thickening, infiltration, induration, a separable tumor, which rapidly changes the structure of a part, usurps its original texture or organ; germs grow by millions, invade surrounding parts, extend to nearest lymphatic and induce general germ poisoning. The very moment a malignant germ colonizes itself there is pain, a congregation of a few germs resembles a needle; a larger aggregation, a knife; the smaller the colony the less the pain, and at long intervals; whereas in an immense collection the pain is not only like a large knife darting through the part, but it is frequent, almost continuous. If the cancerous infiltration occurs inside of the chest and abdomen, pain is both anterior and posterior, which is explained by the character of the spinal accessory nerves.

It grows like all other living matter, and when from a deficient supply of nutriment or some other adverse condition, or natural death of the germ, disintegration and ulceration take place, a foul, excavating ulcer, sanious, fetid discharge, the odor of hydro-sulphate of ammonia, which the dead germ evolves, hemorrhages, progressive debility, anæmia, nausea, vomiting, diarrhea, complete exhaustion, death.

The tendency of all cases of carcinoma is to death, unless managed with great skill and long experience.

Treatment.—The general indications to be observed in all cases of the cancerous cachexia are to build up and maintain vital force, the nerve centres; to promote and increase the powers of assimilation and digestion; to resort to every possible means and known remedies to destroy the cancer germ in the blood; to remove the infiltration or tumor, if admissible.

In addition, the most nourishing blood-making food, as abundance of highly animalized substances, beef, game, milk, cream, raw eggs, vegetable phosphates.

Tonics must be administered in all cases, to promote an appetite, and energetic digestive agents as trypsin or papoid after meals, to give us the most perfect digestion.

Baths are of infinite value, these must be of a decided germicidal character; they should consist of such agents as iodine, chlorine, sulphuret of potassium and sulphurous acid.

Pain, in all cases, must be relieved with the conium pill.

The patient should wear flannel clothing and take moderate exercise in the open air.

The liver should be actively stimulated with the kola nut paste, the glucoside leptandra and leontodon; the three in combination, in sufficient doses.

After inculcating the most rigid attention to hygiene, dietetics, moral surroundings and the removal of every possible condition that would depress, a thorough germicidal treatment should be carried out. Such remedies as the comp. saxifraga, ozonized; the glycerite of sulphur; Chian turpentine; chlorate of carbon; chlorine.

The patient should be put upon one of those remedies. Commence with teaspoonful doses every three hours, and gradually increase it; let it be taken upon an empty stomach.

These remedies will destroy the germ, act also as a powerful stimulant to the lymph canals, pink marrow and other blood-forming glands; just as they destroy or sterilize the germ, they eliminate it. The evolution of the germ is arrested and pain ceases.

The action of germicidal remedies is truly marvellous; as they are persistently administered, so the germs are annihilated, and a return to health and normal vitality is the result.

The internal administration of germicides must be carried out in all cases.

If the cancerous tumor is small, an effort might, with some degree of hope, be made to kill the mass of germs, and ultimately absorb them without breaking the skin. For this purpose, either of the following remedies will be found of great efficacy: an ointment of stramonium, ʒi; chloride of ammonia and iodide of potass, āā ʒii. Mix. Spread on leather and apply during the day, and during the night a lotion of sulphate of manganese or an ointment of phytolacca; or lotions of distillation of the jequirity; or ozonized clay; or peroxide of hydrogen or boroglyceride; ozone ointment and resorcin.

We deprecate the use of the knife or caustics in the removal of all cancers, and depend upon removing cancerous tumors or mass of germs by the application of plasters composed of antiseptic materials which will unite with the cancer germs, enter into their composition and destroy them.

These plasters, if properly selected and adapted to the case, will give rise to very little irritation. The length of time neces-

sary to remove a cancerous infiltration will vary with its size and the nature of the germicides used. The length of time necessary to heal it up after it drops out, also varies much, the size of the cavity, its location, health and vitality of the patient.

From the large list of cancer plasters in general use by physicians, we select a few that are the least painful in their application, such as the chloride of chromium and ozone pastes, two rapidly destructive agents, when either is applied. They are altogether less painful than the chloride of zinc paste, have more affinity to enter into the body of the tumor, destroy it and cause its perfect exfoliation root and branch without much suffering or the loss of blood.

From the vegetable kingdom we take oak bark, phytolacca, yellow dock and sorrel, all crushed. Make an extract and apply; or the expressed juice of the sheep sorrel alone in the form of an inspissated extract, and applied on leather, will remove it; but before these last two are applied, the cuticle must be destroyed. Another favorite



Scirrhus cancer of the abdominal walls.

paste for the removal of a cancerous tumor is to drop C. P. sulphuric acid on saffron, until a paste is formed; when of the proper consistency it is applied, and almost, as if by magic, reduces the entire mass of germs to a charred mass. If the tumor is very large, it is repeated daily until destroyed.

It is unnecessary for us to give the different formulæ in use, suffice it to say that the chloride of chromium paste is in very general use for all large cancers, and the ozone paste for small ones. These two do their work effectively, whichever is used, and should be applied daily until the cancer drops out, after which it is a good plan usually to poultice for a few days so as to cleanse the wound thoroughly. Poultices of linseed meal and boroglyceride should be applied every three hours, and as soon as the granulations exude healthy pus, strap it with adhesive strips and dress with either stramonium or ozone ointments, or an ointment made thus: Ozone ointment, one ounce; lac sulphur,

three drachms; willow charcoal, pulverized, one drachm. Mix; or an ointment composed of ozone ointment and resorcin. We shall now describe the microbe in various locations of the body.

This case (p. 120) of cancerous infiltration of the abdominal walls, involving the skin, cellular tissue and border of the recti muscle, was first removed by the application of the chloride of chromium paste; roots or prolongations destroyed by papoid and thallin; healed kindly under ozone ointment.

The internal remedies were Chian turpentine, saxifraga, phytolacca.

**Cancer
of the
Antrum.**

Owing to disease of the teeth and nose, the antrum is greatly weakened, and if the microbe of carcinoma be present in the blood, it is very liable to be effused into this cavity with the liquid, semi-liquid and glandular substances, so often found in this locality. The symptoms are aching, uneasiness of the cheek, preceded by acute throbbing, pain, rigors, fever, followed by slow and progressive enlargement. If unrelieved, there will be bulging of the cheek, extrusion of the eye, obstruction of the lachrymal duct, depression of the hard palate, loosening and dropping out of the teeth and closure of the nostril. In some cases it will burst into the nostril, mouth, or through the cheek. The pain is intense.

The treatment should consist in making a free aperture into the antrum by extracting either of the molar teeth, and a trocar pushed up through the empty socket into the antrum. If the teeth are all sound, then an opening should be made through the membrane of the mouth, above the alveoli of the molar teeth, and the bone be pierced by a strong trocar. The contents should be thoroughly stirred up, whatever they may be, and thoroughly evacuated; the cavity washed out every morning with a solution of resorcin, creolin or other antiseptic, and general treatment for cancer inculcated.

**Cancer
of the
Lip.**

This makes its appearance chiefly in the form of epithelioma, although the scirrhus, medullary and melanotic forms are quite common. Irritation is the grand exciting cause; the pipe or cigar has been mentioned as the principal source of irritation, but numerous cases occur where the individual is not addicted to this habit. It is also true that it is chiefly the lower lip that is affected, very seldom the upper. The great frequency

of cancer of the lower lip may partially be accounted for by its situation, position and mobility. Most generally met with on one side.

As all cases of cancer are both contagious and infectious, it is doubtful how many cases may be directly due to the pernicious practice of kissing. We are strongly of the opinion that numerous cases of cancer of the lip are due to direct inoculation in the act of kissing. It is a notorious fact that all disease germs may be communicated in this way. Daily we see the germs of tubercle, syphilis, diphtheria, small-pox, etc., in the vapor and exhalations of the mouth, passed from the affected to the non-affected. This occurs at all hours and is thought nothing of. The indiscriminate kissing of infants is highly prejudicial to the little one, its tissues as a rule, are fresh, free from disease germs, the activity of growth great, metamorphosis rapid; in its nurse's arms, in the perambulator or carriage, it is the victim of kissing. How many of those maids and busybodies who kiss are free from the latent seeds of disease, especially disease germs? What are the habits of those maids? Echo answers—What?

The germs of cancer are deposited in early life upon the lips of children and are indelibly fixed there, remain latent if vital force is average, but break out the moment that is shattered.

The activity or latency of disease germs in those who care for children is of great importance; active or latent they can be communicated by close contact, especially by the mouth, in the secretions of which specific germs are always present, and all kissed children run a chance of inoculation by the saliva.

The diagnosis of cancer of the lip is easy, the diathesis, the induration or sore on the lip, the pain sharp, lancinating, infiltration of the lymphatics.



The extreme difficulty in the application of any of the plasters at this point renders cancer of the lip the most eligible for removal by the knife; as a general rule it is the best method, pushing local and internal remedies vigorously after its removal so as to prevent its recurrence.

Some cases are effectually got rid of by either of the pastes, chloride of chromium, ozone ointment and resorcin.

A most interesting case of epithelioma of the lower lip in a young lady, aged twenty-one. The exciting cause of irritation seemed to be the insertion of a peculiar colored thread between

the teeth. At nineteen a little thickness was discovered and thought nothing of; it kept very painful, gradually enlarging until twenty-one, when she sought relief. This case was placed upon Chian turpentine mixture, saxifraga, phytolacca, glycerite of sulphur, etc., locally. The cancerous infiltration was brushed over every morning with lactic acid followed with a paste of resorcin and ozone ointment.

It completely exfoliated in twelve days, leaving a healthy sore, but a little gaping.

To rectify this deformity, a hair-lip pin was inserted and bound well in its place with metallic sutures. This was retained for six days. The dressing all through was the resorcin salve, it healed kindly and left no scar, irregularity or deformity.

If the germs of cancer are present in the blood of
Cancer an individual, latent or active, whether they are the
of the result of hereditary contagion or infection, the breast,
Breast. being an exposed portion of the body, is very liable
 to suffer an irritation, a deficiency of life, a relaxation;
 and these micro-organisms being so small that they can float in
 the air, exude through the walls of the capillaries, colonize, form
 a growth or tumor. The very presence of throwing out germs,
 or infiltration, is in itself irritation which causes more to be
 effused, and when they are thus deposited, they are capable of a
 new and independent existence, with prodigious power of growth
 and reproduction, deriving their nutrition by endosmosis and
 roots or prolongations penetrating into the adjacent tissue.

The sources of irritation of the female breast are very numerous, as the handling of the breast and nipple by the infant; articles of modern dress, as corsets; certain occupations; keeping articles of value in or near the bosom; and as there is a perfect anastomosing, or blending or joining of the nerves of the uterus and ovaries, all abnormal conditions of the latter organs tell disastrously on the breast, so that all diseases of the genito-urinary organs are productive of irritation in the breast, as a perversion of the sexual act, masturbation, metritis, catarrh, indeed all diseases.

The natural weakness of the left side, the immense ganglia of the great sympathetic nerve, reflected over the spleen, heart and left breast, tell us in unmistakable language why cancer is so frequently found in that breast. Besides, this furnishes a clue to why worry, struggle, care, sorrow, mental toil, neurasthenia, aid in the same condition. There can be no doubt, irrespective of causes already laid down, that monotony, sameness, isolation of

location, diet, with a toil-worn depressed nervous system, are productive of carcinoma.

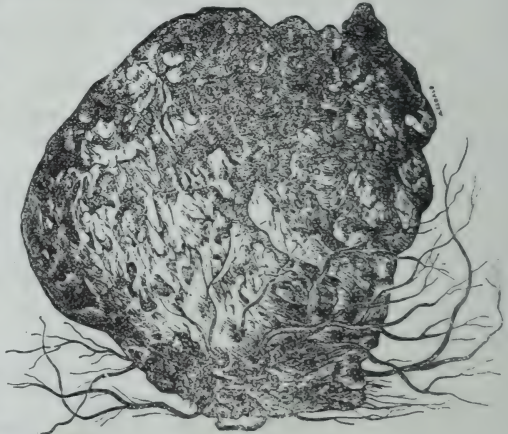
The male breast is a mere rudimentary gland, has none of the exquisite development of the female, none of that high organization, very little sensibility. Cases in it are rare. A few cases, once in a while show themselves, due to irritation of the buckle of the suspender.

In a total of 1000 cases of cancer of the breast, of which I have taken note, there were 150 cases of encephaloid against 850 cases of scirrhus. If it were possible to obtain statistics of all cases of cancer of the breast which present themselves, we think that the proportion of scirrhus breasts to those of the medullary would be about the same.

All forms of cancer are met with in the breast; scirrhus and medullary most common; while epithelioma, fungous hæmatodes or rose cancer and lardaceous are not so prevalent.

The recognition of cancer of the breast is easy, the pain sharp, lancinating, serves to distinguish it from all other tumors; numbness of the arm of the affected side; retraction and oozing from the nipple; enlargement or induration of the lymphatics in the arm-pit, with the germ diathesis which is usually well marked.

The general constitutional treatment for the destruction of the cancer germ should be enforced. If the tumor is very small, an effort to get rid of it without destroying the skin might be



The same cancer, taken from a photograph after removal.

tried with the sulphate of manganese lotion or distillation of the jequirity, or a combination of the succus belladonna with iodide of potass, or the resorcin ointment.

If too large, or growth too active, then its removal by one or other of the germicidal plasters should be decided upon. The attending physician is the best judge.

All such applications are painful, some much less than others. These, if active enough, should have the preference.

A case of open, mixed cancer of the breast (p. 124); scirrhus and medullary removed by the chloride of chromium paste in nine days; healed up well in twenty-one days. No recurrence.

All the illustrations in this article are taken from photographs of actual cases treated by the most scientific cancer specialists in the United States.*

This case, a lady of immense wealth, widow, seventy years of age, had for seven years hid her malady from her nearest relatives.

It commenced as a small pimple, and gradually spread until it assumed the appearance it has in this cut.

From the back and left side of the head, an elevated, ulcerated, circular growth is seen to arise, measuring $5\frac{1}{2}$ inches in diameter. It bled readily, and presented all the appearances which are usually found associated with epithelioma. The general health was very poor, and there was quite considerable enlargement of the post-cervical glands.



The treatment consisted in the use of tonics, alteratives, including the Chian turpentine mistura, alternated with the ozonized glycerite of sulphur.

A paste consisting of one-half pound each of resorcin, and

* The treatment of cancer in the United States has been completely revolutionized; the empirical and barbarous methods, the knife and caustics, have been very generally abandoned, and physicians of the highest culture, of the most eminent scientific attainments and profound skill have adopted the germ theory of its origin, and are to-day successfully curing a very large percentage of all cases which come under their cognizance with bactericides. Among those great luminaries of scientific medicine and benefactors of our race, we would respectfully mention *E. J. Skelton & Sons, M. D.*, of Bloomfield, Iowa; *Prof. F. I. Mehrman, M. D.*, of Oakland, California; *R. H. Randolph, M. D.*, Portland, Oregon; *C. H. Boulson, Iola, Kansas*; *Dr. Arter, M. D.*, Lima, Ohio; *B. L. Robinson, M. D.*, McLean, N. Y.; *Henry Warner, M. D.*, Springfield, Mass.

ozone ointment, to which was added ten grains of hydrochlorate of cocaine. This was spread on leather and applied night and morning over the entire mass and a little beyond.



In twenty-four hours it shrivelled up amazingly, and so continued for nine days, when it dropped off. The same remedy, about a half weaker, was continued till it healed up, which it did in twenty-eight days, forming an excellent cicatrix.

A case of epithelioma of the forehead, under the charge of one of the enumerated specialists, was subjected to a very similar course of treatment: tonics, Chian turpentine mistura, glycerite of sulphur; locally to the tumor,

ozone ointment, resorcin, papoid, and thallin. The germinal mass exfoliated in ten days, and healed up in a month. Three other sarcomatous nodules were forming on the cheek, to which the resorcin and ozone ointment alone were applied. Under this they disappeared in five weeks.

This case originated in the removal of hairs by the barium depilatory when she was thirty-two, and had taken years to assume the present size. An excellent cure was effected.

A very remarkable case of epithelioma of the tongue, which had been tampered with until it assumed a true medullary form.

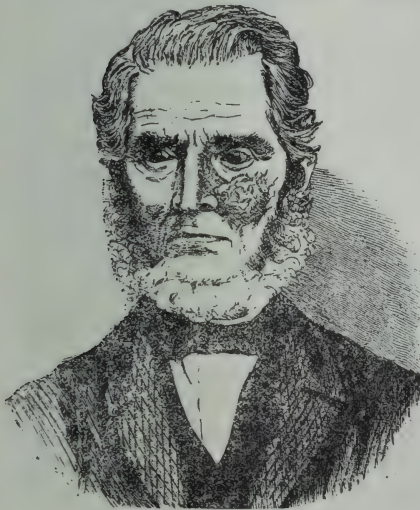
The hopeless condition of the patient justified a trial of almost any remedy. He was placed upon a general alterative and tonic treatment, including saxifraga, Chian turpentine, etc. The germinal mass protruding from the substance of the tongue, was first sprayed with peroxide of hydrogen, and then brushed over with lactic acid, gargle of distillation of jequirity used. Not making as much progress as was deemed proper, a ten-per-cent. solution of chromic acid was used instead of lactic acid, with the best results, the entire mass exfoliating in eight days.



The Chian turpentine, glycerite of sulphur, and saxifraga internally; and locally the peroxide of hydrogen spray, gargle of distillation of jequirity used till it healed up, taking in all about four weeks.

At the age of forty-four, a small pimple appeared on the side of this gentleman's head, above the ear, which became very painful, and commenced to grow slowly and discharge sanious, ichorous, cancerous pus, with its characteristic odor. It continued to gradually enlarge for nine years, when it presented this appearance, a large fungating growth, involving the ear.

When he applied for relief he was placed upon the usual germicidal remedies, Chian turpentine, saxifraga, phytolacca, etc.



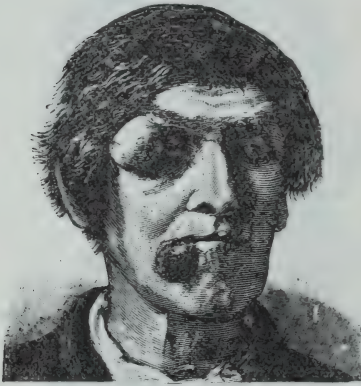
Carcinoma on the cheek.

To the large medullary mass of germs, the ozone paste was applied daily and carefully watched, fearing it might penetrate to the bone. In six days the entire mass dropped off completely, leaving neither root nor branch. Sore healed kindly in five weeks under the ozone and resorcin ointment.

This is the diagram of a case of scirrhus infiltration of the skin, cellular tissue over the antrum. It had been gradually increasing in size for over two years; pain intolerable, yielded kindly to the application of equal parts of ozone ointment and resorcin, which was bound over it and applied fresh twice daily. It kept peeling off, growing less and

less, till at the end of nine weeks it entirely disappeared. The internal treatment consisted in the use of the conium pill for pain, and the use of Chian turpentine mistura, saxifraga, phytolacca.

An excellent cure was effected.



This illustration affords a most instructive lesson as to the utility of bactericides in the treatment of cancer, the tumor at the outer canthus of the eye, on the lid, was removed by the knife, being a non-malignant sebaceous; while that at the outer angle of the mouth was schirrous, very painful.

Two lower bicuspid and a few craggy stumps of teeth were removed, and then to the cancer the ozone paste was applied every morning for seven consecutive days, when it dropped out, leaving

a clean, healthy-looking sore. The edges were brought together by hair-lip pins and a few wire sutures, resorcin ointment applied, no other dressing. Wound healed promptly, pins and sutures removed, and good union effected. He shortly afterwards was discharged, with instructions to continue for six months the Chian turpentine mistura with the saxifraga. This he neglected.

A month later on, he returned with a hard painful mass beneath the chin, extending to the jaw on each side, but rather further to the right than the left side. In the centre of the mass below the jaw was a prominent swelling, the size of a marble, distinctly fluctuating; skin over it red and thin, much pain and tenderness; movements of tongue unaffected; speech clear; deglutition, free.

Four days later on, this swelling beneath the chin began discharging thin, watery, cancerous pus; a few days later, as if by magic, the sore rapidly fungated, and became as large as an orange, with the surrounding tissue involved.

The case looked very gloomy; Chian turpentine, saxifraga and the conium pill were ordered internally, and the ozone ointment, pound for pound, with resorcin, was ordered to be kept constantly applied. In a few days the whole aspect of things was changed, the mass commenced peeling and shrinking, and in five weeks entirely disappeared.

Made a perfect recovery.

In this diagram, the ozone paste was applied fresh every morning; both tumors dropped out entire on sixth day; subsequently dressed with the ozone ointment and healed up very kindly. The internal remedies consisted of alteratives and tonics, embracing saxifraga, phytolacca and general remedies; case progressed well to a complete and perfect recovery.

This, and all the illustrations of cases, exhibit clearly the utility of bactericides in the management and cure of cancer. The *desideratum* of the age is the introduction of more potent remedies to destroy the germ, and leave healthy tissue unimpaired.



Two scirrhous infiltrations, one on arm, the other on forearm.

It may truly be asserted that, in every case of the cancerous cachexia, the liver is implicated through the agency of the germ-laden blood passing through it, especially if the liver is weakened by alcohol, malaria, mercury, or great mental strain. The varieties met with are *scirrhous*, *medullary*, *melanotic*, *colloid*.

Cancer of the Liver.

Germs deposit themselves in the interlobular spaces, crowd the capillaries, and obliterate them. Rapidity of development is the characteristic of the medullary. The melanotic is remarkable for its blackish pigment. The diagnosis of cancer of the liver is obscure, the loss of weight, strength, and ambition; anæmia, loss of appetite, flatulence, vomiting, constipation, alternating with diarrhea; jaundice, œdema of the feet; hemorrhages from all the orifices; stools clay-colored, urine scanty. Cancer of the liver may run its entire course without pain, without jaundice, but in the largest proportion of cases there is pain anterior to posterior, pain in right shoulder.

There may be a large bulging over the liver, large smooth nodules can be felt, and are visible. The nodules are umbilicated, and are diagnostic of the disease.

No curative measures of any avail, the palliation of symptoms are all that can be done.

Cancer of the brain, arteries, heart, intestines, kidneys, gall duct, pancreas, spleen, pleura, are all incurable when once established. The only point of decided interest is the diagnosis, which, in nearly all cases, can be made out by cachexia, by the pain, by the cancer germs in the urine.

Cancer of the Lung.

All varieties and grades of the cancer germ are found in the lung. Medullary or encephaloid are the most common, then the other forms. It occurs in nodules of various sizes, situated through the lung substance, or in more rare cases, in larger masses. In either form they cause great destruction of

tissue and hemorrhage. One lung is usually implicated, in which the germs make great ravishes.

The etiology of pulmonary cancer is the same as cancer in general; often precedes or is associate with cancer of the breast.

Diagnosis. In cancer of the lung there is pain anterior and posterior; in the expectoration and urine the germ is easily detected by



Cancer microbe in the lung.

the microscope. Besides, the cancerous cachexia will aid the diagnosis, otherwise, difficulty of breathing, cough, hæmoptysis, rapid emaciation, pleuritic symptoms resemble tubercle. There is usually very little difficulty in its recognition. Such cases are most unfavorable, and can only be palliated.

Cancer of the Rectum.

Cancer may be defined to be a disease in which certain primary elements of the blood are changed, altered, or degraded, by adverse states or conditions prejudicial to life, into a disease germ. This germ may remain latent in the blood until some part of the body is weakened, irritated, damaged, or

ulcerated, when the blood so germ-laden passes through the weakened part, an exosmosis of the germ is likely to take place. Whenever a disease germ or microbe passes out of the bounds of the circulation, they acquire a prodigious faculty of growth and reproduction.

The probability or improbability of extirpating a cancerous growth depends altogether upon the judicious use of local and internal germicides. It is, therefore, a wise rule to adhere to in all cases, never to tamper with a cancerous tumor or growth until the blood and lymphatics are cleared of germs; once this is accomplished the growth should be seen to.

A very large number of our people possess a cancerous diathesis (blood-germ laden with the cancer microbe), and have no tumor or growth visible, simply because there is no local irritation, no weak part through whose vessels the germ can pass out of the bounds of the circulation.

The exciting causes about the rectum are irritation, fissure, catarrh, piles, ulceration, fistula in ano.

General Symptoms.—The early indication of this distressing malady are often very slight, such as sluggishness of the bowels, or diarrhea from the presence of germs. As the germs grow, a slight discharge of blood, or blood mixed with mucus, or puriform matter is commonly met with. This is at first voided with the fæces, or in micturating, or independent of any evacuation. The quantity of blood thus lost varies from a streak upon the fecal substance, to two drachms, or as many ounces. The discharges are the results of the microbes burrowing in the rectal walls, perforating the vessels.

Gradually the fecal evacuations are impeded in various degrees, obstinate constipation or scanty discharges of thin fluid are from time to time ejected. When consistent the fecal matter is usually slender or flattened, ribbon-like, or hollowed on the surface. Later on evacuations are arrested, and relief is obtained at long intervals, and with much agony. This is the common run of cases. In others, fecal matter continues to be ejected in small pieces.

The hindrance to the passage of the contents of the bowel is occasioned by the cancerous tumor or infiltration.

Besides, the disease germs paralyze the bowel. The bladder is occasionally involved, and the discharge of urine is affected in various ways, sympathetically or by that organ being involved in the cancerous infiltration. Pain, anterior and posterior, is an invariable attendant upon cancerous disease of the rectum. It may be inconsiderable in degree, a mere teasing uneasiness, to one of intolerable anguish, without remission. Pain in the rectum and

its immediate neighborhood; over the sacrum; along the perinæum; in the fold of the nates on both sides—when on one side, most frequently the left, down the thigh on its back part, and even, but rarely, the calf of the leg. The pain in sacrum is the most severe, even to the sphincter, so that the affected individual, if sitting, will sit sideways, or partly supported by two chairs.

Cancer germs in the rectum give token of their presence by a perceptible loss of flesh; by a puffed waxiness of appearance; by the yellow tinge of the eyes; by the deep aspect of depression and taint of the system; lymph canals and liver engorged with the germs, the general health is undermined.

The symptoms will vary with the location and character. *Scirrhus*, *colloid*, and *epithelial*, and soft and fungoid are common forms. Usually the deposit is first met with between the mucous and muscular coats of the bowel, usually at a single point, low down, two and one-half inches up, or so high that it is out of reach; or it involves the whole circumference of the gut, and spreads longitudinally towards the orifice of the bowel, as well as upwards, perforating in all directions.

The germs often migrate to the neighboring parts; to the anus, first infiltrating the skin, then ulcerating; or an abscess and fistula may come in the ordinary way and extend from the skin to the interior of the bowel, and burrow far and deeply into the parts.

When the cancerous deposit is high up, it is liable to eat through the bowel and form an immense shapeless mass, in which the bowel becomes imbedded. It often becomes adherent to the sacrum; presses upon the nerves.

In some cases it migrates into the bladder, uterus, vagina, ovary, etc., establishing communications by an ulcerative process, giving rise to grave complications.

In tracing cancer of the rectum through its course, we have seen that the germ first locates between the mucous and muscular coats of the intestines, and follows the course of the blood vessels; most frequently the first deposit is at the distance of two and one-half to three inches above the orifice of the bowels.

Treatment.—Patients so affected should be put upon a general alterative and tonic course, with the best of diet and good surroundings. Pain must in all cases be relieved with the conium pill. Bougies of various kinds should have a fair trial, and should be used for months. They should be made of such agents as will destroy the germ colony in and on the bowel.

They are made of the following ingredients:

Resorcin, thallin, papoid, in butter of cocoa.

Otherwise the general treatment of cancer should be vigorously enforced.

They should be persevered with, and while using them, if any new growths sprout out and obstruct the canal, they should be destroyed by rubbing them over with lactic acid or ozone paste, or chromic acid.

Then the introduction of a bougie, and later washing out the bowel. In manipulating a cancerous deposit in the rectum, the only immediate danger to be dreaded is hemorrhage, and this must be carefully looked for and skilfully managed.

Constipation and looseness are equally to be dreaded; as the former is the most common, a laxative becomes necessary. The enema of water in very many cases accomplishes all that can be desired.

The most frequent variety of œsophageal cancer is epithelioma, although scirrhus and medullary are not uncommon.

Cancer of the
œsophagus. The infiltration of the mucous membrane by the germ begins, then it migrates slowly into the muscular rings, invading all the tissues of the œsophagus, causing stricture of its calibre. Above this narrowing there is either uniform dilatation, or a pouch, often as large as an orange. If the mass of germs involve the entire œsophageal wall, it may press upon one or both pneumogastrics and lead to the development of pneumonia or pulmonary gangrene.

Two-thirds of all cases of œsophageal cancer occur in males between the ages of forty and sixty.

It is easily recognized by the pain. Anterior and posterior pain is one of the earliest symptoms of the affection, beginning dull, burning, lancinating, aggravated by the passage of food. As it grows the canal narrows, stricture takes place, flatulence, regurgitation of food and vomiting, with steadily increasing emaciation; cough, difficulty of breathing, hoarseness from pressure of the mass of germs; cachexia is well marked, hemorrhages become frequent; the bloody fluid vomited contains large masses of the cancer germs; the adjacent lymphatics are usually implicated, and there are usually fatal hemorrhages or septicæmia. The average duration of cancer of the œsophagus is one year, but many cases succumb in a few weeks.

In the treatment great attention should be paid to nutrition, food finely chopped, semi-fluid, entirely fluid. Nutrient enemata should be given; diet nourishing in the highest possible degree. Pain must be relieved by dissolving the conium pill, introducing it into the rectum. Bougies, armed with papoid, should be introduced with great care down to the cancerous mass and an effort made to dissolve it with papoid or trypsin, combined with thallin.

**Epithelioma of the
Hard and Soft Palate**

usually commences as a small pimple, which continually increases in size, becoming a fungating growth, with a grayish white color, raised, whose edges soon become hard and everted. With this deposit of the cancer germ the surrounding tissues soon become implicated, the tonsils become swollen and tender, hard and red, and gradually ulcerate. The uvula, the pillars of the fauces and the free edge of the velum palati also become implicated.

Progressively onwards, fissures, ulceration in patches over the greater part of the soft and hard palate take place; in some locations a mere excoriation; over all the affected area, not occupied with the cancer germ, the mucous membrane is hard and thicker.

The pain is usually severe in these cases.

The most successful treatment of such cases is to paint over the nodules either with a ten-per-cent. solution of chromic acid or the pure undiluted lactic acid; use mouth washes of distilled jequirity or boroglyceride.

The only remedy so far successful in killing the growth of the germicidal mass is the Chian turpentine, in half dozen teaspoonfuls daily; this, in such doses, speedily arrests germ evolution in the blood, affords complete relief from pain, the enlarged lymphatics diminish in size and ultimately disappear.

Cancers of the hard and soft palate are generally slow in their progress and are more tardy in yielding to the action of germicides.

**Cancer of the
Pancreas.**

Cancer of the pancreas, though by no means a disease of very great rarity, is sufficiently uncommon to call for more than passing notice. Its rarity is, as already mentioned, not very great. The gland is usually enlarged, but not always. Sometimes it is even diminished in size. The growth invariably affects first, and most extensively, the duodenal end, or head, and it is by means of this peculiarity, as we shall see later, that its clinical diagnosis is rendered possible. The growth is usually a carcinoma containing large epithelial cells in alveoli, surrounded by fibrous tissue. The proportion of the cells to the fibrous tissue differs greatly. In some there are many collections of cells, while in others there appears to be hardly anything but fibrous tissue. It is these latter cases in which the gland is of small size, or even shrunk below the natural. Another sort of primary growth found in the pancreas resembles the structure of a tubular gland, and is called adeno-sarcoma. These two forms originate in the gland

tissue and the excretory ducts respectively, and are called the *type glandulaire* and *excretoire*. As a rule the cancer does not give rise to deposit in many other organs. The liver is the most commonly infected, and the smallness and great number of the liver growths in this case, sprinkled thickly through its substance without altering its shape, are pathognomonic of their pancreatic origin; but they certainly do not always occur.

The symptoms of the disease have been considered very numerous and very obscure, but they may be much simplified if we place them in their classes according as they depend on the anatomical position of the pancreas, its function in the general economy, and on the nature of the disease which has attacked it. To take the last condition first, where the growth reaches a large size a tumor may, of course, be felt with more or less distinctness in the epigastrium, and the conjectures as to its origin will be more or less plausible accordingly. Where it remains small it cannot in general be felt at all.

Pain is more inconstant here than in most other cancers. When it occurs it is often felt in the back, often referred with more or less accuracy to other parts of the abdomen. When these are absent we can only fall back upon the fact that cancer of this organ produces, as does cancer in other situations, anæmia and emaciation, but these symptoms are more marked and more rapid here than elsewhere, in proportion as the gland attacked is more concerned with nutrition. Cancer of the pancreas hardly ever lasts six months from the first appearance of symptoms. Nor is this surprising when we remember that the pancreatic digestion combines in itself the features of all the others. Like the saliva, it turns starch into sugar; like the gastric juice, it digests albumen; and like the bile, it emulsifies fats. In disease of the organ we should therefore expect that traces of defect in all these functions should be discoverable; and of all of them, indeed, traces have been discovered. In some cases, though but few, starch has been recognized in the stools by the aid of the microscope. In some undigested muscular fibres have been seen to pass away with the fæces or to return in the vomit. Both these, however, are less easily recognized and less distinctive than the fatty stools which have frequently been observed, and the fatty vomit which is occasionally seen. The fat is generally recognizable by the naked eye as an oily liquid, as waxy lumps, or as an actual coating on the fæces. Sometimes, however, it needs a microscope to show the fat globules intimately mixed with the mass. An easier plan is to shake up a small piece of the fæces in ether, and either evaporate the latter in the tube, leaving a fatty deposit behind, or on blotting-paper, which will show the charac-

teristic translucent greasy stain. In one case at least of pancreatic disease fat has been found in the urine, but this seems too rare an occurrence to be of any importance. In spite, however, of the enormous importance of the pancreatic digestion, its failure does not bring about other digestive symptoms with anything like the frequency that might have been expected. There certainly is often loss of appetite, but it is by no means constant. In a case known to us the appetite did not fail till a fortnight before death. Pain after food is occasional, but rather uncommon than the reverse. It has been before now suggested that a typical symptom of pancreatic disease is a watery diarrhea, but on the contrary, many, if not most cases are constipated. One very curious symptom remains which, though rare in cases of cancer, is not infrequent in other pancreatic diseases, and is even common in pancreatic calculus. This is diabetes mellitus. Theories to account for it have been equally numerous and unsatisfactory; the fact alone remains.

Summing up, then, the symptoms already detailed, we are obliged to confess that neither those derived from the nature of the growth nor, with the exception of fatty stools, those depending upon the pathology of the gland can give us any trustworthy help to diagnosis; and even when the characteristic *faeces* are present it may be questioned whether they do not depend upon an alteration in the supply of the bile, rather than upon disease of the pancreas. Luckily, the morbid anatomy of the affection is more fruitful. Cancer always, as before said, involves first and most extensively the head of the pancreas, and in this situation it can hardly avoid pressing on the common bile-duct as it passes down between pancreas and duodenum. The jaundice which is thus produced, though in rare cases absent, is by far the commonest symptom of pancreatic cancer, and is in itself peculiar. In the first place it is commonly very deep, far deeper, for instance, than the jaundice typical of cirrhosis of the liver. Next it is very persistent, not as often occurs in cases of gall-stones, intermittent, or as catarrhal jaundice, transitory. Thirdly, the liver is not greatly enlarged as in cases of cancer, nor diminished as in cirrhosis, but undergoes a curious change. In the early stages it is usually swollen, sometimes tender, and may reach to an inch or even two inches below the ribs in the right nipple line. But later it begins to shrink, and at death is hardly ever found larger, sometimes smaller than natural. This change probably is due to cirrhosis beginning round the bile-ducts, caused by the pressure of the obstructed bile. When enlarged it might be thought to be a liver in the hypertrophic stage of portal cirrhosis, but this is excluded by the deepness of the jaundice, and more surely by the fourth

characteristic sign, the distended gall-bladder. The gall-bladder is always dilated, and may in some cases reach considerably below the umbilicus. This, taken with the deep jaundice, proves that both the cystic and hepatic ducts are free, while the common bile-duct is compressed or obstructed, and it is this combination which is so significant. For the common bile-duct, three inches in length, runs for two-thirds of its extent under cover of and between the duodenum and pancreas. For the first inch or so, it runs into the lesser omentum, and is here liable to compression from enlarged abdominal glands.

Persistent jaundice points strongly either to a blocking up of the duct by calculus, stricture, or disease of the duodenum or pancreas.

In all cases of deep and persistent jaundice, with distension of the gall-bladder, without symptoms of gall-stones, if the liver be but a little enlarged, the disease will in all probability be cancer of the head of the pancreas. This diagnosis will be confirmed if wasting sets in early and progresses quickly.

The treatment which is available is to supply the deficiency by pancreating the food, before it is administered, and placing the patient upon the Chian turpentine mistura, which has a remarkable effect on the germ-laden pancreas, the ethereal peroxide of hydrogen.

All forms and varieties of cancer are to be met with in and on the penis. Usually a result of contagion and infection.

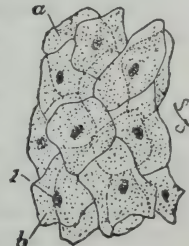
Cancer of the Penis.

Scirrhus, epithelioma, medullary, etc., etc. A very large percentage of these cases commences with a peculiar scaly or horny excrescence on the corona glandis, prepuce, and oftentimes on the areola of the nipples. This scaly or horny infiltration is in the early stages unaccompanied with any decided pain, simply uneasiness, misery. A scale from the prepuce placed in the field of a microscope gives us the annexed diagram.

If attended to just at this point the growth is arrested, and no further trouble.

There are two methods of procedure, either pack the head of the penis and all affected parts every night in boroglyceride paste, or apply the resorcin paste; either one will cause a complete exfoliation of the morbid tissue, leaving it soft and in a healthy condition.

The usual remedies for the destruction of the cancer microbe



The horny excrescence magnified 100 diameters. 1. The spore sprouting into the area a and b.

should be resorted to for a period of six months. These should embrace active bactericides, saxifraga, Chian turpentine, phytolacca.

The stomach, next to the liver, is the most frequent seat of the localization of the cancer germ in the internal organs. We meet with all forms and varieties here; we enumerate them in the order of their frequency as follows: scirrhus, medullary, colloid, villous, melanotic, epithelial.

Cancer of the Stomach. The germ in two-thirds of all cases deposits itself near the pyloric extremity, migrating or infiltrating the stomach upwards, and downwards into the duodenum; the other one-third of cases infiltrates the cardiac orifice involving the œsophagus.

Scirrhus, few germs, but much fibrous tissue, appears as a grayish, white, opaque nodule in the submucous tissue; the germs are few, the fibrous tissue abundant, so there is a great hardness or induration, which causes contraction of the surrounding tissues, and puckering of the mucous membrane. The germs in their growth radiate in all directions where there is least resistance, forming nodules. A dark slough often forms on those eminences, which may ulcerate and expose the cancerous mass; this may either extend deeply or spread widely so that the neoplasm is found in all directions.

The lesions which follow the presence of scirrhus are dilatation of the stomach, chronic gastritis, perforation. The medullary form begins at the same locations, and forms a large soft nodule.

Cancer of the stomach occurs most frequently between the ages of forty-five and sixty-five; more common in males than females.

The diagnosis is not difficult, we have the cachexia, the breath, skin, urine, stools, the pain anterior and posterior, the cancer germs in the vomited products, and in urine.

A tumor sometimes large, hard, irregular, nodulated; sometimes small, deep-seated and elastic, can be felt; which will be a guiding landmark to distinguish it from all forms of dyspepsia.

It is hardly possible to mistake cancer of the stomach for gastric ulcer, abdominal aneurism or nervous dyspepsia.

The symptoms are plain and most decided: pain anterior and posterior, anorexia, a sense of goneness, uneasiness, distension, with nausea and vomiting, pyrosis, gnawing, lightness in stomach.

The pain may not be referred to the stomach, but referred clear through to the interscapular region; those symptoms put in an appearance long before the germs in the walls of the stomach

make much headway. But as germ growth becomes active, vomiting is persistent.

Hiccough, flatulence, constipation are often annoying and distressing. Great mental depression, debility, emaciation, haggard countenance as it progresses, hemorrhages set in, rusty, brown, blackish blood loaded with germs, or if from the bowel tarry. The yellowish green color of the skin changes to a jaundice hue, chiefly due to the cancerous mass pressing upon the liver.

Often febrile symptoms, hectic, tongue becomes loaded with the *oidium albicans*, urine loaded with urates, often serious complications. The duration is from a few weeks to three years and a half. The prognosis is regarded as unfavorable.

The treatment almost altogether consists in ameliorating prominent symptoms, so as to afford all the relief possible from the pain and vomiting. The diet should be liberal, nutritious, concentrated, with a moderate allowance of milk-punch at stated intervals. During the whole course of the disease, the *C. conium* pill should be administered thrice daily for the relief of pain and to retard the cancerous growth; constipation should be overcome by the use of kola nut paste.

Germicidal remedies are often effective in retarding cancerous growth, and arresting the development of the microbe. The use of one or two of the following remedies at a time are worthy of a trial.

Papoid triturated with salicylate soda and resorcin have proved effective in causing the dissolution of the cancerous mass, let it be scirrhus or medullary.

Trypsin has a similiar action, glycerite of sulphur, or the emulsion of Chian turpentine, have proved effective. *Liquor cerii* has been of great utility, peroxide of hydrogen in alternation with the sulphide of lime.

The pill composed of papoid, thallin, and sulphonal operates well.

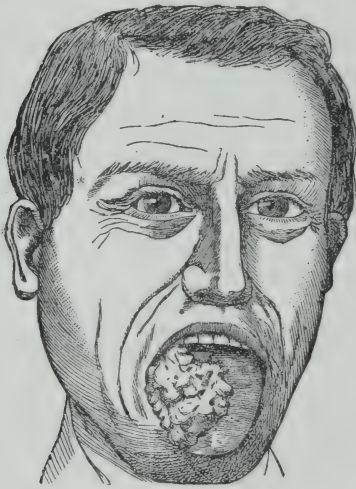
Ozonized clay kept over the stomach has a magical effect (acting by endosmosis) in causing a dissolution of the germinal mass. It may be bound on over the region of the stomach, but never kept long enough applied to cause any irritation. If the stomach rejects all food, rectal alimentation will be necessary.

The most common variety of cancer of the
Cancer of the Tongue. tongue is epithelioma. The diathesis being present, some point of the tongue being subjected to constant irritation, there appears at that point a small unhealthy ulcer, or a deep-seated nodule,

usually on its edge; ulcer becomes circular in shape, with ragged, everted edges and a wide indurated base. The surface of the cancerous mass has a dirty white or grayish aspect, later, red, papillated, friable, but very hard.

As it progresses onward, it slowly involves the whole tongue, which becomes large, unevenly lobulated, covered with several ulcers; hemorrhages often take place. All the glands of the mouth and throat, submaxillary and sublingual are infiltrated, and the oral cavity is filled with the cancerous mass.

Cancer of the tongue is met with most frequently in man in middle life, between thirty-five and sixty; some local irritation, as a carious tooth, the stem of a pipe, is an exciting cause.



Epithelioma of the tongue.

It is easily recognized by the sharp darting pain in the ulcer; the pain aggravated by the movement of the tongue; pain runs along the course of the fifth nerve. As the lymphatics become engorged, salivation becomes profuse; as hemorrhages are not infrequent, anæmia is soon well marked; the breath is truly diagnostic; the germinal mass destroys healthy tissue with extreme rapidity.

The duration of the disease is about fourteen months.

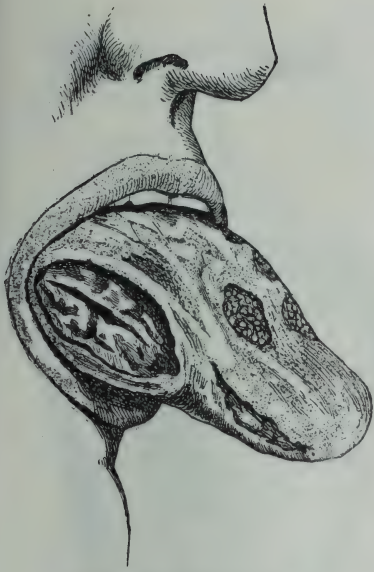
The destruction of the germ, the relief of pain, the maintenance of the vital powers are the principal indications of treatment.

Epithelioma of the tongue; a remarkable case; cured by the application of papoid.

Ozone paste was applied twice; the mouth and throat gargled thrice daily by the distillation of the jequirity and solution of chlorate of carbon; in the interim papoid was applied.

Very similar cases of cancer of the tongue, with a fungating growth in the floor of the mouth on the left side, involving the gum and edge of the tongue for nearly two inches. All the surrounding tissues densely infiltrated.

Ozonized emulsion of Chian turpentine was tried, in alternation with resorcin, and a sufficient quantity of glycerite of sulphur to move the bowels; growth painted with a ten-per-cent. solution of chromic acid and gargle of chlorate of carbon was used.



Epithelioma of the tongue.

This is a photographic illustration of epithelioma of the side of the tongue, with a medullary mass protruding through it; a well marked fissure running towards the point and an ulcer in the centre; tongue well indurated throughout its whole substance. The submaxillary glands were considerably infiltrated and cancerous cachexia well marked.

This case was placed upon *comp. saxifraga* and *phytolacca*, and the conium pill was administered to relieve the pain.

The large medullary patch, the fissure and ulcer in the centre, was brushed over with the pure concentrated lactic acid; mouth washes of chlorate of carbon and chlorinated soda

were used alternately every three hours; mouth kept moist with decoction of slippery elm with a few drops of peroxide of hydrogen. About every four days the lactic acid was used; this had an affinity for the germs without destroying the normal tissue of the tongue. In two weeks the dilute acid was used.

Case made an excellent recovery, healing kindly about the seventh week, and remains well.

This case resembled the above in many of its essential features, and instead of the lactic acid, a ten-per-cent. solution of the ozone paste was used for killing the germs in the ulcer on tongue; this was brushed freely over it, and followed by a mouth wash of distillation of jequirity, alternated with a wash of peroxide of hydrogen.

Same internal treatment as the first case.

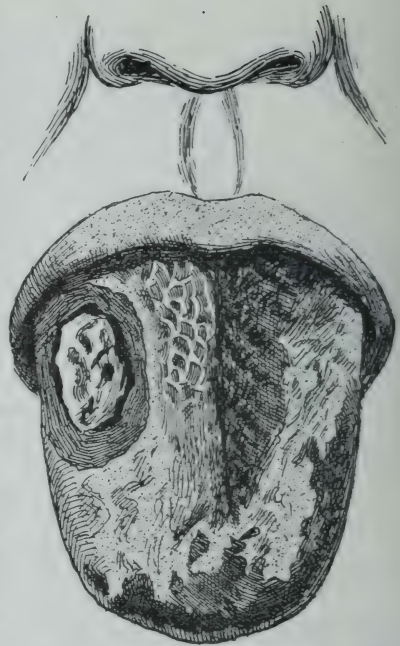


Epithelioma on edge of tongue.

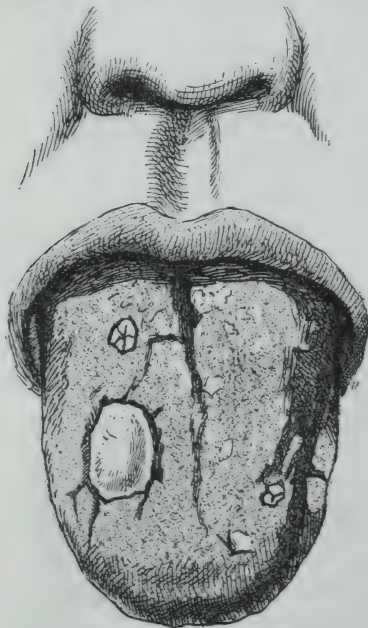
There was immense peeling off of the germ-smitten tissue, which seemed to make away with the induration. The results were very efficacious. The recovery of the patient was rapid, and tongue healed up very kindly.

This case was treated with the powdered jequirity, the beans decorticated, submitted to the action of peroxide of hydrogen, reduced to an impalpable powder, blown or dusted on the ulcer every five days, caused a complete exfoliation each time it was applied.

Mouth washes of boroglyceride were used every four hours, and occasionally a piece of resorcin jelly, dissolved in warm water, was used for wash



Cancerous ulcer on tongue.



Cancerous ulcers on tongue.

and gargle. The result was extremely beneficial, even miraculous, in ridding the mouth of this most destructive microbe; breath became sweet; the whole character of the patient changed to one of life and vivacity, instead of the lethargy of death.

The internal treatment consisted in the use of saxifraga, Chian turpentine and exalgine.

The numerous ulcers on this tongue, were each, once a week, brushed over with concentrated lactic acid; mouth washes of chlorinated soda, alternated with a wash prepared from the resorcin jelly.

Case improved rapidly at first, but rather slow after sixth week.

Mouth washes were changed



Cancer of the tongue, involving its mucous membrane and papilla.

to distillation of jequirity, and one of chlorate of carbon. This change operated beneficially; cicatrization set in, progressed favorably; healed entirely up in nine weeks. The fluid extract of hydrocotyle was used in this case instead of the saxifraga, and glycerite of sulphur to move the bowels. Exalgine was most beneficial for pain.

A most remarkable case of cancer of the tongue, in which the microbe infiltrates its entire mucous membrane and its papilla; it has resisted the usual remedies. It drifted into the hands of one of the eminent specialists whose names are mentioned in this article.

A solution of ozone paste was tried, under which it seemed to do well, but it was discontinued on account of its diffusibility, and a paste made of

thallin, papoid and glycerine was tried, that is, spread over the entire tongue; this caused a dissolution of the cancerous infiltration. It had to be applied daily, but operated exceedingly well, so that he got rid of it entirely about the tenth week. The mouth wash used was a solution of boroglyceride and peroxide of hydrogen. Internally, saxifraga comp. and Chian turpentine were the remedies used.

The treatment of this case was entirely different and much more successful. The entire diseased surface of the tongue was brushed over with lactic acid, the ulcer in centre receiving three applications. Mouth washes of distillation of jequirity, alternated with the chlorate of carbon, were used with most success. Large masses of dead germs were exfoliated after each application. The lactic acid was applied six times, a week apart. Healed



Cancer of the tongue, involving its surface with a large perforating ulcer in centre.

completely by the ninth week. The internal remedies the same as in the other cases.

**Cancer of the
Uterus.**

Cancer of the generative organs is undoubtedly the most formidable affection to which woman is liable. The liability exists at any age, but is most decided after thirty years of age, the proclivity existing up to fifty years of age, after which the liability becomes less and less.

The forms met with in the uterus are the scirrhus, medullary and epithelial.

The causes which give rise to so much cancer of the uterus are repeated abortions, sexual incompatibility and venereal disease, which give rise to chronic inflammation or partial death of the uterus. A low grade of uterine inflammation lies at the root of all female complaints, which continues from year to year until the cancer germ is thrown out. It does not necessarily follow that all cases of chronic inflammation do thus terminate, but all such must be guarded with a jealous eye.

Mercurialization, monotony, sameness, isolation, solitariness, sexual excesses and other states unfavorable to a high standard of vitality or longevity, or conditions unfavorable to a high state or grade of existence, a degradation of the normal living matter of the body takes place into a diseased germ called the cancer or malignant bacilli; true, these germs may also be received into the body by contagion and infection like other micro-organisms. In whatever manner they are brought about, by spontaneous degradation in the body, or by local contact, or by inhalation, they make the human blood their pasture-field, for in that fluid they grow and multiply prodigiously if vital force is low. It is a well-known fact that an individual with millions of cancer germs in the blood may live along to a good old age; if there is no local weakness or irritation, there is no colonizing of germs, but let an organ or tissue, or part of the body be weakened by anything, as the pipe on the lip of the smoker, or a contusion on the breast, or anything that will relax or weaken tissue anywhere, then an exosmosis or effusion, or exudation from the diseased *germ-loaded blood* takes place and growth and fruition of the germs will go on with amazing rapidity.

Now, of all organs in the body of modern ladies, none are so liable to suffer depression as the uterus; its intimate connection with the ganglionic nervous system; those millions of little brains, those reservoirs of vitality; its blending with the sympathetic system render it susceptible of being depressed by emotions, desires, affections, passions, so that the struggle for exist-

ence, exciting literature, certain modes of life, sedentary employments, sexual excesses, etc., spend their action upon this special organism; besides, at the climacteric period there are important anatomical and physiological changes that cause weakness, such as the atrophy and obliteration of vessels, shriveling up of ovaries and uterus and suppression of important functions, etc. Cancer of the uterus is, without a doubt, the most common and grave form of germ disease among women.

The affection is generally ushered in with symptoms of general debility, a gone feeling, headache and backache.

The neck of the uterus thickened, indurated, notched. In this state it may remain stationary for years, while, if the health is poor, it may proceed with rapidity towards cancerous ulceration. Inflammatory symptoms usually are present and darting pains like needles are felt, as if piercing the part, both anterior and posterior; ulceration follows. The leucorrhœa, which before existed, now becomes highly purulent and fetid, so much so that its odor can be detected some distance from the patient; then follows constitutional irritation, disorder of the stomach; patient becomes gradually worse, insomnia, pain in the pelvis is constant, with occasional lancinating pain; the cachexia is well marked; the patient becomes weak and irritated; paroxysmal hemorrhage, slight at first, but gradually becoming excessive and exhausting.

On examination per vaginam we find the cervix uteri painful to the touch; and instead of the natural nipple-like projection, its surface is broad, hard, ragged, chapped. The extent of the induration can be appreciated by an examination per rectum.

Bladder and rectal complications often set in early.

If the disease is not arrested the germs eat in all directions, vessels are laid open, hemorrhages increase in frequency and in amount; ulceration extends to the bladder and rectum; and the state of the patient is truly deplorable.

It is only in the earlier stages of the disease that any hope can be held out, if later on it admits of no cure, the patient must die, and all that can be done is to alleviate her sufferings.

If seen early or late, the bowels must be kept very regular; the vital force must be sustained by a most nutritious diet; daily baths; the sensorium must be blunted with the conium pill, rectal suppositories of cocaine; and pastiles of hyoscyamus. Tonics and the general treatment for the annihilation of the germ carried out.

In cancer of the uterus, the Chian turpentine has proved invaluable and efficacious. The mode of administration is to keep the bowels regular by the administration of a sufficient dose of the ozonized glycerite of sulphur, and give one teaspoonful of the

emulsion of Chian turpentine thrice daily—the emulsion is thus prepared :

One ounce of the Chian turpentine is to be dissolved in two ounces of pure sulphuric ether. This solution has been termed the turpentine essence, and the emulsion is made by adding one ounce of this essence to a mucilage of acacia (one ounce and a half of powdered gum arabic and water to nine ounces), making a ten-ounce mixture, a teaspoonful of which contains about three grains of the drug.

The vagina should be cleansed out thrice daily with any of the following antiseptic washes.

Boroglyceride, iodine, chlorinated soda, permanganate, resorcin, by or with a fountain syringe.

Our only hope is, if seen early, before the destruction of tissue of vital parts has taken place.

This illustration exhibits an epithelial growth, the size of a small crab apple, situated in the posterior wall of the neck of the uterus; it bled freely when touched, and thus prevented any further exploration.



Epithelioma—neck of uterus radically cured by Chian turpentine mistura.

The patient, aged thirty-five, had suffered for eight months with pain above the pubes, radiating back to the sacrum, with profuse muco-purulent discharge of an intensely fetid odor.

The treatment of the case consisted in enjoining rest, with tonics and nourishing diet, vaginal douches were used morning and night, consisting chiefly of boroglyceride, creolin, resorcin, and internally the Chian turpentine mistura was pushed vigorously, commencing with one teaspoonful three times daily, increasing gradually to ten teaspoonfuls. The growth every second day was painted with lactic acid.

This treatment was continued for four months, the Chian turpentine being left off for three or four days every two weeks consecutively.

About the end of the first week the distressing pain had entirely disappeared, both the quantity as well as the factor of the discharge commenced to grow less; in five weeks the tumor began to wither, hemorrhages ceased, a new era of life seemed to dawn upon the patient.

Gradually the tumor seemed to waste away, growing less and less, till about the fifth month it entirely disappeared.

On examining the uterine neck, the stump left was irregular, notched out but showed nothing whatever of a cancerous nature.

In six months from the commencement of treatment she had entirely recovered and the normal function of the uterus was restored.

Photographic illustration of a case of incipient infiltration of the os uteri, with the cancer microbe.

A cure was effected in six weeks by the following remedies: Once every seven days for four consecutive weeks the contents of three jequirity capsules were blown over the dotted induration,



Infiltration of the uterine os and neck with the microbe.

which each time caused a gelatinous exfoliation to peel off; in quantity it would fill a tea-cup. The succeeding night the vagina was packed with the boroglyceride paste, which caused an exudation of serum with dead cancer germs to the amount of four ounces; the following night two cocaine cones. This plan was pursued persistently, one night the boroglyceride, the next the cones; every seventh day the jequirity wafers for four weeks; induration entirely gone. Injections of slippery elm infusion, to which either peroxide of hydrogen or sulphide of lime was added; alternated with a solution of resorcin.

Internal remedies, Chian turpentine mistura, saxifraga and tonics.

This illustration, in which the cancer germ had penetrated farther up the uterine neck, was treated precisely as the former, with the exception that the os and neck were painted every ten days with lactic acid, and injections of boroglyceride, chloride of lime were used.

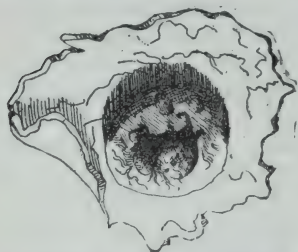


Epithelioma of the neck of the uterus—the microbe infiltration extending into the entire neck—ulceration just beginning.

The cocaine cones were used per vaginam thrice daily.

Internal remedies were Chian turpentine mistura, thallin, phytolacca, sulphide of lime. An excellent cure was effected in about four months.

This wood cut is a representation of a case of very irritable, and exceedingly painful carcinoma of the os, neck, penetrating to the body; induration, sharp lancinating pain anterior and posterior; hemorrhages and extremely offensive discharge. The patient was well broken down, the cachexia of cancer decided.



Epithelioma of the neck of the uterus, proceeding into the stage of ulceration; three distinct fissures.

The treatment here consisted in applying the ozone paste directly to the three fissures and over the fungating nodules. In the application of this paste, the greatest care was observed, all around the cul de sac well protected, the paste was applied by a small paint brush, moderately thick and retained two hours; then carefully washed off by repeated douches of castile soap and hot water. In a week a large mass completely exfoliated, leaving the parts ragged, uneven. These were touched up every few days with lactic acid, which gradually smoothed them off. Vaginal injections of boroglyceride, resorcin, creolin and other bactericides were used.

The internal remedies consisted of Chian turpentine mistura, with thallin, saxifraga and phytolacca.

In nearly all cases in which the Chian turpentine was used, pain ceased about second or third day; not so in this case, so it was determined to try exalgine for the pain. This remedy was dissolved in dilute alcohol, and added to fl. extract of licorice. Six grains were administered at three, and six more at ten P. M. It had the desired effect, immediate amelioration of all pain; a subsidence of all that inherent irritability. This drug is a powerful antiseptic, and seems to have an affinity for the cancer germs.

The diagram here presented, was an epithelioma of the posterior neck of the uterus, and wall of the vagina; several nodules appeared. The growths bled freely on the slightest touch, and almost filled up the vagina, and entirely prevented an exploration of the uterus; the lymphatic glands were free, and there was no rectal or bladder complication. As there was no plan of treatment left open,



Epithelioma of the posterior neck of the uterus.

she was placed upon the Chian turpentine emulsion ozonized, alternated with fifteen grains of resorcin, three times daily, to be rapidly increased to nine teaspoonfuls, and sufficient doses of the glycerite of sulphur administered to move the bowels; the growths were touched three times with a solution of ozone paste (one in twenty); the vagina washed out thrice daily with boroglyceride solution. With this treatment the germ-growth was arrested, and gradually disappeared, and the neck of the uterus resumed its normal position. This treatment was kept up for four months, pain had ceased; all infiltration disappeared, and the very slight discharge had no odor; at the end of six months entire recovery took place.

The diagnosis of uterine cancer in the early stages is best effected by the microscope; in the latter stages the growth cannot be mistaken, as we have the discharge, its odor and pain to guide us. The cancer germ may localize itself in any part, usually the cervix, low down near the extreme orifice, or high up near the internal; evolution may begin in the glands near the surface, or in their deeper parts.

The following remarkable case occurred in the practice of one of the physicians mentioned in this article.

A patient after years of suffering, backache, pain in sacrum, frequent micturition, a vaginal examination showed the os to be large and patulous; high up in the posterior wall of the cervix there was a hard mass the size of a bean, which felt like a small fibroid. She was not seen again for a year, when the neck of the uterus presented the appearance as is seen in the annexed cut. She was placed at the time under an active anti-cancerous treatment.



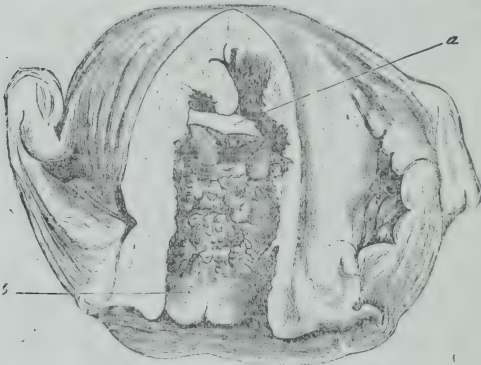
Cancer of neck of uterus.

The entire cancerous nodule was brushed over several times with lactic acid. This was followed by packing the vagina with boroglyceride paste. The next day this was removed, and the vagina and cancerous infiltration well washed out with a ten-per cent. solution of peroxide of hydrogen. The lactic acid was again applied, when the cancerous mass began to assume a dirty, leather color; followed by the boroglyceride packing.

I continued this right along for twelve consecutive days, when the entire mass exfoliated and was expelled. The edges from which it severed healed kindly in three weeks by the daily use of pastiles prepared from the boroglyceride.

Numerous cases of uterine cancer commence at the inner orifice and form a nodule, occupying the whole of the posterior lip. At first in a case of that kind, the uterus is a little enlarged, freely movable. The posterior lip becomes thickened, and on its anterior surface, a small ulcer appears which gradually extends on to the vaginal surface of the lip, a depression forms with hard edges, which soon begins to bleed on the slightest touch. The annexed diagram is taken from the frozen dissection of a patient's uterus who died while under treatment for cancer of the uterus from pneumonia.

The uterus was extirpated. The organ was then found to be three and a-half inches in length; the walls of the body were somewhat thickened, but appeared to be healthy. The cervix was considerably enlarged, the enlargement affecting chiefly the posterior wall, and an ulcer was situated on its anterior surface,



First commenced as an epithelioma, which eat away the neck followed by medullary infiltration of the walls of the uterus and its entire cavity.

just within the os externum. The surface of the anterior lip was papillary. Section showed the posterior lip to be occupied by a mass of the size of the kernel of a walnut. This reached upward to the inner orifice, and occupied the whole thickness of the wall, and it reached downward to the portio vaginalis, but it had nowhere penetrated

through the mucous membrane of the portio. The growth looked to the naked eye as if it were encapsuled, but this appearance seemed to be due to the pressure of the growth on the parts immediately surrounding it.

Cancer might develop in the cervix from more than one centre, one being situated near the os externum and the other near the os internum. And cancer might attack mucous polypi growing from cervical canal. Cancer appeared to attack the posterior more frequently than the anterior lip. It had a tendency to grow downward so as to invade the vaginal portion and outward into the peri-cervical tissues, and it showed but little tendency to invade the body, although growth in this direction had been observed. After having invaded the peri-cervical tissue, its tendency appeared to be to grow downward in the cellular tissue around the vagina, and outward into the bladder and broad ligaments.

Epithelioma of the Vulva

and infiltration of the glands of the groin.

The patient's age, thirty-nine. She states that nearly a year ago a small wart appeared on the skin, which she did not think anything of, as it gave her no pain, and was very small. It grew larger. She told no one about it, but of her own accord procured some caustic (acetic or nitric acid) to burn it away. After this she applied iodine to it, but it went on increasing, although it did not pain her or give her much discomfort, and she was able to take long walks.

Last February she thinks that she strained herself in the left groin, lifting an invalid, for shortly after, she discovered a lump there, and felt pain from it. She thought that it was a rupture. At this period the lump on the vulva, which had been increasing to about the size of a walnut and was growing rapidly, and continued so for five weeks, when it formed an oval mass four inches long by three wide. The surface of the tumor was irregularly fissured and cracked; there was a sanious discharge loaded with cancer germs, great vascularity.



Epithelioma of the external labia; the appearance of the parts when treatment was commenced.

There was no interference with micturition, although from the induration present the infiltration extended in every direction, but chiefly back towards the perineal and ischio-rectal regions.

The very location of this malignant germinal mass precluded the use of any remedy but the resorcin, ozone ointment, equal parts, which was applied with the happiest results.

This was applied every morning for six weeks, when the entire mass had totally disappeared.

The internal remedies used were the Chian turpentine mistura, glycerite of sulphur, saxifraga, phytolacca.

Those two terms are used to signify ulceration of bone—caries ulceration of the spongy portion of a bone; necrosis to the same condition when it occurs in the hard, cancellous structure—the two affections are identical, both are the effect of inflammation in bone, both have the same microbe, the *bacillus saprogenes*, in addition to the pus germ.

Caries
et

Necrosis.

This microbe, when once present in either hard or spongy bone, causes softening, molecular degeneration, and destruction of the surrounding parts as well as the bone itself.

Symptoms.—Inflammation of bone, with suppuration and formation of sinuses, through which matter flows, in which gritty or sandy particles can be detected—bony granules. Introduce a probe through one of the openings; the bare, dead bone, or its exfoliated, or broken-down portions, can be detected. Discharge fetid; disease chronic, and with great constitutional disturbance.

Microscopically the microbe can be readily seen by placing the discharge in the field of an ordinary microscope.

As the bacillus saprogenes is a great ptomaine excretor, and in consequence of this alkaloid (toxical) being present in great abundance in the blood and neurine, we have fever, hectic, colliquative sweats, profound prostration.

Therefore the treatment should be most energetic and essentially germicidal.

If the parts admit of it, the sinuses should be run into one opening by making free incisions down to the gangrenous bone,



Bacillus saprogenes; the microbe of caries and necrosis

it should be thoroughly washed out, that is the cavity, with a mixture of four ounces of tepid water in which one drachm of caustic potassa has been dissolved. This acts as a detergent. This should be followed with injections of peroxide of hydrogen; these to be followed with resorcin ointment; continue this treatment for a week or two. The destruction of the germ, the very fact that no ptomaines are excreted, wipes out fever, hectic, sweats, prostration. In caries, there is nothing to hope for but a healing of the bone with deformity; whereas, in necrosis, everything is to be gained by a speedy removal of the diseased bone and its microbe; so that the treatment should be pushed with all the energy possible, managing each case upon its merits and peculiarities.

Internal treatment should consist of tonics, embracing cinchona and mineral acids, together with avena, kephaline.

A very remarkable disease of the brain and nervous system, characterized by a sudden loss of the senses, intelligence and voluntary motion; the patient retaining the same position during the paroxysm as

Catalepsy.

that held at the moment of the attack, or in which he or she may be placed during its continuance. Seizure may last a few minutes, several hours or even days, without regard to regularity of periods. There may be premonitory symptoms, as headache, irritability of temper, yawning, tinnitus, vertigo, palpitations, impairment of mind, confusion of senses, all coming on suddenly; the eyes are fixed, either open or shut; pupils dilated; restoration or recovery takes place suddenly, accompanied with sighing, pain or confusion in the head, with no recollection of what has occurred. No efforts to restore consciousness are effectual. Nervous and hysterical women are most liable to its attacks.

Catalepsy differs from ecstasy, somnambulism or clairvoyance, in its being associated with disease. Absence of mind is, in many cases, a mild form of catalepsy. Mesmerism and spiritualism are also a species. There is usually little danger from the attacks, but the tendency is to terminate in apoplexy, insanity or white softening. It is often associated with some organic affection of the brain, as a tumor, a bony or calcareous growth. Anything that tells badly on the nervous system, as grief, worry, debility, intense mental application, the nervous exhaustion of tubercle, syphilis, mercury, may give a predisposition to it.

The exciting causes are, violent mental emotion, as fright, terror, suppression of menses, uterine and ovarian disease.

Treatment.—Embraces general alteratives and tonics, directed to the supposed cause. Irritating plaster to nape of neck, skin well stimulated, bowels active, shower baths and a persevering use of such remedies as *avena sativa*, glycerite of kaphaline, coca, erythroxyton, cerebrin.

Ecstasy differs from catalepsy in every essential, still it is analogous in a deep trance. The patient is insensible to all external impressions and is absorbed in the contemplation of some imaginary object. Eyes immovably fixed; will give vent to grand thoughts, impassioned sentences, form a connecting link between the seen and the unseen, between heaven and earth; fervent prayers, beautiful hymns are recited with great fervency and zeal. It gives rise to a species of religious fanaticism, whereby the person (for filthy lucre) can fall into a trance, an incipient stage of spirit life, and give strange manifestations. It affects women mostly, effeminate men who suffer from hysteria, or that peculiar devitalized state of nerve centres. Pecuniary gain, faith, imagination, enthusiasm, and an irresistible desire to imitate and become notorious, will explain the condition best.

Cataract. An opacity of the crystalline or its capsule, one or both; the effect being to intercept the rays of light on their way to the retina.

Three forms are usually recognized according to situation of opacity, viz., lenticular, capsular and capsulo-lenticular.

Causes.—The causes that give rise to opacity of the crystalline lens are either inflammation or degeneration of structure.

Symptoms.—Hard or lenticular cataract, or degeneration is the most common form met with in both sexes between fifty and seventy years of age. It causes objects to be seen as if through a thick cloud, or gauze; allows vision to be more clear when pupil is dilated with atropine, or by turning back to light. In advanced cases vision is reduced to distinguishing light from darkness. Commonly, one eye becomes affected first; then the other. Movement of iris natural; when pupil is dilated with atropia, cataract can be distinctly seen with a glass of small focus: when cataract forms, lenticular opacities can be readily seen by the ophthalmoscope.

Soft, or lenticular cataract of young people, may occur at any time of life. Congenital cataract is of this kind, due to disintegration of the whole substance of lens, which becomes opaque and swollen. Symptoms are the same as the hard, only vision more imperfect. This form often depends or is caused by a defect in the co-ordinating chemical centre in the brain; hence it is common in diabetes, and other diseases connected with that part of the brain.

Capsular cataract is more especially the result of chronic inflammation and effusion of lymph into its covering; opacity of a dead white color; it may affect any portion of capsule. Opacity of capsule always leads to opacity of lens, so that capsulo-lenticular cataract is very common.

Treatment.—Various efforts to promote absorption of cataract have been tried; the most successful has been in the early stage of hard and capsular cataract, chiefly with iodide of potass internally, and by bringing fumes of fluoric acid in contact with the eye until the eye manifests a slight congestion. It should not be resorted to oftener than three times a week, and must be done very carefully, by putting the acid in a wide-mouthed, rubber bottle, guarding mouth, nostrils and other eye, and holding it up to the affected eye so that its fumes come in contact with the eye.

More recently, an infusion of pulverized jequirity, eight beans to eight ounces, or stronger, if desirable, carefully percolated and dropped freely into the eye, produces artificial purulent ophthalmia, in which a shedding, or peeling, or exfoliation of the various coats of the eye take place. This repeated at proper intervals of

time, will gradually invade the lymph deposit of capsular cataract, and cause it to exfoliate and in time remove it.

The remedy is worthy of an extended trial in all forms of opacity, although it is of no use in hard lenticular cataract.

Common treatment is by operation, and one of three forms is usually selected, viz :

Depression, displacement or couching, by which the lens is pushed from its natural position, so as to allow rays to pass through pupil to retina.

Solution or absorption, in which the body of the lens is broken up at several sittings, so that it may be absorbed ; only successful with jequirity and fluoric acid ; and removal by operation.

Associated with dyspepsia, or alone, affections of the liver are extremely prevalent. This is to be accounted for by our ever-present malarial atmosphere ; by the widespread dissemination of syphilis ; by our beer-drinking, tobacco-using and pork-eating population. These, and other causes, give us a people with morbid livers. Whether it be the white liver of demon tippler, with his maniacal mind groveling in the earth, capable of performing every wrong to his brethren ; or the pink liver of syphilis, or the starchy liver of the tubercular, or the mercurial liver, with catarrh of the vessels.

Looking at those causes, common sense asks us—Is our treatment of liver disease by cholagogues in harmony with nature ? Do we not rather irritate the liver when we prescribe mandrake and kindred drugs ? Are they useful in obstruction of the biliary ducts ? Assuredly not. Modern science emphatically points to liver stimulants as the proper remedies in all hepatic disease.

Catarrh of the bile ducts consists in a weak, relaxed, devitalized condition of the mucous membrane of the large and small bile ducts, the ductus communis and gall bladder. This condition resembles all other catarrhal states—hyperæmia, followed by an abnormal secretion of mucus, with obstruction to the flow of bile.

It usually originates in duodenal catarrh, in which the fungus *sarcina intestinalis* is present, which migrates along the deeper tissue of the ducts, dilates them by forming nests or cysts, giving rise to dilatations and constrictions. Later on, the lymphatics become engorged, then the liver becomes enlarged and nodulated, with its margins firm and sharp.

Gastro-duodenal catarrh with proliferation of the *sarcinæ*, gives rise to a large percentage of cases of structural disease of the

liver; a gouty and rheumatic state of the blood, calculi, parasites and disease germs in the bile passages.

The ordinary symptoms of biliary catarrh are, loss of appetite, furred tongue, flatulence, nausea and vomiting; usually some pain over the gall duct and liver. As a rule, the bowels are usually constipated, unless it be accompanied with extensive intestinal catarrh, then there is diarrhea; the fecal discharges are clay colored and contain very little bile; urine dark green color and contains bile pigment; jaundice sets in with its usual yellow sclerotic skin, with the usual apathy, drowsiness and itching of the skin. As a general rule the liver is enlarged and tender, especially in the region of the gall duct. Temperature is lowered; headache; vertigo; very great depression of spirits and loss of strength are decided symptoms. In some cases there is no bile at all in the stools, but very great distension of the bowels from gas.

As the disease progresses, faulty nutrition becomes greater, ascites and anasarca with acholia set in.

The most common complications are pleurisy, pneumonia and dysentery.

In the treatment, the diet throughout the entire case should contain no carbo-hydrate; there should be daily baths of water acidulated with nitro-muriatic acid. Locally, over the liver, the irritating plaster should be applied persistently. Then a selection made from two of either of the following, and administered internally.

Peroxide of hydrogen in alternation with the simabicia have a most marvellous action on the gall duct.

Phosphate of soda, or ozone water, liquefies the bile, lixiviates the deposit of cholochrome and other amido acids, and destroys disease germs in the liver, or parasites like the liver fluke in the gall duct. These remedies, and others, when administered in liver disease, should be highly diluted in tepid water, as they act speedier, are more easily assimilated, and give us a definite result.

Saxifraga and nitro-muriatic acid are best adapted to syphilitic germ colonization in liver. In these days of national deterioration and widespread syphilitic contamination, it would prejudice no case to examine the mucous membrane of the arch of the mouth to ascertain if it had the copper color, the stamp of the colossal, tissue-destroying germ "syphilis."

Chloride of ammonium in alternation with the fringe tree, operates well in catarrh of the ducts.

Salol in alternation with euonymin is also very useful.

Calcium hippurate is employed in such cases as owe their

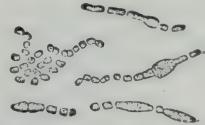
origin to superabundance of uric acid in the system. In physiological action it coincides with sodium hippurate. It is prescribed in doses of five grains. It is said to have produced good results with this remedy in the treatment of phosphaturia, and in cystitis associated with mucous and alkaline conditions of the urine. Moreover, it is claimed to have produced wonderful results in all diseases, which are due to diathesis, uric acid diathesis, tubercular incipient cirrhosis of the liver, connected with increased elimination of urates and in tubercula.

Calcium hippurate occurs in the form of a white powder, which readily dissolves in water. Lithium hippurate and sodium hippurate are employed in the same diseases as mentioned above, and in the same doses.

In our climate, with its sudden transitions from heat to cold, with its neurasthenic population predisposed to all diseases in which debility is a factor, gout, rheumatism and the very general dissemination of syphilis, with a male population notable for damaged prostates and venereal excesses, can we wonder that a weak, relaxed, catarrhal state of the bladder is so common?

The causes which induce catarrh of the bladder are gout, rheumatism, beer-drinking, with tremendous excess of the crystals of uric acid; syphilis, spermatorrhœa, perversion of the sexual act, disease of the prostate; the migration of the gonococcus and other germs from the urethra; the metastasis of irritation from adjacent organs; the natural decay of old age. Certain drugs, as cantharides, balsam of copaiba, etc., are very liable to cause it. Retention of urine from any cause is a prolific source of this affection.

No matter how caused, continence or incontinence of urine will occur; the evolution of the micrococci urea, a microbe which is indefatigable in keeping up acid fermentation in the bladder. The evolution of this germ in the bladder in all cases of catarrh adds greatly to the difficulty of cure. Besides the micrococcus urea by millions there is the pus microbe, and numerous others in a state of growth. The urine is scanty, passed with difficulty pain in the back and loins, an uneasy sensation in the bladder; if the urine is permitted to stand, it deposits more or less mucus; sometimes the quantity is so great that on exposure to cold it becomes solid, and there is oftentimes difficulty in expelling it from the bladder. Impotency, loss of sexual desire and power; nocturnal emis-



Micrococcus urea, pathogenic of catarrh, or ulceration of the bladder.

sions are likely to occur ; sometimes the patient is unable to urinate ; has a sensation of scalding in the urethra ; blood may occasionally be seen in the urine.

Indispensable to a successful treatment the patient should be placed upon the very best of food, of the most nourishing character ; daily bathing ; flannel clothing ; external warmth, and bowels regulated to once in twenty-four hours.

Inculcate an alterative and tonic course of remedies, such as alteratives and tonics, embracing saxifraga, phytolacca ; compound tincture cinchona ; mineral acids ; collinsonia ; bayberry ; stone-crop.

At convenient intervals drink either an infusion of buchu, uva ursa, praira brava, queen of the meadow, couch grass, triticum repens—whichever two should be selected, which diminishes the muco-purulent discharge, and one used one week, the other the next. If the patient is unable to empty the bladder, urine should be drawn off with a catheter, not a drop of residual urine left in the bladder.

Drinks of a demulcent character to be taken but very sparingly, and all alcoholic stimulants rigidly forbidden.

Besides this general treatment, rest and the destruction of the micrococcus urea.

To effect this, ozonized soluble bougies, composed of either resorcin, or thallin, or papoid ; one might be conveniently run into the bladder daily and permitted to dissolve. This mingling with the micrococci effects their destruction. Failing in this the bladder might be injected twice a week with glucozone, or a solution of resorcin, or peroxide of hydrogen. If the urine be loaded with other germ, besides the micrococci urea, as the microbes of syphilis, cancer, rheumatism, the use of the bougies, or injections are imperative.

Internally, the course of remedies must be so modified as to permit the introduction of some bactericide to sterilize the blood, and to render it so that no germ will live in it or the bladder. Select some of the following, either the ozonized uric acid solvent, or the peroxide of hydrogen ; benzoate of sodium, or the sulphide of lime.

Patience, perseverance, with those new remedies and powerful germicides, with attention to all minor details, will ultimately effect a cure.

Catarrh is a general term applied to a devitalized condition of mucous membrane. Catarrh of
Catarrh. the frontal and nasal passages ; catarrh of the
Bronchial. the bronchial tubes, of the pulmonary tissue, of the
 stomach, bowels, bladder, womb, vagina, prostate ; in each and

all there is a relaxed condition, an excessive secretion, a degradation of bioplasm, into a disease germ of some species, the simplest of which is the amœba, the simplest and lowest type of microscopic life.

This disease germ, properly speaking, gives rise to catarrh bronchial, while the conferva, bacillus of tubercle and other microbes give rise to bronchitis proper.

This disease germ consists of a simple cell or an aggregation of cells, each of which maintains an independent existence, and capable of prodigious powers of reproduction by segmentation in a proper fluid, and so light that they may diffuse themselves through the atmosphere. They resemble an O or globose form, gelatinous or albuminoid, like those in nasal catarrh. No nervous system, no organs, no trace of a mouth can be detected in them, but contain a nucleus and by looking very minutely at them under a high power 2500 diameters, one or two or more pulsating spaces can be detected, which finally sprout off. Their movements are contractile, in which, by inhibitory action, they take in nourishment. They spread by contagion and infection, and are capable of entering the blood, producing a diathesis, in which anæmia and nerve prostration are predominant.

The mucous membrane in health exudes a sufficient amount of secretion for lubrication and no more ; and in that no disease germs are present. But the slightest deviation from health, degradation takes place and disease germs are present. The symptoms and diagnosis same as chronic bronchitis. The profuse expectoration and the presence of this microbe are the landmarks in diagnosis.

Catarrh of the bronchial tubes is best and most successfully treated with bactericides. They should be inhaled nasally and orally ; taken on the stomach, and also used in bath ; in other words, the blood and all the tissues of the body should be so saturated with germicides that no diseased micro-organism could possibly exist in the body.

Glucozone is the best of all remedies for inhalation with the cold spray atomizer.

Remedies on the stomach, select from some of the following : peroxide of hydrogen, distillation of pine needles, glycerite of ozone, ozonized tar syrup, avena sativa, tolu and resorcin, creosote, carbolic acid and tincture of iodine, terebene.

For baths, pine-tree-needles extract, which gives us a perfect saturation of all the fluids and solids of the body with ozone, in which condition no microbe can live.

**Catarrh,
Gastric, in Adults.** A weak, relaxed, irritated state of the mucous membrane of the stomach, which gives rise to an excessive secretion of mucus. Whenever mucus is in

excess in the stomach, the *sarcinæ ventriculi* and yeast plant make their appearance in more or less abundance, according to the state of vital depression present. Whether this *sarcinæ* be the result of degraded living matter of the mucous membrane, or a true vegetable germ or fungus, or parasite, produced like yeast plant by saccharine fermentation and swallowing atmospheric air, is not as yet definitely settled. It has, nevertheless, been clearly demonstrated that this fungus, let it be animal or vegetable, grows like all other living matter and with remarkable activity, so much so that it distends the stomach enormously by its presence and makes life a misery.

Causes.—As eighty per cent. of our entire population suffer from the presence of this parasite in their stomachs and more than two-thirds of all cases of dyspepsia are of the catarrhal form, it is important that the causes that produce it should be clearly appreciated. Hurried or improper mastication stands first; in this the food is bolted down, has little if any secretion from the mouth glands, no parotid juice, no element in it to prepare it for gastric digestion, but simply an offending, irritating bolus. Add to this the pernicious habit of drinking at meals large quantities of fluids of any kind, but especially iced or cold drinks, which completely arrest the process of digestion for the time being. Beer and tobacco rank next as great stomach depressors; so are cold food and drink, ice cream, saccharine and starchy food, alcohol, drugs, as bromide of potass, alkalines generally.

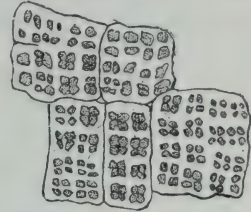
Our climate is productive of it, sudden vicissitudes of temperature from heat to cold, insufficient clothing, anything that will cause congestion of the mucous coat of the stomach with an excessive secretion of mucus. Hence it is often brought about by irritation or disease of adjacent organs, as morbid states of the liver, bowels and rectum, chronic bronchitis, nasal catarrh, tuberculosis of the lungs, and emphysema.

The instant the mucous coat of the stomach is damaged or irritated, an excessive secretion of mucus takes place, and simultaneously with that there appears in the stomach of the individual the *sarcina* and yeast plant. As the *sarcina* appears first upon the scene and is the more tenacious of the two plants, it merits our primary attention. The fungoid mass or jelly, thick, clear, ropy, cohesive in consistency, placed in the field of a microscope of ordinary power, reveals it to be made up of blocks, or squares, or

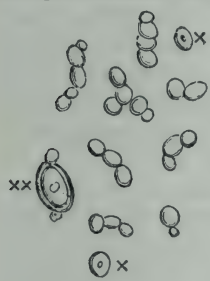
cubes, or packages, as seen in the annexed wood-cut, quadrangular in form, the cubes consisting of fours, sixteens, sixty-fours, etc. These squares live, grow, propagate by millions by segmentation, imbibing nourishment from the degraded mucus of the stomach, and new additions from the same source.

When this altered bioplasm or changed living matter takes place, the sarcina appears in the stomach, and finds its way into the blood and is subsequently to be found in those having this form of dyspepsia in the fluid of the ventricles of the brain, bronchi, bladder, rectum, uterus, vagina.

The presence of this organism, this dangerous parasite, is invariably accompanied with the *cryptococcus cerevisia*, or yeast plant. This fungus is too well known to need a description, being present in the process of fermentation. The annexed cut gives a true appearance of this plant as seen under the microscope in the form of round or oval disk cells, varying in diameter from one four-hundredths to one eight-hundredths of a line, with smaller germs in their interior. They grow by protrusion of gemmules, and germinate from several points of



The sarcinæ ventriculi as seen in the vomit of all patients suffering from gastric catarrh.



The yeast plant taken from the ejected fluid from the stomach in gastric catarrh, magnified 200 diameters.

In those cells marked x, a young cell is seen growing in the interior; while in the large cell marked xx, there is a simultaneous internal production and external gemmation of cells.

the primitive fungus cells. These shoots throw off new gemmules and gradually form rows of single or branching cells, connected together like beads. This peculiar arrangement of cells, and the fact that they cannot be acted on by acetic acid, is characteristic of the plant. This fungus exists in great abundance with the sarcinæ in the stomach, and is also found in the urine, uterus, fæces, with or without the co-existence of saccharine diabetes.

Both the sarcinæ and the yeast plant are to be found in all domestic animals as well as man.

The presence of two such parasites in the human stomach necessarily gives rise to

Symptoms of a pungent, depressing character, general prostration, a feeling of gone-

ness, faintness, emptiness, with all the symptoms of dyspepsia, flatulence, acid eructations, heartburn, pyrosis, coldness in the extremities; tongue has a coat, but usually a white fur with slime; breath sour-smelling, with disturbance of the head,

heart, liver and other organs; appetite capricious, a craving for food, an inability to eat which vomiting relieves—tremendous spells of eructation of wind, with regurgitation of acid fluids, the result of a fermentation in which the *sarcinæ* and the yeast plant are in abundance. The congenial abode of the *sarcinæ* is the stomach; they always can be detected in the mouth, in the thick, ropy, glairy mass, brought up by a proper emetic, in which they can be seen, living, growing and reproducing by segmentation. They often attain great size, and break down and die, and they may be thrown off by the mouth or pass down on the bowels and pass off in a sudden, unexpected attack of diarrhea. If they become very large before breaking down and passing either by mouth or bowels, they give rise to great abdominal distension.

The presence of the *sarcinæ ventriculi* in either the stomach or bowels is the great factor of lactic acid in the human body (rheumatism), and all the accumulated experience of Europe and America point to this plant as the precursor of cancer of the stomach, catarrh of the colon or rectum, and a factor in the production of tuberculosis.

The treatment of this form of dyspepsia requires the finest tact, skill, and a thorough appreciation of the germ theory of disease. The malnutrition due to those parasites, their method of feeding being chiefly upon liquids, their removal by washing out the stomach, their starving out, their direct destruction, the prevention of the secretion of mucus which loads and obstructs the function of the stomach—in order to accomplish all this and more too, we must depart from the ordinary methods of grappling with disease.

The general points to observe are, an avoidance of all care, worry, or mental strain, no over-work, no excess; active but not fatiguing exercise in open air; daily cold baths, followed by friction; flannel clothing; a diet consisting of broiled tenderloin steak or chicken, soft-boiled eggs, boiled fish, buttered toast, oat-meal mush, baked potatoes and ripe fruit.

Rigidly forbid veal, pork, salt or corned beef or fish, fried or boiled meat, pastry, nuts, sweets, cabbage, tea, tobacco, alcohol, all fermented liquors and all liquids at meals.

Order is Nature's first law, so there must be perfect regularity in all things, eating, sleeping, defecation—three meals of solid food per day, with proper intervals between, and in this interim between there must be no mastication, no nibbling, no odd snap or luncheon. The mastication of the food must be thorough, not hurried, but so that a proper admixture of the food with the salivary secretion takes place. Hurried meals are mischievous.

Rest after meals, but no sleep, as the latter retards the digestive process.

Having thus laid down the above and other precautions as to food and digestion, one or other of the following methods of treatment should be tried: either starve the germ out or destroy it.

Method of starving the germ out.—If this method is decided upon, it must be arranged that twice a week, for a period of from six to twelve weeks, an emetic of pulverized lobelia leaves should be administered thus—the patient, prior to taking it, should drink very copiously of tepid water in which bicarbonate of potassa is dissolved; follow this with frequently-repeated draughts of lobelia infusion (one ounce of leaves to one-half pint of boiling water), sufficiently cold to admit of being drunk freely; continue till free emesis and ejection of the germ or parasite or a portion of it takes place. Follow this lobelia emetic up by encouraging the patient to drink freely of an infusion of kaki (one ounce to the pint); add to this a few grains of capsicum to render it more stimulating to the gastric mucous membrane. The persistent administration of kaki infusion at stated intervals arrests the secretion of acid mucus in the stomach, braces, astringes the mucous coat, and thus cuts off the pabulum upon which the parasites, sarcinae, live—and thus it starves. Repeat the emetic every four days; follow closely with the kaki. No other emetic will serve the purpose; as lobelia itself is a great germicide in nature, it retrogrades all germs, checks their development and growth, sterilizes their micrococci.

An invaluable remedy for the purpose of starving out the microbe is the Virginia stone crop in alternation with ten grains of resorcin in liquor cerii ozonized. Thus the remedies thoroughly astringe the mucous coat, and prevent the germ receiving nourishment from the gastric mucus.

Destroying the germs in the stomach must be adopted or tried. Here, of course, it is very difficult to select remedies to be administered on the stomach that will enter, unite with, or penetrate, or chemically cause a dissolution of the fungoid mass or jelly. Besides, patients who have had this parasite in the stomach for a long series of years suffer from atrophy of the pepsin glands, with functional incapacity. Remedies to be of service here must be highly antiseptic and not impair the stomach in any way, but rather increase its vigor.

The sarcina ventriculi is sterilized, completely annihilated, in the presence of either of the following remedies:

Peroxide of hydrogen, a few drops added to water, is most effectual. In attacking the fungus it liberates the ozone, which

unites with the fungus and destroys it—does not impair, but rather increases, the gastric function—tones, strengthens.

The sulphide of lime or the chloride, well triturated in sugar of milk, is most efficacious.

Ozone water or comp. oxygen must not be overlooked.

Ozonized sulphur water, added to an infusion of columbo, is not to be despised.

Ox-gall, thoroughly washed of all impurities with the dioxide of hydrogen, then evaporated to the consistency of molasses, to one hundred parts add two hundred of pulverized willow charcoal, with ten parts of capsicum; mix. Make into three-grains pills; one two hours after meals thrice daily.

Papoid, a vegetable pepsin from the carica papaia, combined with the boroglyceride, gives excellent results, as it is one hundred times more potent in antiseptic power than ordinary pepsin, and acts better on the peptic glands.

Gastric Catarrh in Children. Modern dietetics, adulterated food, early precocity, have within these few years back given rise to the sarcinæ in children—

twenty years ago a rare disease. Now it is one of the commonest derangements of that period of life among rich and poor. It is a constant danger to hand-fed babies, and forms one of our chief obstacles to the raising of infants. In older children it is of frequent occurrence. It seriously affects their nutrition, and interferes with development and growth. Mothers term it biliousness. The little one loses its appetite, mopes, lies about, has a dull, pasty or yellow complexion, and looks dark under the eyes. At night it sleeps badly, and is restless and irritable during the day. If the tongue is protruded, there is a fur on it, with a coat in centre; the breath is sour-smelling; there is a fulness about the stomach; all indicating catarrh of the stomach, which, with its fungus, interferes with the digestion of the food. It may be vomited, or pass by the bowels, but it leaves the stomach weak, and another crop is likely to follow, nutrition is seriously impaired. In addition to the above symptoms, affected children complain of pains in abdomen and sides, and are likely to suffer from vertigo, syncope from pressure upward of the distended stomach against the diaphragm and heart. Bowels usually are constipated.

These symptoms are greatly aggravated by an injudicious diet on the part of the mother, as supplying the child with an excess of fermentable food, as potatoes, puddings, sweet cakes, etc., which feed the sarcinæ and keep up the dyspepsia, which is a

source of great discomfort to the child and anxiety to the parent. The whole system is being fed by an acid, generated by the germ, and aggravated by the food, and the child is irritable and excessively restless. His speech is hesitating; he may stammer; his muscles may twitch; his eyes wink, and he is nervous.

Nausea and vomiting are not always present. If there is vomiting, the products are sour-smelling fluid, and thick, ropy mucus. Frontal headache is rarely absent; it is often distressing; urine highly acid, loaded with uric acid. Nutrition is always interfered with; the child wastes perceptibly, or there are fainting fits.

In curing gastric catarrh in children, the *sarcinæ* must be either removed, destroyed or starved out. The acrid mucus and germ is the constant cause of acidity and fermentation; they keep up a bad train of symptoms. The greatest benefit is derived from the peroxide of hydrogen in small doses, frequently repeated. This should be alternated with the sulphate of cinchona or some bitter tonic.

The peroxide of hydrogen, combined with an equal amount of glycerine, administered in a little water after meals, instantly parts with its ozone, which kills the microbe, the factor of gastric catarrh. The *sarcinæ* being removed, digestion improves, increased assimilation, a priceless boon of the dyspeptic. The average dose is fifteen drops to one ounce of water.

The ozonized cascara sagrada lozenge is a powerful microbicide. One administered thrice in twenty-four hours is efficacious in the destruction of the *sarcinæ*, in destroying the activity of all bacteria and micrococci. Its active properties are due to the ozone which it contains, and which it liberates in the stomach and destroys the microbe.

Resorcin, arsenic, naphthaline might be tried.

The Virginia stone crop is the father of a class of remedies of the greatest possible utility in sterilizing the *sarcinæ ventriculi*; it is much more energetic in its action than either collinsonia or bayberry. It is a drug from which the greatest possible benefit accrues in either catarrh of the stomach or bowels.

Same remedies as in the adult may be tried with success.

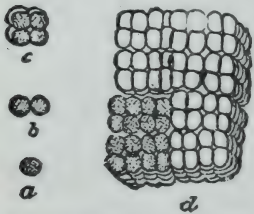
Bowels should be kept regulated by the administration of a decoction of flaxseed or slippery elm, to which a small amount of olive oil is added.

Diet carefully guarded; no starchy or saccharine agent given; nothing to aid fermentation; toast, milk and lime-water. As soon as tongue cleans, appetite returns; boiled fish, white of chicken, lean broiled mutton. It is not well to press the child to eat; rather refrain. To give tone to the stomach and strengthen digestive powers, sulphate of cinchona or wine bitters.

In order to prevent gastric catarrh becoming a prevailing disease among children, mothers must learn that all sugar and starch articles of diet are poisonous to children. They should also be made aware of the great utility of a flannel binder or roller next the skin as an indispensable article of a child's dress till it reaches three years of age. This roller should reach from the armpit to the groin; not pinned too tightly. The resisting power of all children should be fortified by gradually bringing their morning and evening bath to cold water. It must be a very gradual process in weak children, in all cases followed by active rubbing. To bring children to the cold bath, and practice it properly, has a most tonic effect upon the system generally, and confers great resisting power upon the part of the child, and reduces its susceptibility to any change. Mothers should also be instructed of the utility of brisk massage over body after child has been dried off.

Catarrh of the Intestinal Sarcina *intestina* has all the essential elements of that found in the stomach, only much smaller in size. It is found in the duodenum, and throughout the entire intestinal tract; in the vomit, fæces, lungs, blood, urine, in the form of yellow patches, green or reddish. Peculiar groups of four, eight, sixteen, thirty-two cubical cells with rounded edges, closely placed against one another.

The fungus gives rise to a functional disturbance of the bowels, independent of any organic lesion.



Sarcinae intestinalis--a dwarf form found in the bowels. Microbe found in the duodenum in full-fledged masses, as in *d*; *c* in the small intestine; *b* and *a*, large bowel.

Intestinal dyspepsia may be a primary affection, brought about by cold, mechanical irritation or mental depression, or it may be brought about by catarrh of the stomach, or by structural changes in the mucous membrane of the alimentary canal; altered conditions of the secretions of the small intestines; the presence of undigested food, or the ingestion of improper food; an altered state of the muscular coats of the intestines, generally accompanies malnutrition.

In catarrh of the bowels, all or some of the symptoms of dyspepsia are present. Pain may be present, of a dull aching character, radiating over the upper portion of the abdomen. Not acute, more likely if present, to prevail two hours after the ingestion of food, nausea and vomiting when they do occur, depend more upon the stomach derangement than upon any intes-

tinal disturbance. Constipation, gaseous distension of the large intestines, are prominent symptoms. The various coats of the bowels are so thoroughly relaxed that there are often immense fecal accumulation.

After repeated attacks, general health fails, he loses flesh and strength and begins worrying about himself, fearing some organic disease. As a rule the appetite is seldom impaired.

To effect a correct diagnosis, administer a large dose of castor oil, followed with copious draughts of either an infusion of flaxseed or slippery-elm, then take the albuminoid portion of the evacuations and place a portion in the field of the microscope, and the sarcinæ will be seen.

In the treatment, it is well to regulate the diet. This is important; patient should abstain from all fatty, saccharine, or starchy substances, and eat solid food, meat and vegetables; daily bathing; an avoidance of tea, coffee, tobacco, and all fermented liquors; a freedom from care and worry; of drugs which yield the best results, collinsonia, stone crop, bayberry, salol, naphthaline, resorcin.

In intestinal catarrh, the peroxide of hydrogen is invaluable; true it does not, like salol, destroy the pathogenic germs, but it unites with them, renders their ptomaines inert, and thus the tissues, being relieved of the deleterious effects of the ptomaines, combat successfully the germs.

Injection of the bowels above the sigmoid flexure with copious injections of creolin are of immense utility.

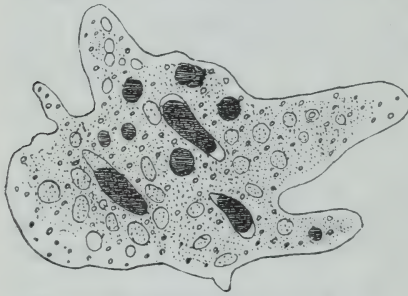
The best of all these remedies is the Virginia stone crop, which is a priceless drug in intestinal catarrh. Nothing in the materia medica which can be compared with it.

Repeated irritation of the lining membrane of the nose, sinuses, posterior nares, larynx and bronchi, so devitalizes, modifies, changes and degrades normal living matter into a diseased germ; the amœba, which is simply a degradation of the normal bioplasm that nourishes the lining membrane of the respiratory mucous membrane, that gives us rather a complicated disease, one both contagious and infectious. We also find the disease-germ in the mouth, urethra, vagina, but always more perfectly developed and in larger quantities in the air passages.

Chronic catarrh, then, may be defined to be chronic inflammation of the Schneiderian membrane, with this change of its own living matter, or matter concerned in its nutrition, into the disease-germ, amœba. It is most erroneous and unscientific to

assert that it is caused by syphilis or tubercle. Those disease-germs may impair the vital stamina of the patient, but cannot produce the amœba.

Our highly oxygenized atmosphere, our very variable climate, the extreme susceptibility of our people to climatic changes, with our violent winds and atmospheric currents, absence of trees, etc., render our people very liable to catarrhal affections. The most careful microscopical examinations of an immense number of cases fail to exhibit any germ but the amœba. When it occurs in a young or tubercular subject, the tissues being soft and not very vital, the amœba of catarrh eats up the structures rather voraciously, and as soon as they reach the cartilages of the nose, all their proper nutriment being gone (for they cannot live on



The amœba—the germ of nasal catarrh; 1500 diameters magnified.

cartilage), and the vital powers being very low, the *oidium albicans* makes its appearance; then we have that pungent, indescribable, fetid odor characteristic of *ozæna*. When the Schneiderian membrane and frontal sinus are alone implicated, with no appreciable odor, it is termed catarrh; when the amœba have crept up the eustachian tube, *aural*; when

they have penetrated down the fauces and larynx, *laryngeal*; when they have moved still further downwards on the bronchi, *bronchial*; asthmatic when they gnaw the periphery of nerves in the circular muscular fibres of the rings of the bronchi.

Aromas or parasitical states, such as the bacilli of hay, the mycelia of roses, ragweed, and other vegetable germs, are not capable of living in human blood; nevertheless, they can blight normal bioplasm of the respiratory mucous membrane, and thus cause the appearance of the amœba. Hence, catarrhal conditions are named after those special vegetable agents. Diseases of the respiratory mucous membrane are very prevalent, each capable of causing tuberculæ: (1) by reflex action; (2) by the amœba entering the blood.

Catarrh is often the starting point, as it is the most common of the entire class. When it takes place, its offspring, the amœba, begins to enter the blood and produce a special diathesis of its own. Its chief characteristics are languor, lassitude, debility; a peculiar pasty or doughy appearance of the skin; pains in the limbs; headache, with a sense of tightness across

the forehead; excessive muco-purulent discharge from the nostrils, or trickling down the throat, (which creates hawking), loaded with amœba; or if there is much oxidation, the discharge may dry up and become impacted in the nostrils. If the amœboid colony runs up the eustachian tube, it will cause deafness: if it moves downwards (for it is a living mass), hoarseness and aphonia; if still further down, on the bronchial tubes, increased hawking, cough, emaciation and discoloration of the skin due to imperfect oxygenization of blood; if down the œsophagus, dyspepsia. As it is very liable to cause amyloid degeneration of liver and kidneys, there may be some swelling of cellular tissue and œdema of ankles.

It is not only a contagious and infectious disease, but loathsome, and liable to give rise to so very many other affections, as epilepsy, consumption. It is nearly identical with glanders in the horse; it is simply a difference in size and virulence of the germ. In human catarrh the amœba is a microscopic dwarf; in glanders in the horse it is a giant.

Of all the disease-germs the amœba is the most interesting to study. It can be seen with a low power, its movements and habits can be seen so accurately; even its mode of nutrition, opening and closing themselves to receive foreign particles, inclosing and appropriating them and even imbedding them in its very substance. As they enter the blood they no doubt impair the red corpuscles, and cause a peculiar form of anæmia.



The pathological state of the lining membrane of the nose—showing the disease-germ amœba in active work, eating up the tissue.

To treat nasal catarrh with success, there must be an effort made to build up the general health of the patient, the secretions regulated, warm clothing; the very best of diet, an effort made to change the diathesis which the microbe creates; alteratives and tonics should be given for two or three months to kill the germ in the blood; comp. saxifraga and phytolacca; comp. tincture cinchona and mineral acids. Irritating plaster to the nape of the neck to stimulate the origin of the olfactory nerve in the medulla oblongata. Then a selection of a bactericide made to wash out the germinal mass. This is best effected by the use of

the ozone et chlorine, which might be used every twenty-one days for a few times. In between the very severe detergent action of the ozone et chlorine, mild douches of boroglyceride, or gold seal and borax, should be used.

Other methods of management should be resorted to, as douches of resorcin, creolin, naphthaline, boroglyceride, etc., are also effectual.

Peroxide of hydrogen is of immense utility in catarrh, in the destruction of the germ, but best used in the form of glucozone in a cold atomizer, it should be used several times daily, it rarely fails to effect a radical cure.

This ozonized distillation of witch hazel is fully as strong in germicidal action as the peroxide of hydrogen, and more easily managed. Being a remarkable solvent to lymph, it is of great utility in chronic cases; and the results obtained from it in chronic cases of all catarrhal affections of the nares, eustachian tubes, middle ear, throat and lungs, have, in the fullest sense, been most satisfactory.

Many cases of eustachian deafness of long standing, due to the migration of the germs, have been effectually cured by this remedy.

Excellent snuffs are the pulverized horse-chestnut, boracic acid pulverized, microbe powder.

Ointments, jellies, nasal pastiles, or pencils, etc., are in some cases very successful. Incorporate in these such agents as resorcin, iodol, thallin, etc.

—————

Catarrh of the Prostate Gland. Various affections of this gland are frequently mistaken for spermatorrhœa. In catarrh proper, we find a clear, viscid, tenacious fluid, like the white of an egg, entirely

destitute of spermatozoa, oozing or passing from the urethra.

Such a condition is generally due to debility, relaxation, the sequel of a gonorrhœa, or some perversion of the sexual act; a damaged prostate is apt to be irritated by the lactic acid of rheumatism, or the lithiate of soda of gout; any irritation will excite an exudation.

If the weakness or irritability of the prostate is great, the sphincter muscle at the neck of the bladder becomes implicated in the debility, then there is likely to be a stoppage in the act of urinating, or it may be passed drop by drop; and if passed with difficulty, residual urine and fungus formation are like to occur.

The presence of prostatic catarrh invariably gives rise to seminal weakness, spermatorrhœa, an oozing away of semen, or the oozing of a ropy viscid fluid from the tubular glands of the

prostate, after micturition or defecation, or a diurnal weeping, or nocturnal involuntary discharges; in or among all there is usually spermatozoa.

The most common form is due to a relaxed condition of the spermatic vessels and ducts, caused by masturbation, excesses, or ill-treated gonorrhœa, a difficult and troublesome affection, opening the door to impotency.

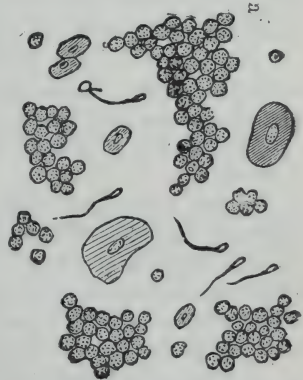
Under the microscope this exudation, or leakage, has the appearance represented by this wood-cut: mucus, shreds, floating spermatozoa. The spermatic fluid may be wasted in this way for weeks, months, years, without the individual being aware of the drain upon his vital forces. Large quantities are usually ejected if bowels are constipated, in the form of a tenacious fluid like the white of an egg.

Whether this seminal debility be due to urethral or prostate hyperæsthenia, the best remedies are cocaine suppository, which is of great utility, very advantageous, in overcoming prostatic tenderness, and continence of urine.

Ozonized urethral bougies, gelatin prepared from papoid, resorcin and cocaine, when introduced into the urethra, clear up to the prostate and into the bladder, exercise a most remarkable sedative influence on the motor and urinary centres in the cord, and a powerful absorbent, action on the lymph effused in the gland. They are worthy of daily insertion.

That great sexual sedative, salix niger ozonized, which has effected so much in diurnal and nocturnal seminal emissions, can be administered with marked benefit in catarrh of the prostate, in doses of half a teaspoonful three times a day. I have in a few weeks cured cases of many years' standing. In eighty cases treated with this drug, I have done more real good in ten days than by years of the old methods. It is altogether different from other remedies; it does not impair, but rather augments virile power and passion; in every case it has afforded great satisfaction; in arresting the oozing, overcoming the hyperæsthenia.

Nearly all cases are much benefited by the administration of the uric acid solvent, in very small doses; the advantage of this combination in irritable prostate is often quite great, as it most effectually neutralizes the acid state of the urine, and acts as a genital sedative.



Spermatozoa as seen in the urine of patients suffering from prostatic catarrh.

I have made considerable use of the saw palmetto in different morbid states of the prostate; its action is best suited to catarrh of that gland with atrophy, the drug being a great gland stimulant.

The direct medication of the prostate is best effected by the soluble gelatinized bougies; they afford immediate results, and patients are not discouraged by waiting. In some cases the catarrh is aggravated by seminal emissions, very frequent; in other cases, almost complete impotency, yet, in most instances, a few bougies inserted make a great change.

Catarrh is a chronic inflammation of a mucous membrane, hence there may be a catarrh of any mucous membrane; and incidental to this partial death, there is a degradation of the primary elements of nutrition into a disease germ; hence all catarrhal affections are contagious and infectious.

Catarrh of the Rectum.

The amœba is the microbe we find present in the nose, larynx and bronchial tubes; in the stomach the *sarcinæ ventriculi*; in the uterus and vagina the amœba bacteria and *sarcinæ*; in catarrh of the rectum a whole category of germs are found, with their ptomaines.

Rectal catarrh is the most common, more dangerous to the general health and longevity than catarrh of any other part.

The sensibility of the rectum is so limited and obscure that the affected individual often does not suspect the real nature of the difficulty, but complains of general lassitude, and debility from the disease germs and ptomaines re-entering the blood.

In cases of catarrh of the bowels, interspersed throughout the frothy, slimy discharges blended with the *sarcinæ* are to be seen a bacterium which bears culture well in beef broth, rendered alkaline with bicarbonate of soda, pathogenic of rectal catarrh.

Causes.—The principal causes of rectal catarrh are torpidity of the liver, brought about by irregular habits of life, alcoholic drinks, malaria, sedentary habits, certain drugs, cold, damp, exposure, tight lacing, pregnancy.

Symptoms.—These are often obscure, a species of diarrhea or dysentery is most likely to exist, or if not that, constipation, with itching. In catarrh of the rectum the mucous membrane only is supposed to be affected, whereas in inflammation of the rectum proper all the coats of the bowel are affected; still the symptoms of catarrh are almost identical with a general inflammation of the various structures; there is apt to be heat, burning soreness, excessive tenderness, copious muco-purulent discharge, the rectum re-

laxed, slight protrusion, blood and nerve poisoning, due to the germs re-entering the blood.

Treatment.—The causes which produced this affection must, if possible, be removed, and then the patient should be placed upon a general alterative and tonic course of treatment, embracing the following special remedies: saxifraga, Virginia stone crop, collinsonia, mineral acids and cinchona, and then the bowel should be specially attended to.

Either of the following formulæ is of great utility in all catarrhal states of the rectum. They should be added to thin starch and injected into the bowel three times a day:

R_y. Distillation of hamamelis 6 ounces.
 Fluid extract hydrastis 2 ounces.
 Tincture calendula 2 ounces.

Mix. A tablespoonful.

Three times a week twenty drops of the following, added to thin starch:

R_y. Oil eucalyptus 2 drams.
 Phenol sodique 4 drams.
 Glycerine 3 drams.

Mix.

The following is of great utility, nay, unsurpassed, as a vital restorative to the rectum.

R_y. Fluid extract juglans 2 ounces.
 Fluid extract Virginia stone crop . . . 2 ounces.
 Fluid extract stone root 2 ounces.

Mix. A teaspoonful added to half a teacupful of slippery-elm water every three hours.

A catarrhal state of the entire alimentary canal is often present in pulmonary phthisis and insanity, and is often the cause of a fatal termination. The microbes of either affection along the entire tract, the exhausting discharge, soon reduce flesh and impoverish the blood more than any other state.

The real causes of this catarrhal state are the intense acidity, the presence of germs, ptomaines, lardaceous or phosphatic deposits on the bowel.

In nearly all these cases ulcers on the intestinal tract begin below the duodenum, but in the small intestines they are insignificant compared to the worm-eaten appearance of the large bowel.

The localizing of disease germs follows the line of the blood vessels, specks of congestion isolated, coalescing, broad or per-

forating in the colon and sigmoid flexure, and as they reach the lower bowel it is not uncommon to find ulcers of great depth.

Recognizing their microbe origin, there should be a persistent use of stone crop, salol, naphthaline, peroxide of hydrogen.

Numerous and varied are the causes which excite catarrhal conditions of the inner lining membrane of the uterus. The most common are, various forms of ovarian disease; frequent abortions; the irritation produced by the retention of the placenta, or shreds of lochial discharge; the introduction of instruments. Some drugs are productive of it, as excessive doses of bromide of potassa, aloes, savin, sudden suppression of the menses from cold or damp, masturbation, mental excitement, torpid liver, tight lacing, gout, rheumatism, incompatibility in married life.

Catarrh Uterine
(**Endometritis**).

As there are, so to speak, so many grades of irritation, we have an immense variety of symptoms. Take the acute variety, in which there is fever, high temperature, rapid pulse and respirations, general irritation, sallow complexion, loss of appetite, headache, pain in the loins and the lower part of the abdomen, sacrum, groin and inside of the thighs; a sense of great heat and fulness about the pelvis, and bearing-down. Bladder very irritable; a desire to pass water every few minutes, which is loaded with uric acid. Diarrhea and tenesmus, and, subsequently, constipation. Tenderness on pressure over ovaries and uterus. After a day or two, thick, ropy, tenacious discharge, which, after a while, becomes muco-purulent, and is tinged with blood, and imparts a greenish-yellow or greenish-red stain to the chemise or other body linen. There is often piles.

This acute form should be treated with rest; warm hip-baths; mucilaginous drinks; open bowels with cascara; administer either antipyrine or antifebrin for fever; pastiles of cocaine both per vaginam and rectum every four hours.

As soon as the acute stage has been overcome, three teaspoonful doses of the wine of *Aleteris farinosa* should be administered every three hours, alternated with other uterine tonics.

The chronic form is the most common, and runs a tedious course, with headache, languor, lassitude, debility, great mental depression, obstinate dyspepsia, flatulence and constipation. A sense of weariness, if not pain, about loins, sacrum, groin, inside of the thighs, and bearing-down. The discharge now is thick, ropy, tenacious, very abundant, glairy, like white of egg. Often, under the microscope, the sarcinæ and yeast-plant germs can be

detected in it. The discharge is most abundant in the mornings, accumulating in uterus over night, or after lying down awhile; indeed, in bad cases, after being in the recumbent posture for some time, it will flow right out. The debility increases, and a train of other symptoms set in, as hysteria, convulsive affections, nausea, vomiting, tympanitis, tenderness of breasts, and menorrhagia, if the lining covering the fundus is involved.

In the chronic form a weak, relaxed state of the intra-uterine mucous membrane, in which the yeast-plant and sarcinæ are evolved in the mucous secretion. One of the most common maladies of the modern female, brought about by numerous causes, as sexual incompatibility, metritis, miscarriages, metastasis of disease germs, and the like, and reflexly gives rise to a feeling of goneness, hysteria so-called, headache, debility, dyspepsia, bloating, with an indescribable burning in the hands and feet; a leucorrhœal discharge, most copious in the morning, in which those micro-organisms are invariably present. The germ-laden secretion, as it oozes from the uterine cavity, is intensely acid owing to the presence of the three germs.

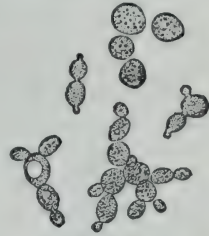
This bacteria or vinegar-forming plant is often present in intra-uterine catarrh. It is found in all the hollow organs of the body; often grows to an immense size, alongside of the sarcinæ and yeast-plant. It is completely sterilized in the presence of germicides.

Dysmenorrhœa, sterility, and ultimately a cancerous germ is elaborated from the normal bioplasm. Such is the state of two-thirds of our married ladies.

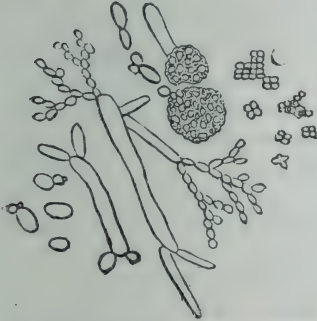
The most experienced physicians find this affection most difficult to manage; indeed, by some incurable, simply because they have failed to realize that the cavity of the uterus, with its entire mucous covering, was

a colony of a million microbes—factors of morbid action, often the precursor of cancerous infiltration.

Authors recommend injecting the uterine cavity, in these cases with germicides; this must not be done with American ladies, whose reflex centres are so impressible, such a procedure, if resorted to, is sure to give rise to great trouble, nervous and con-



Bacteria of yeast plant.



The yeast plant and sarcinæ present in all cases of intra-uterine catarrh.

vulsive affections. My method is to insert into the uterine cavity a soluble gelatinized bougie, composed of papoid, or trypsin, or iodol, a germicide of sufficient power to annihilate the yeast-plant and sarcinæ. Use one about once a week three times during the month. One to three will cure; but as the cavity of the uterus is considerably dilated, and its walls so much thickened, to be thoroughly certain of a cure it is better to resort to this proceeding for three consecutive months.

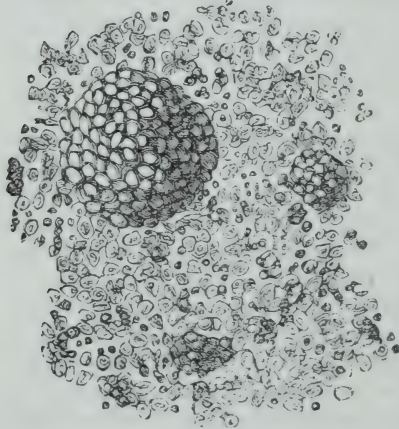
At the initial period of treatment the patient should in all cases be placed upon full doses of the distillation of the *aleteris farinosa*. This is a most efficacious remedy in those cases, being a uterine tonic and invigorator. In alternation, the fluid extract of the *salix nigra* is a decided sedative to the genito-urinary organs of both sexes.

Catarrh Cervix Uteri.

The cervix uteri is a large, open gland, extremely liable to suffer from very slight irritation which is constant, and on this account catarrh is the commonest of all diseases incidental to woman.

The causes are most numerous—irritating bodies in the vagina, childless marriage, abortions, tedious labor, suppression of the menses, gonorrhœa.

The general symptoms of an exhausting discharge are invariably present: debility, bearing down, aching in the thighs and hips.



The microbe of chronic catarrh of the cervix uteri.

In parts of the cervix that can be seen through a speculum the mucous membrane of the neck is red, swollen, and will bleed easily, and secretes a specific muco-purulent matter; in other cases the mucous membrane has a granular or punctured appearance.

Intercourse with a patient so affected (which passes by the name of leucorrhœa) is bound to give rise to all the symptoms of gonorrhœa in the male.

The mucus secreted by the glands of the cervix has the identical appearance of the annexed diagram. It consists of cysts or vesicles, which never appear in healthy mucus. These cysts are

regular cocci, which breed freely and give rise to profuse leucorrhœal discharge. As they have wonderful powers of reproduction, they soon render the cervix loose, spongy, patulous, burrowing in its intestinal structure. This accounts for the greater frequency of cases in practice of men who have all the symptoms of gonorrhœa after intercourse with women so affected. Avoiding the old caustic treatment for this malady, we have a most efficient one in boroglyceride ozonized, either in packing the vagina a few times with the paste, or using a saturated solution by means of a fountain syringe. In this way, with rest, removal of the causes, an easy and an effectual cure is established.

More chronic still, these minute cysts become altogether independent, although merely obstructed follicles, are the regular breeding ponds, give rise to a crop of vesicles, the contents of which give rise to herpes preputialis, if applied to or coming in contact with the glans of the penis. The occurrence of these germinal eruptions calls for great care.

If the above method fail, then make a pastile or pencil of the ozonized jequirity and insert it in the os; allow it to remain. In a short time it will cause a peeling off of the old germ-eaten tissue.

Leucorrhœa is a general term applied

Catarrh of the Vagina. indiscriminately to all discharges from the vagina of a mucous or muco-purulent character, whatever may have been its origin or source. Either a weak, relaxed condition of the mucous membrane, or a catarrh of the os or cavity, to induration and ulceration of the neck, to ovarian irritation; all discharges from the vagina, when they exceed a slight moisture, are loaded with microbes, disease germs pathogenic respectively of each morbid condition.

Therefore the treatment of all cases, irrespective of cause or condition, must be essentially germicidal, consisting internally of the wine of the aletris farinosa, comp. syrup partridge berry, alternated with the peroxide of hydrogen; general tonics, rest and best of diet.

Daily or more frequent vaginal injections with fountain syringe, holding from one to two quarts of tepid solutions of some efficient bactericide, such as boroglyceride, resorcin, iodine, creolin, naphthaline, preparations of calcium, glucozone.

The cause must be removed, and those injections or others continued. In some cases the jequirity uterine wafers are of utility; pastiles of white pond lily; packing the vagina with boroglyceride is one of the best of all methods, as this germicide

exerts a chemical action upon the uterine secretions, restores the parts to their pristine vigor, obviates all conditions of blight or sterility, promotes fecundation.

Chilblain The degree of cold that can be borne by
 or the human body before freezing, depends a
Frost Bite. good deal on the medium through which it is
 applied (dry or moist), and the power of vital
 resistance in the individual. The exposed por-
 tions, as nose, ears, hands, feet, are most obnoxious to it, chiefly
 on account of their feeble circulation; and the feet are peculiarly
 prone to frost-bite, if sweaty or damp. This is one reason why
 it is so common in hired girls, who sleep in attics, and mostly
 sleep with their damp stockings on. A chilblain may be defined
 to be a subacute inflammatory swelling, due to cold, and the pre-
 mature restoration of the circulation by heat.

In all chilblains, as well as in burns and scalds, there is a mi-
 crobe evolved from the damaged elements of nutrition of the part.

Symptoms.—Burning, tingling, throbbing in the affected part,
 with swelling, redness, and itching. There may be vesication or
 ulceration and sloughing, in all respects similar to a burn.

Treatment.—Frozen parts to be thawed gradually by rubbing
 with snow, or ice, in a cold room, without fire, and stimulants
 administered internally so as to get them to thaw from within
 outwards; and for some time the parts should not be exposed to
 heat. The carbolic acid and olive oil, same as in burns, may be
 used here with good results; or ozone ointment, black salve, or
 lime liniment.

Better still, ichthyol, creolin, naphthaline, resorcin, either one
 rubbed up in ozone ointment; if the feet, lotions of boroglyceride,
 iodoform, thymol; in all cases treatment essentially germicidal.

To prevent frost-bite, a high standard of health; very nourishing
 food; tonics; fire in bed-rooms; avoid wearing damp stock-
 ings, either during day or night; tight shoes; and proper pro-
 tection or covering for exposed parts. Our highly oxygenized,
 dry atmosphere, with its crispy feel, is not nearly so productive
 of frost-bite below zero as that which is humid and moist, with
 the oxygen greatly diminished.

A peculiar form of anæmia, occurring in the
Chlorosis. young of both sexes, in which there is a defi-
 ciency of the blood cells with a redundancy of
 the serous part of the blood.

The defect is a genuine poverty of nerve force, generally most
 prominent about puberty, before the complete development of

the sexes is established; owing to this neurasthenic condition, there is a defect in the evolution of red corpuscles of the blood; they are small, dwarfed in size, diminished in number.

The causes which induce this condition of nervous bankruptcy or deterioration are: in males, masturbation, a draining off of the nervo-vital fluid, deleterious trades; indoor life, solitary confinement; in young ladies, the same causes may exist, as well as undue precocity brought about by erroneous modern education.

Symptoms.—General symptoms of anæmia, with a wax-like hue of face, yellow pallor of skin, whence the name “green sickness.” Deficient or depressed appetite, fetor of breath, heavy coat on tongue, skin dry, constipation, abundant limp urine; weak, quick pulse; hysteria. If a woman, pale, scanty menstrual discharge; if a man, his semen entirely destitute of spermatozoa. Leucorrhœa in women; often a thin gleety prostatic discharge in men. Languor, listlessness, head and back-ache, palpitations, cardiac and vascular murmurs. Occasionally enlargement of thyroid and protuberance of eye-balls.

The treatment should be pre-eminently constructive; fresh air, sun-light, daily bathing, followed with massage; a most liberal and varied diet; bowels regulated with either the kola nut paste or cascara sagrada lozenges.

Our best drugs in all forms of chlorosis in either sex are either the peroxide of hydrogen, or glycerite of kephaline; or *avena sativa*; or nitro-glycerine, or *pulsatilla et caulophyllin*.

This change in treatment operates speedily in a complete restoration to health.

The living microbe of cholera, the *comma-bacillus*,
Cholera. is undoubtedly derived from the degraded bioplasm of our own or others' bodies.

The term cholera is applied to the presence or development of the cholera germ in the infant, middle-aged, and as an epidemic; conditions of the human body in which this special degradation takes place, which are brought about by diminished vitality, a lowered electrical state, abnormal meteorological conditions, with an absence of ozone in our breathed atmosphere, and other insanitary conditions, for there is little doubt that imperfect drainage, improper food, impure water, fasting, fatigue, intemperance, uncleanness, breathing vitiated air, all aid in the production of the germ. From the reckless condition of modern society, it is a wonder that we are so free from disease-germs. There ought to be more attention paid to sanitary science. Many of our modern buildings are but murderous sepulchres, being contaminated throughout. The very hair in some plaster is from

the hide of some animal that has died of anthrax. The atmosphere of many houses is tainted with sewer gas; neither ventilation, lighting nor heating has been attended to. Heated with dry air from cellars impregnated with disease-germs; water-closets in houses, the reservoirs of contagion; the very earth in our large cities is contaminated. All sewers should empty at least five miles from human abode, and the water into which they empty should not be drunk by man or beast; all dwellings should have open fire-places, as they burn up many noxious poisons that would otherwise enter our bodies.

This is common among children of all large cities in tropical countries, between the ages of **Cholera Infantum.** four months and two years. Children of the poor suffer most, or those who are subjected to the direful influence of modern pestilence; for it is really the case of the little god's kissing carrion—compelled to swelter in the hot, insalubrious, death-dealing atmospheres during the months of June, July and August, the temperature ranging from 90° to 100° Fahr.

The degradation is brought about in one or other of two ways:

1. *By some shock*, such as a fall, blow, rocking, concussion of brain, or by some reflex irritation, as teething, diarrhea, or the action of some cerebral stimulant, as opium in a soothing cordial.

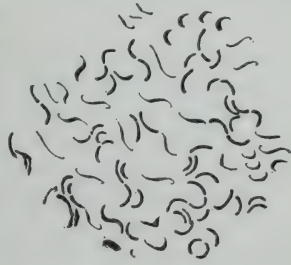
2. *By irritation* of the stomach and bowels, caused by indigestion of swill or diseased milk, giving rise to acidity, fermentation, vomiting, diarrhea. In the former case it is central; in the latter, peripheral. In whatever manner it originates, the two conditions quickly coalesce, and the disease manifests itself as a nervous affection, with an irritation or paralysis of the eighth pair of nerves that supply the liver, and a chemical change in the secretions of the bile, which is highly acid and irritating to the fine, delicate nerves that supply the muscular coat of the bowels, which causes contraction of the muscular coat, giving rise to severe pain, frequent evacuations, loaded with the cholera germ.

Symptoms.—These are well defined—nausea, vomiting, diarrhea, great nervous prostration or irritability; patient feverish, restless; heats and colds; skin white; sleeps with eyes partially open; rolls head; grinds teeth; wakes up with a scream; rapid emaciation; stools, at first greenish, become like chopped spinach; and prior to each motion of the bowels, the child instinctively draws up its knees and cries with the excruciating spasmodic

pain in the bowels, from the passage of the acid or acrid bile loaded with cholera germs, and their excretions, ptomaines, irritating the fine, delicate nerves of the bowels; the urine is very scanty and high-colored. As the case progresses there is more prostration; the skin becomes whiter and colder, and, in bad cases, bluish; the features shrunken and pinched; greater emaciation; breath cold, as the liver fails to secrete sugar for combustion; the alkaloid ptomaines increase, and the case grows worse and worse. If the patient survives the first attack, the tubercular diathesis is created, and there is a complication in the deposit and growth of tubercle in or on membranes of brain, in or on the mesenteric gland.

The duration of cholera infantum depends very much on the vitality of the child, its surroundings, the capabilities of the mother, and denseness of population. Some cases will commence in June, and struggle through to September; whereas others, under less favorable circumstances, will be attacked and die in a few days.

Treatment.—Before considering the treatment, it might be well to ask the question, what means have we to prevent this terrible scourge in all our large cities? The insanitary condition of cities during the heated term, and the condition of overcrowding, does not admit of a remedy; but the vitality of the child and welfare of the mother can be taken care of. The mother is of primary importance—her health and comfort; her food should be nutritious; her mental and physical powers should not be taxed; she should do everything possible to maintain a very high standard of health, and avoid work, anxiety, or any depressing influence. Menstruation and sexual congress should be prevented during nursing. The health of the little one should be promoted by fresh air, good milk, flannel clothing, and in an especial manner by wearing the flannel roller round the abdomen until they are two years of age. Daily bathing with cold water, followed by friction. Cradle-rocking to modern infants, whose parents' nervous system has been developed at the expense of the physical, is very hurtful. Dandling, shaking or jolting is also very injurious. The little one should be kept quiet, cool, free from jolt or motion, and from the solar rays. Its diet, until teeth appear, should be the mother's milk; and if that is not sufficient, cow's milk, very slightly diluted; no starchy article of diet permitted to be used, nor sugar in any form.



Dwarf form of the comma-bacillus found in the green stools of cholera infantum; magnified 700 times.

As soon as the disease makes its appearance, vigorous means must be taken to arrest it; an emetic of the wine of ipecac, followed with sufficient doses of the neutralizing mixture to open the bowels freely, followed with lime-water and milk, and a plaster consisting of equal parts of pulverized allspice, cloves, cinnamon, peruvian bark, and a very small amount of capsicum, wet with vinegar, spread between fine book muslin, and applied over entire abdomen; taken off every three hours, the caked mass broken up and remoistened with vinegar, or if not that, concentrated ozone. An evening bath is also to be recommended; well dried and rubbed, and followed by inunction of several ounces of warm olive oil. If case does not improve, then give liver a rousing up by administering one or two grains of leptandra in a little compound licorice powder, following it up with teaspoonful doses of the expressed juice of raw meat every three hours; putting patient upon tincture of white hellebore, which has such an immense sphere of action on base of brain, eighth pair of nerves and liver—dose must be regulated by the physician in charge—and begin at once with bactericides. From among that class of drugs, the ozone-water, the sulphurous acid, or tincture of iodine and carbolic, or the solution of chloride of lime, salicylate soda, salol, lactic acid, resorcin, creolin, are probably the best to destroy the germ. Alkaline antiseptics, however valuable they may be, act rather freely on the liver. We cannot doubt the efficacy of the chlorate or permanganate of potassa, or sulphate of soda, but in few cases dare we sanction their use; so one of the above must be selected, and administered often and with regularity. The entire success or non-success in the treatment consists in the use of germicides and nourishments. Head to be kept cool; socks, with dry mustard, to feet; fever to be controlled with aconite; any brain symptoms, the bromide mixture; and, above all, keep up nutrition, confining diet to mother's milk, milk and lime-water, and juice of raw beef.

If the case recovers, and means are available, the child should be removed to the country, away from the pestilential influence of a large city; a tonic, antiseptic course of treatment carried out for some months, with such remedies as glycerite of ozone, ozone-water, cinchona, and aromatic sulphuric acid.

Prof. James M. Bunn, M.D., of Altoona, Pa., the most brilliant bacteriologist in that State, says: The comma-bacillus is the cause of the green stools of cholera infantum. This can readily be ascertained by a microscopical examination of the discharges, when there will be found an innumerable number of the pathogenic bacilli; the coloration is not due to the bile pigments, which are entirely absent, but to a peculiar pigment secreted by

the bacilli themselves, and which can be reproduced by artificial cultivations of the microbes. Bile is entirely wanting in the rice-water discharges of epidemic cholera, as well as in the green stools of cholera infantum. The disease in all its forms is essentially contagious, although indigestion, mal-assimilation prepares the soil, favors the production of the bacillus.

The greatest success in treatment is from the use of germicide remedies. Take either mucilage acacia or syrup of tolu, four ounces; add to it three or four drachms of resorcin, thirty drops concentrated ozone. Mix well; give half a teaspoonful every hour. Stop milk entirely; feed on barley water and port wine; the bacilli lodges and breeds in the casein; multiplies to an alarming extent in the casein clots. So starve and kill the germ. Paint abdomen with equal parts of con. ozone and chloroform—a powerful stimulant and germicide—arrests germ evolution.

Care should be taken to employ disinfection of the stools to prevent the spread of the disease, and, with proper care, we claim that this microbic form of diarrhea may be reduced to a minimum.

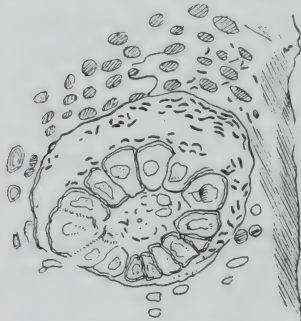
This term is applied to a condition of extreme nervous prostration, with cold skin, feeble pulse, interrupted respiration, cold breath, a cadaverous appearance of face, blue feet, hands, nose, ears, with nausea, vomiting, frequent motions of the bowels, with cramp or knotting of the intestines, and the cholera-germ in stools.

In our climate, with its inhabitants suffering from an incessant nervous strain or worry or struggle, we meet with cases of cholera morbus in all seasons of the year, chiefly among our adult males, although it is more prevalent when the system is enervated by heat, or when there are violent transitions from heat to cold. Climatic changes affect those who have their nervous systems prostrated by overwork or anxiety; and especially so if the stomach is irritated by offending material, as green or unripe fruit, some acid or acrid condition, acting on the stomach and liver as an irritant, or upon the brain, involving its base and eighth pair that supply the liver. The disease may be traced to other causes, but the true cause is to be found in a depression of the great sympathetic, eighth pair, and brain, the spinal cord being involved in the first dorsal vertebræ.

Bacteriology teaches us that in whatever way the microbe is evolved, either by nervous depression, aided by the irritating action of green fruit or vegetable, or some indigestible compound as clams, or some other irritant, the comma-bacillus is present in the bowels, actively, energetically excreting ptomaines, that deadly alkaloid which produces all the alarming symptoms of the disease.

Symptoms.—It usually comes on with nausea, soreness, pain in stomach, vomiting, purging, which rapidly exhaust the patient; when, by and by, those terrible cramps or knotting of the intestines by spasm, the features becoming cadaverous; breath cold; skin cold and clammy; hurried or short respiration; cramps in the legs; coldness of extremities; intermitting pulse.

Treatment.—This must be pursued with great energy. Administer at once thirty grains of bicarbonate of potassa in tepid water; follow quickly with an emetic of a mixture of equal parts of lobelia, capsicum and valerian. Repeat dose after dose, until emesis is very thorough. Use the same as an enema. After the



The comma-bacillus at work in the tubular glands of the bowels vigorously excreting ptomaines, the deadly alkaloid of *rigor mortis*, immediately sterilized on the administration of ozonized creolin.

stomach is thoroughly evacuated, continue with same remedy in small doses sufficient to keep down spasm of the bowels. Apply artificial heat to stomach, feet, limbs. Open bowels either with neutralizing mixture or compound licorice powder. Commence, as soon as the stomach will retain anything, with either the tincture of white hellebore and antiseptics, as ozone-water, or tincture iodine, and carbolic or sulphurous acid, peroxide of hydrogen or salol, or creolin, or naphthaline, or resorcin; or if these are not handy, then use eucalyptol.

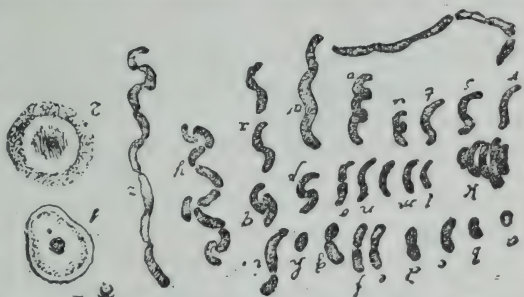
The lobelia compound is invaluable for relaxing of spasm and overcoming the prostration. If, after the bowels have been freely moved, the stomach is still irritable from the presence of the germs, and will retain nothing, administer the following: camphor, thirty grains; capsicum, ten grains; sulphate of morphia, one grain. Mix, and make ten powders; and, while triturating, add five or ten drops of oil of peppermint. Give one powder every half hour.

After the stomach has been quieted, continue with antiseptics and tonics until recovery is complete.

Human beings, whose nervous systems are devitalized by overwork, exhaustion, privation, anxiety, struggle for existence, and subjected to depressed electrical states of the atmosphere, extraordinary meteorological conditions, and the absence of ozone, have within their bodies certain living elements altered or degraded by those adverse conditions into the cholera-germ. There

Epidemic Cholera.

can be little doubt that this germ is the modified living matter, either of the base of the brain, the spinal cord down to the last cervical vertebræ, whence emanates the sympathetic, or else the eighth pair that supplies the liver. In proof of this, we often find cholera-germs, the comma-bacillus, in those whose nervous systems are shattered, and who suffer from diarrhea. Besides, the appearance after death points to those parts as being at the origin of the trouble. When once developed, it is capable, like all other contagious diseases, of being propagated by contagion and infection. It is not, however, contagious in a high degree, but can be carried by human intercourse, by clothing, merchandise, ships; undoubtedly often spread by water, milk.



The microbe of cholera (the comma-bacillus), the different forms it presents in its various stages of growth.

The symptoms of this disease are divided into three stages, which may be classed as follows:

Symptoms.—The symptoms of this disease are divided into three stages, which may be classed as follows:

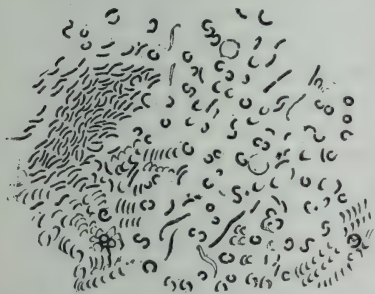
1. *Irritability*, languor, lassitude, sleepiness, confusion of head, pale countenance with nausea, vomiting and diarrhea.

2. In addition to the above aggravated symptoms, the discharges become light-colored and serous; white flakes and rice-water discharges appear; the pupils become contracted, spasms, cramps, coldness of body, with intermittent pulse.

3. *Blueness*, with rigid spasm, suppression of urine, collapse.

The general symptoms of those three stages in detail are as follows: copious vomiting and diarrhea; stools are entirely destitute of bile, and consist mostly of water, containing large quantities of epithelium and albumen, resembling rice-water; they contain also a large quantity of chloride of sodium; cramps in

muscles, causing them to contract into cord-like masses or knots; spasm; the pulse is soft and easily compressed; varies from ninety



From the rice-water stools of a case of cholera. Masses of single comma-bacilli; circular forms; semi-circular forms; magnifying power about 1400.

to one hundred and ten; general temperature 65° to 70° F.; the expression of the features is ghastly or cadaverous; eyeballs sunken, glassy; cold, clammy sweat; breath cold; so is the tongue and mucous membrane of mouth; distress at pit of stomach, with burning; albuminuria, suppression of urine; great thirst; circulation gradually diminished; respiration impeded; hence great prostration.

The heart now becomes affected; so do the blood vessels, by a spasm of their muscular coats. The sugar-generating faculty of the liver is suspended, so that there is an icy coldness of the skin and breath, and blueness of the lips and skin generally. The force of the germ-disease and its ptomaine is on the nervous system, which becomes early and decidedly affected; hence the unnatural and whispering voice, shrinkage of the entire body, pinched features, and contracted pupils; muddy-looking complexion; sinking of the eyes, pupil immovable, cornea flattened. If symptoms are not relieved, the breathing becomes less frequent, the whispering voice spasmodic, and if the pulse is at all perceptible, thread-like and intermitting; circulation arrested from paralysis of the heart; intellect clear; evacuations involuntary, and not a trace of bile in the stools. If the patient survive forty-eight hours, and exhibit signs of improvement, he may recover rapidly if the pulse rises and the stools become bilious, and respiration and circulation be restored.

But very frequently improvement is only temporary, headache, drowsiness, tonic or clonic spasm, vomiting, stertor, coma, ushering in death.

All those symptoms are due to the lightning-speed evolution of ptomaines by the microbe; so rapid that the bacilli have not time to elaborate in the blood, the ptomaine of the comma-bacillus, is like alkaloid strychnine, chemically, for if it be injected into any animal it at once produces diarrhea, vomiting, spasms, torpor, collapse, and finally death.

The appearance after death, aside from the rigid contraction and stony feel of the muscles are a white liver, effusion in the ventricles of the brain and spinal, the latter being congested and compressed by a serous exudation, in which ptomaines are abundant. Death is so rapid from the excretions of ptomaines that the comma-bacilli are not to be found in the blood, but only in the tubular glands of the intestines.

Treatment.—If an epidemic prevail, the most careful sanitary and hygienic measures should be observed, and the very highest possible standard of health maintained; the very best of food used; no green fruit; no alcoholic drink; no late hours; no mental or physical overwork; no overcrowding. The best pre-

ventive is small doses of sulphate quinine, and abundance of good food. On the very slightest derangement of the bowels, that is, nausea, vomiting, or diarrhea, give small doses of the neutralizing cordial, with tincture of opium, until it is relieved. At the same time, apply sinapisms of capsicum and vinegar over the bowels and down the spine; and, as a drink, give sulphurous acid in water. Any other symptoms should be promptly relieved, the patient kept in the recumbent position for a few days, and plain, nutritious food given.

If the disease has set in, and is seen first in its premonitory or first stage, the patient should be put to bed in the best ventilated apartment in the dwelling; its temperature kept about 80° Fahr., and arrangements at once made to have him surrounded with dry heat, heated sand in bags. The diarrhea and vomiting are evidently efforts of nature to get rid of the germ, and it is often a good plan right here to administer an emetic of equal parts of lobelia, bayberry, and capsicum. After it has acted, try some one of the following remedies in solution, so as to get the liver to secrete and discharge the bile: rub abdomen and spine with oil of capsicum cut with alcohol, and apply artificial heat, and let the drink be sulphurous acid and water.

Opium in every form is contra-indicated, because it increases the congestion of the cord. Large doses of bromide of potassa, ranging from fifteen to thirty grains, with ten of carbonate of ammonia, and twenty drops of tincture of calabar bean should be given frequently.

If the case is more advanced, pupi's contracted, spasms, cramps, coldness, blueness, intermitting pulse, these symptoms are promptly met with the following:

Tincture of lobelia, capsicum, and American valerian, of each one ounce. Give a teaspoonful in water every half-hour, and occasionally a dose of the bromide, with tincture of white hellebore. Cholera-germs are difficult to destroy, but with the lobelia compound we have had good success. Of all drugs in the materia medica, it alone retrogrades the growth of the germ, and sterilizes it. Its properties are really incomprehensible; it holds the position; no more are developed under its influence; it gives nature a chance to rally to legitimate work; every drop that is given benefits; the respirations becomes more frequent; heat increases; breath becomes warm; pulse, imperceptible at first, becomes wiry and full; blueness and contraction leaves the surface; the paralysis of the eighth pair is relieved; bile appears in the stools; spasm and contraction are relieved, and the eye acquires its brilliancy.

It must never be given to the point of vomiting; its action

must be guarded, and held on to, and persevered with, so as to enable the vital forces to recover themselves. Its action is immense in cholera. If sinking is threatened, compound tincture of capsicum and quinine should be administered repeatedly. Juice of raw meat, well salted, should be given often. If thirst is intense, iced champagne or chloride of sodium, carbonate of soda and chlorate of potassa in water should be given. If vomiting is incessant, medicine and drink in small doses every few minutes, with capsicum over abdomen. Dry heat, in the shape of hot sand bags around the entire body of the patient, reaching from axillæ to toes, and from the groin down the inner aspect of the thighs, and also along arms; while being changed, friction with tincture of capsicum. Hold spasmodic action in abeyance. As soon as stomach settles, keep on with juice of raw meat, and give antiseptics, as ozone water, or sulphurous acid, or carbolic acid and tincture of iodine.

In cholera the insulation of the patient is of great importance; bed in middle of the room, head to north, glass under feet of the bed.

The evacuations should be removed in a bed-pan, with a solution of sulphate of iron, and the greatest of caution should be exercised in diet, allowing little but beef-extract, milk and bicarbonate of soda, farinaceous substances, until bile appears in the stools.

Convalescence should be established upon cinchona and mineral acids, baths, irritating plaster the entire length of the spine, holding on to antiseptics for four or five weeks after recovery.

A morbid condition of the nervous system, characterized by a want of control of the motor nerves which supply the muscles in the waking state; which gives rise to irregular, tremulous, and ludicrous movements of the voluntary motions, most common between the ages of five and fifteen, among those of a neurotic temperament and feeble constitution; girls are more obnoxious to the affection than boys.

Causes.—It is supposed to originate in a jar, or want of harmony, between the gray and white matter of the spinal cord, probably brought about by falls, blows, shocks of various kinds acting upon a weakened cord and bulb. More active, exciting causes are anæmia and other blood diseases; teething, worms, dyspepsia, skin eruptions, retarded catamenia, constipation, cold, insufficient food, excessive loss of blood, pregnancy, disease of bladder, rectum, mental emotion, passion, masturbation, and

other reflex conditions at the origin of all starved cerebral areas.

Nearly one-half of the cases of chorea that we meet with in city practice is due to defects in our high-pressure system of education. Over-schooling produces a nerve shock, peculiarly liable to affect the nervous system of children whose food is meagre or adulterated (their brain is under-fed), or who live in the midst of insanitary surroundings. A city child is more feeble, less able to cope with disease, than those in the country; the law of reflex impressibility is keen in the former, and the daily endurance of mental toil, with its incidental shocks, produce a jar, a want of equilibrium, between the gray and white matter of the spinal cord, hence the chorea, the penalty. With a different system of education, a vast amount of child-suffering might be prevented.

Symptoms.—The commencement of this disease is characterized by nervous depression and debility. The involuntary motions begin by slight twitching of the muscles of the face; then other muscles become affected, and one or more limbs; features often curiously contorted and twisted; vacancy of countenance; articulation impeded; appetite irregular; often constipation; generally one-half of the body more affected than the other. Irregular action ceases during sleep. The disease may last for a lifetime and produce no bad results, whereas in other cases the nervous system becomes impaired and there is a rapid breaking down. It produces difficulty of respiration and retards the functions of the heart. It is apt to be attended with danger.

Treatment.—In the treatment of all cases of chorea, a complete change of habits and occupation, and a resort to the fresh air of the country; abundance of exercise, and a very generous diet, together with daily baths and friction to skin, are indispensable. The closest scrutiny of the case, as to whether there be any blood affection, or reflex irritation, especially of the genito-urinary organs. All causes must be removed, if possible, and a special treatment inculcated for each; the secretions well stimulated. The great impressibility of the nerve-centres must be seen to by the daily application of stimulants to each side of the spinal cord, as friction with stimulating liniments, the irritating plaster, ice, or use of menthol; some one of these selected, and, internally, bromide, scutellaria, calabar bean, sumbul. These latter not only relieve the impressibility of the cord to reflex action, but help to control the involuntary movements.

Whatever treatment may be deemed best to control the movements, sumbul or scullcap, we must ever keep in mind that there exists starved cerebral areas, which must be overcome by kepha-

line and *avena sativa*, and as the brain only picks up its pabulum from the blood during repose, sleep must be prolonged indefinitely.

Our best curative drug in chorea is the ozonized extract of sumbul, being a powerful antiseptic. It reaches a class of cases, in which the malarial, rheumatic and other microbes play an important part in the excretion of ptomaines. The remedy kills the microbes and neutralizes the poisonous alkaloid in the intestines, and thus diminishes reflex irritation.

The jar or want of equilibrium between the gray and white matter of the cord is completely arrested during sleep. It is therefore, a good plan to prolong sleep and thus cut short the mischief which is being carried on in the nerve-cells by the incessant, unnatural activity. Prolonged rest affords an opportunity, a restorative, to the discordant nerve-cells to be at rest.

Massage is most effective, persistent for two hours, morning and night; induces sleep.

Sulphonal and paraldehyde are efficacious remedies, in alternation with the sumbul.

The patient should be put upon an alterative and tonic course, and special remedies as to its cause.

If retarded menstruation be a cause, in addition to the bromide, pulsatilla and caulophyllin; comp. betin pill and acetate of iron.

If rheumatism be suspected, manaca, salicylate soda in liquor ammonia acetatis; cascaradyne; colchicum, phosphate of quinine; uric acid solvent ozonized.

If it has appeared subsequent to the metastasis of a skin eruption, ozonized sulphur water; lycopodium, saxifraga.

If uterine irritation is suspected, pulsatilla, aleteris farinosa wine, Indian hemp.

If due to fright, mental distress, belladonna, stramonium, macrotys, nux.

The usual remedies if worms are suspected.

If due to disease germs in the blood, saxifraga, phytolacca.

Other remedies sometimes successful are arsenic, bromide of gold, nitro-glycerine, *avena*; this latter being a powerful nerve tonic and food, is admirably adapted to imperfect development of the nervous system, whether partial or general, and is markedly suitable to children who are precocious, whose assimilative functions are not up to the task of supplying the waste consequent upon active brain expenditure; such children while needing rest and restraint rather than encouragement in the development of their faculties, will be so greatly improved in physical strength by the use of the oats as soon to resume their intellectual training.

Chylous urine, or the excretion of urine of a milky appearance from the presence of fatty matter in a molecular state. In addition, there is generally present liquor sanguinis, blood-corpuscles, fibrin, and albumen. The urine, after standing a little while, coagulates into a trembling mass resembling common size or blanc-mange. Common in tropical latitudes, and is associated, not always, but in many instances, with the filaria in the blood.

Associated with this condition of the urine, there is great lassitude and debility; pains about loins and stomach; very great mental anxiety; loss of flesh. It is usually intermittent in its nature; chylous for months; healthy for some space of time, and then recurs on and on.

Treatment.—Sea air, salt-water baths, very nourishing diet; flannel roller over abdomen; tonics, such as Warburg's tincture; eucalyptol, kurchicine, cinchona, and mineral acids.

According to the last census, there were three millions of women in the United States between the ages of forty-five and fifty, undergoing the change of life, and this number is annually kept up by fresh recruits; so that we have, at all times, about that number. The importance of the period, the history of suffering endured, cannot be approximated; neither has its diseases been adequately investigated.

The terms, change of life, turn of life, critical period, etc., are understood to mean a period of life beginning with those irregularities which precede the last appearance of the menstrual flow, and ending with the resettlement of health on a new basis. This is usually divided into a premonitory period, the actual stoppage or cessation of the flow, and the adaptation of the system to the change. The first indication of failure of ovarian energy is irregularity, when the failure is complete, perfect cessation.

Although it is termed a critical period, it is not to be deemed fatal, if the patient's system is healthy. It is a gradual change, leading to better or worse; to complete recovery more frequently than to death.

The streams of life, instead of flowing on in a smooth, tranquil current from the cradle to the grave, are marked by rapids, or milestones, which are critical, metamorphic, or developing epochs. Seven, fourteen, twenty-one, are clearly and distinctly written on the first part of life; forty-two, forty-nine, and sixty-three, are less deeply cut, but are distinctly visible in the latter period of life. Those periods are characterized by important changes,

which give a peculiar aspect to the physiognomy of the human body, and impart a family likeness to the diseases of epochs justly deemed critical, in which one or several organs of the body undergo changes. The object of each critical change in our bodies is to insure the greatest amount of health for each subsequent period of life. This object, if the vital forces are of average strength, is effected quickly; but if there be debility or disease, then there is more or less disturbance, according to the degree or intensity of that state. The critical changes of dentition and puberty are frequently brought about without any disturbance or ill health; nevertheless, they are often followed by debility. At critical periods the activity of important apparatus may be too powerful, and disturb other organs, or too feeble to react on others. When the energy of the preponderance-seeking organ is above or below par, health may be impaired. With regard to the influence of critical periods of life, first and second dentition influence both sexes alike and in the same way. Puberty is common to both; but the impulse given to the constitution of man, by the perfect development of the sexual apparatus, is, in general, fully effective and all-sufficient to insure its permanent activity until extreme old age; whereas, in women the crisis is very liable to be delayed or perverted; and even when puberty has been fully and effectively established, the health of woman is dependent on those oscillations of vital force, which render it most uncertain. The chemical activities of a woman cause her to mature early; the inertia of man's nature renders him slow, late in maturing. The same inherent qualities of sex give woman an early change; whereas, man's change is delayed (if not too early precocious) till a good old age, he being capable of begetting children to seventy or eighty; whereas, the moment a woman changes, fecundity ceases. It is true that children begot by very old men are of very feeble vitality. Although most women change at forty-five or forty-seven years of age, it does not follow that sexual appetite is extinct. Sexual congress may not be enjoyed by some, whereas others never have a warmth of feeling until the change of life takes place. The large proportion of women, on cessation taking place, become callous, indifferent, lose their sexual vivacity and vigor.

Menstruation, healthy or morbid, marriage, pregnancy, parturition and lactation, are critical eventualities in a woman's life, curing some complaints, giving greater activity to others; and when, after having lasted thirty years, the action of the reproductive organs is being withdrawn from the system, then there arises a series of beautifully adapted critical movements, the object of which is to endow a healthy woman with a greater degree of

strength than that which she had previously enjoyed. But this will not occur if there are disease-germs lurking in her system, such as cancer, tuberculæ, syphilis; then the seeds of those germs, when vital force is low, are liable to become active and destructive; because the very essential of the change, debility, brings them into active growth, and causes them to locate and grow in the very organs in which the change is progressing. The change stimulates their growth; imparts to them fresh activity. So, as a rule, it is at this period we meet with the greatest proportion of cases of cancer of the womb, and breast, adenoma, and other tumors. The change of life is only critical to the diseased. It is only they who need fear the crisis. To the *healthy*, to those who live according to natural laws, eat healthy food, avoid balls, tight lacing, bad literature, and sedentary occupations, nothing is to be feared. It is well to make no hap-hazard prediction, but if there is no disease, the process will not be critical. True, the disease may be got rid of; if so, it will mitigate the condition. The change does not cause disease; it detects it, brings it into active existence, and causes an aggravation of it. Thus congestion of the womb, chronic inflammation of the ovary, etc., existing at the change, become excessive. Disease has little tendency to leave or become inactive or quiescent during the change.

The critical nature of a period is shown by its effects on the health in ensuing years. Thus puberty is not only a crisis of most of the complaints of the preceding years, but it determines the health of the subsequent thirty-two years, for good or evil. In like manner, the change of life, if it can be consummated in a salutary manner, will influence the succeeding period; nay, it will govern the whole subsequent period of life. So we can prognosticate, from the manner of the crisis, whether the after-life shall be good or bad. Five years after a woman ceases tells its own tale in the great additional strength of constitution. The greater sanative change, the greater longevity of woman after the period, her less liability to disease and death, her very remarkable good health, and almost total immunity from the general run of ailments render her last stage of existence a comfort and a blessing.

From forty to fifty-five is a general period of invigoration for both sexes—a period in which the daily work of nutrition is very actively carried on in our bodies, rendering them stronger, more vital, healthier, and thereby insuring a more perfect performance of all the functions. The change in man is carried on insensibly, and worked out without disturbance. In woman the passage is often full of danger, if natural laws have been violated; but the

very great improvement that follows the change is so salutary as to compensate for all the suffering.

Although the phenomena of change of life are principally due to withering of the ovaries and suspension of their functions, it is aided by and associated with other structural changes, which take place in both sexes, due to coming age, such as the ossification of the cranial bones; atrophy of spleen, and lymphatics; changes in bone, marrow; degeneration of some form; a smoothing down of Peyer's patches in the bowels, and some shrinkage of the brain proper. But after cessation a woman's constitution is entirely remodelled; she takes a new lease of life; decay and suffering have then less hold on her, and she begins life anew. The importance of the change cannot be too highly rated, especially if easily passed; for if it is accomplished without much disturbance, so will the future period be healthy; but if gone through with great suffering, then we may expect the subsequent time to be one of long-continued misery. It is a final settlement for good or evil, and it may be reasonably entertained that if it does not excite the activity of some disease-germ in the body which previously existed there in a quiescent state, and the violence of the change be not excessive, it is reasonable to conclude from thousands of pre-existing cases that the rest of life will be passed in uninterrupted good health, and unusual longevity attained. The invigoration of the health which follows is often accompanied with a great improvement in personal appearance—where the thin and emaciated become fat and comely, where the timid become bold and daring; while another class become masculine, and lose their feminine appearance; their cheek bones project, the skin loses its velvety feel, creases show themselves, and stray hairs start on the upper lip or face.

The effects of a suspension of ovarian action has a marked influence on all the emotions, desires, affections, passions, as well as on the brain proper, giving rise to debility, prostration, nervous irritability and confusion.

Puberty and change of life are caused by physiological and anatomical changes in the same organs: puberty is ovarian evolution; the change of life, involution or stoppage. The true seat of both is in the reproductive centre in the brain; the one growth, the other death to that special centre; the ovaries being merely the organs to perform the work.

When, with proper age and perfect blood development, this coordinating reproductive centre in the brain matures (puberty) the seed or egg organs, the ovaries, increase in size, become very vascular, and begin to let fall ovula or eggs every twenty-eight days, and cause in modern civilized women menstruation. When the

reproductive centre in the brain dries up, which it usually does after thirty-two years of activity, the change has come; the ovary or egg-bed, which, during the active period was smooth and turgid, becomes dried up, shrunken into a knot like a peach-stone, and it becomes difficult to trace the cavities of the Graafian vesicles, for their walls are pressed together. A few years later they shrink; wither still more; become atrophied, so much as to be no larger than a bean, and latterly completely obliterated, being marked by fibro-cellular tissue. This ovarian atrophy, or shrinkage, or wasting, or withering, comes from a want of germinal influence from the brain; there being no use for the organs, they wither and die. This change is accompanied with corresponding changes in the fallopian tubes, determined by the same cause; these tubes contract, wither, become impervious and perfectly obliterated. The same condition of non-use, want of stimulus, or enfeebling energy causes the womb to contract, become small, round like an orange; its neck becomes thinner, and shorter, and obliterated, and in some cases an obliteration of its mouth takes place. The vagina becomes very narrow, short, and there is a shrivelling up of the pampiniform plexus of vessels which previously supplied the organs with blood, which accounts for the remarkable coldness of the parts. Incidental to this general collapse, the broad ligaments that retain the womb in its position also shrink and disappear. The breasts, which are a part of the reproductive system, also become cold, small and wasted. During the change they are often seriously affected, being painful and congested, if not otherwise diseased. It would be a matter of infinite surprise how so many phenomena of health and symptoms of disease could be determined by two little bodies whose structure does not appear complicated, but the fact is unquestionable that not the bodies, but the brain, is the source or seat of change. The ovaries are energized by that nervous centre of sexual power located in the spinal cord, opposite the fourth lumbar vertebræ, and supplied from the cerebral centre; but although a central act in the brain through the cord, there can be no perfect exercise of sexual power without well formed and healthy ovaries. The ovaries influence all parts of the body (directly the cord and brain) through the medium of their nerves, for as they have both ganglionic and cerebro-spinal nerves, they can react on both the ganglionic nerves and their centres, and the cerebro-spinal and their central organs.

Whether the ganglionic be an independent system of nerves, or an offshoot of the cerebro-spinal nervous system, it is not necessary here to discuss. All are agreed that vaso-motor nerves follow every capillary to their minutest ramification and govern

the nutrition of every part of the body. All organs of nutritive life are supplied with ganglia and a plexus of ganglionic nerves; but they all communicate together, and with a larger plexus and more voluminous ganglia, situated in the viscera of the abdomen. And before those foci of nervous matter were discovered, this region, that is the ganglia on the bowels, liver, spleen, bladder, kidney and reproductive organs, was called the lever of forces by which the body is moved. Sensation and motion are dependent on the cerebro-spinal nerves, nutrition on the ganglionic; but there is a concentration of ganglionic nervous power in the central ganglia which gives and receives from each viscus a variable impetus. The ganglionic is a centre of nerve force, capable of controlling and disturbing the various parts of the body by its nervous fluid or soul.

The human body is so constructed that the various component organs act upon each other in the way most conducive to health, until the age of puberty. At that time health may fail and the whole system languish, unless the reproductive organs come into full activity. From puberty to the change of life, the health of woman cannot be maintained without an energizing influence from the reproductive centre in brain and cord, so as to impart an appropriate amount of ovarian influence. If the ovarian energy reacts under proper nerve stimulus in a healthy way, it will augment, vitalize, energize the visceral centre, or brain, and cause the function of nutrition to be performed with increased energy; give vigor, instinctive consciousness of strength. If the ovarian energy be insufficient, the abdominal brain, the visceral centre of ganglionic action, is half or partially paralyzed, and uneasy sensations are felt at the pit of the stomach, a feeling of sinking, of faintness, goneness, or even actual fainting is sometimes induced; defective nutrition follows, with anæmia of the cord and brain, vulgarly termed hysteria, met with at puberty, during pregnancy, lactation and change of life. If the brain does not furnish the necessary amount of ovarian stimulus, so that evolution is inefficient, the menses will come on in an irregular way, off and on and likely scanty; if it be too strong, as under emotion, passion, it will react upon the adjacent viscera and cause violent disturbance.

All the organs in the chest and abdomen are, on their front part, covered over with the cervical sympathetic, similarly endowed with ganglia or little brains. They are knit together by a mysterious net-work of nerves; they sympathize with each other at puberty, menstrual period and change of life, and in this way any disturbance of the ovaries, irrespective of reflex states, will give rise to nausea, sickness, depraved appetite and deranged

bowels and kidneys. If the ovarian stimulus be too great for the allied abdominal organs, there may be pain in the ovaries themselves; pain, disturbing sensations, irritation which may be transmitted to a weakened cord and bulb, then hysteria, tetanus, nervous irritability, restlessness, hysterical convulsions, or there may be a numbness in skin and other parts.

The strength or relative weakness of the nervous system may be inferred from the condition of anæmia of brain and cord that is present. The solar ganglia in both sexes form an important centre of nerve force. Insufficient ovarian influence having reached the solar plexus affects the brain chiefly by means of the pneumogastric nerve, so any disturbing influence at puberty, pregnancy, parturition, change of life, may be shown by the distressing headaches, fretfulness, peevishness, irritability, capriciousness, perversion of the moral nature, moral insanity. In other cases, excessive or disturbed ovarian action is manifest by high spirits, or depression, a cloud or a weight on the mental faculties, haziness of mind, brain muddled, memory faithless and an unquenchable desire to sleep during the day, remaining awake all night, almost amounting to coma, or lethargy.

From puberty to the change, healthy women, when not pregnant or nursing, drop ovules every twenty-eight days, and, as a rule, modern civilized women lose about four ounces of blood. But there are women in perfect health, who live according to nature's laws, eat healthy food, avoid modern literature as a destructive ovarian poison, that have perfect ovulation, are easily impregnated, and whose womb does not bleed on the shedding of the egg in the ovary and dropping within its cavity. Those women enjoy the highest possible standard of health. Indian women, in their aboriginal state, seldom lose blood at the monthly period; nothing but a white, glairy discharge.

Sexual involution has an ill-defined beginning and end, and only one fixed date, cessation. The activity of the menstrual period is usually thirty-two years, between fourteen and forty-six; but there are cases, once in a while met with, where the menses stop as early as twenty-one, twenty-eight, thirty-five, and at all periods up to sixty-one. The average, however, is forty-six in healthy women, and more cease to menstruate at forty-five than any other period in life. It depends greatly on accidental conditions of life. Blows on the head or back, frights, and other nervous states may prevent its appearance, and arrest it at any time, either when the discharge is on or off, and if the shock is grave, forever. Its continuance depends greatly on the state of the health, the richness and purity of the blood, the freedom from worry, struggle, shocks, jars, and uterine and nervous

disease; but taking all these into account, the average among our ladies is forty-six. Races, being essentially distinct, have each their peculiarities in menstruation. It is said that the Hindoo women run from twelve to sixty, when free from disease; and the Laplanders and other races have different peculiarities and eccentricities.

Ovulation and menstruation stand together, very nearly as cause and effect. Periodicity is an element in woman's nature. Vaginal blood, even if it occurs with periodicity, when late in life may not be menstrual, but may come from congestion, ulceration at the neck, polypi, and other morbid states. Still there are, as we know, rare cases of cessation at sixty-two, or later, in strong constitutions; so it is well to be guarded. Cases at sixty and seventy menstruating are mostly due to some disease. Out of one-half million women who become mothers from under twenty to above fifty, seven thousand bore children from forty-five to fifty years of age, and one hundred and sixty-seven were mothers after they passed their fiftieth year. Cases of menstruation admit of great variation. Isolated cases are met with at six; more numerous at eight to eleven. Still there are a greater number late, from eighteen to twenty-two; while the general average does not vary from fourteen to forty-six.

The Irish, at home in their salubrious atmosphere, with a fish diet, are remarkable for their fecundity. Their nervous systems and their ovaries are endowed with wonderful activity. The fish-eating and oat-meal-consuming races, as the Scotch, Swedes, Danes, Canadians, have strong procreative powers, and reproduce themselves speedily.

Ovarian activity, then, is commensurate with constitutional vigor. An unusual prolongation of ovarian life and longevity indicates a healthy condition of the functions of vegetative life, and when prolonged, it implies great vigor, strength, and endurance, and means a good old age.

During the wear and tear, struggles, hopes, cares, sorrows, vicissitudes of life, the ovaries are often simply paralyzed, and their action suspended; when the difficulty is removed their function will be resumed. Visceral disease has the same effect; when the disease is cured, and better health brought about, their activity is restored. There may be a stoppage for a long time, and then a recurrence.

A woman past the age of fifty-three may be regarded beyond the age of child-bearing, except in very rare and exceptional cases. Pregnancy late in life is often mistaken for other diseases; and late labor is dangerous to the mother; indeed, it may be regarded as an extraordinary risk.

Cessation is often delayed by morbid blood and affections of the womb and nerves, ulceration of the os. We will again repeat that there may be uterine bleeding without menstruation. It should not be called menstrual unless it occurs between fourteen and forty-six; comes periodically, or with periodical paroxysms, and the blood has the characteristics subsequently described. On the approach of a fever, or pneumonia, or intense worry, or excitement, the womb of an elderly lady may bleed.

Early cessation is very common, and consists in a premature paralysis of the ovaries; and this extinguishment of the reproductive force may be caused by hard work, worry, miscarriage, or induced abortions, falls on back, cold, fright, wet, purging, cholera, fever, long trouble, drugs, occupations—all paralyzing influences. It is called early any time before forty-six, whether it be at twenty-one, twenty-eight, thirty-five, or forty-two. This condition runs in families; mothers and daughters resemble each other in this special department only. Women of the same family usually begin to menstruate at the same date; have the same kind of trouble, same eccentricities, same complications; cease at the same time, with the same peculiarities; and even die under the same conditions. In this alone they resemble the mother; in their mental characteristics and conformation, they are specially the same as the father.

Prostitution has a fearfully deteriorating influence on both brain and ovaries, and causes a loss of reproductive power. The vagina of a woman whose sexual act is loose and varied is cold; it has lost its vital vigor and contractility; it has no vivifying influence on the male. Its mucous membrane is purple or livid; it has none of the cherry redness of the virgin, and it is even in a more dilapidated condition than that of the woman after the change. As a consequence, if they live over the three years allotted to their abnormal existence, they change, irrespective of age. Even the conditions of life have a modifying influence on menstruation and change; the former comes on late in the poor and ceases early; whereas in the rich, it is early and holds on longer.

Menstruation usually takes place about the period of full moon in about two-thirds of all cases; the other one-third, in the middle of the month. In spite of this disparity, there can be no doubt but that ovulation is regular, inevitable, uninterrupted; but the menstrual function shifts, owing to some special attribute of the nervous system, and this fact shows that it is governed by nervous influence, and explains how strong emotion may repel or alter the time of its appearance.

Menstruation is the effect of ovarian action, the shedding of an

ovule; but the menstrual flow, or a discharge of blood can occur without ovulation, just as ovulation may occur without menstruation. Nervous emotion, over-exertion, reading sexually exciting literature, passion, hearing disagreeable news, fatigue, quarrel, and jars, will bring on menstruation in some ladies without an ovule being shed. That sudden passion should cause the uterine surface to perspire blood is a well-known effect.

Taking all the facts into consideration, it is more than probable that the recurring monthly discharge in the human female is a secretion, or rather excretion, from the lining membrane of the uterus and fallopian tubes, without degenerative change other than that commonly associated with augmented functional activity, and comparable with that occurring in any other organ of the body under similar circumstances.

The average duration of the menstrual function is thirty-two years, which is the possible duration of female fecundity, and that of each successive generation. The mode of stoppage in the largest percentage of women is by gradual diminution of the flow; by a sudden stoppage of the usual flow, or by a flooding or successive floodings, or by alternate copious or scanty flow, or at irregular intervals longer or shorter than twenty-one days. The greatest number exhibit a diminution, a gradual decrease in quantity, and also in the time of its duration; the other class, where it is erratic and the duration irregular; the next class, where there is flooding, the flow growing less and less, and at long intervals apart, till it becomes a mere show. The discharge, at first like blood, becomes blacker and blacker, clotty, then like cinder-dust or dirty-green water; in other cases like a lochial discharge, in smell. The menses, in health, are not to be regarded as pure blood; there are certain chemical elements in them induced by the brain, ovarian act, the presence of the ovule, that renders this blood totally different from the blood circulating through the lady's body; so much so if it is absorbed, owing to sudden suppression, it will not mix, but is thrown off at some weak point in the skin, lungs, nose, bowels; it is sweet, not saltish like pure blood, but prior to and during the change it is still further altered in quality, whether it be scanty or profuse, at first paler in color, or later, brown or simply green water. As a rule ovarian influence begins to fail before menstruation becomes irregular, because when the sexual organs are healthy their loss of power is gradual, the ovarian forces become feebler and feebler until they can no longer determine any influence over the uterus, and the discharge subsides.

The Period Before and After Stoppage.—The date of the last regular menstruation is to be taken, and the time calculated dur-

ing which the flow became irregular, scanty and the health unsettled. The length of the premonitory stage of irregularity, off and on, varies from a few months to six or seven years; the average time being two years and a half before, and two years and a half after. This divides it into two periods of pretty nearly equal length; the period before, with its varied symptoms, is followed by a period after, in which every twenty-eight days there are sensations of a peculiar kind, which continue along growing less and less. These monthly occurrences are very varied, embracing lumbar and abdominal pain, leucorrhœa, headache, diarrhea, bleeding piles, hysteria, asthma, debility, sweats, dyspepsia, stomatitis, swollen gums, legs; usually lasting four or five days.

When all is over, the perfect recovery of health, and its re-settlement on a new plan takes two or three years, after which women are not liable to debility, floodings, sweats, heats and other unpleasant symptoms of the change.

Diseases, with which a woman may be accidentally affected at the change, may bar the progress of involution, and protract it indefinitely. Fibroid infiltrations in the uterus have been known to delay the change for many years. The ovaries may be shrivelled and shrunk; reduced to an amorphous mass of fibrous tissue, while the womb is still large, and bleeds promptly every twenty-eight days. These events are of vital importance, especially when disease-germs have been lurking in the system for years, as it brings them into active existence.

The great quicksands and precipices which a woman should avoid during ovarian activity are sexual excesses; the use of drugs; abortions, or miscarriages; and our modern demoralizing literature; these, if indulged in, shipwreck her existence at the change.

The removal of the ovaries during the thirty-two years of activity, induces an artificial, but genuine change. This proceeding is sometimes necessary; this castration of the ovaries is performed when menstruation causes very serious and grave disturbance of the nervous system, as mania, epilepsy, or when they are affected by disease, as interstitial fibroid infiltrations, or tumor, that give rise to flooding, or other very fatal condition. Castration is a grave proceeding; dangerous to life, by inducing peritonitis, and forever renders sterile the woman, and never should be done without the consent of the patient and her friends, and after consultation with several other physicians.

The question is frequently asked, "Is fecundity possible during the change of life?" Yes, if there are properly matured eggs evolved; but after the forty-sixth year the chances of fecundity diminishes, becoming less and less every year; but it is possible

just so long as eggs mature and the menstrual flow appears, however irregular the latter may be ; cases have occurred under my own observation.

Is fecundity possible after cessation ? Most assuredly, no. If the ovaries have ceased to evolve eggs, if they are withered and wasted, shrivelled up and inert, the woman is as barren as a stone. We have already stated that evolution is not indispensable to menstruation ; that with very high vital force, ladies may pass eggs or shed ovules without discharging blood, and become pregnant without ever having the menses. Healthy women never menstruate either during pregnancy or nursing, but there are many nowadays who do. Conception has taken place before menstruation, so it is only possible when the ovaries and brain are healthy, and when ovules are thrown off, irrespective of the numerous eccentricities of the generative function.

There is a perfect remodelling of the system at the change of life. For thirty-two years, every twenty-eight days it has been habitual for a healthy, unmarried woman to lose an ovum, and with it four ounces of blood, so that when the great crisis in life, the change comes, there will be numerous efforts on the part of nature to get up various contrivances, compensating discharges and drains, which act as waste-gates, until health is restored or permanently re-established on a new basis. Those compensating agencies are varied and numerous, and embrace the various natural outlets, as the skin, lungs, urine, stool, hemorrhages and obesity.

Women at and after the change exhale a much larger quantity of carbon than before ; their urine is loaded with brain waste in the form of phosphates and chlorides, which indicates a great revolution in the nerve centres ; the lithates are abundant also, which shows that nitrogenized elements are undergoing chemical change. The secretion from the skin is very great ; there is great heat, intense radiation, exhalation, evaporation, dry flushes : so much so that the caloric of the elements of chemical change bursts in flushes from the face, neck, chest and other parts of the body. The pulse is not accelerated, nevertheless the generation of heat is indescribable ; the patient requiring little clothing, and during the intense cold of winter will have doors and windows open. Those heats are independent of another class, namely, the heats and colds of nervous depression. The heats or flushes of the change are like hot waves, frequently wafted from the surface of the body eight or more times per hour, decreasing after the change has taken place, and disappearing in two or three years. It is rare for them to continue long, unless the patient is subject to worry or some form of nervous irritation. The face, neck,

breast, hands, feet, nails, feel like fire. Florid, sanguine women have a greater power of generating heat than the thin and nervous; in the sanguine temperament there is greater buoyancy, more hopefulness; molecular change is greater than in the dark or bilious; there is less resistance to change; consequently the heat generated is greater, and they suffer terribly from a variety of conditions from which a woman with black hair and eyes is almost exempt. Sweats, copious and persistent, are also present. Vicarious discharges are very common if there be weakened patches anywhere, as bloody discharges from the nose, mouth, lungs, skin, etc., if these parts are feeble.

The effect of the change on all women is to cause a perfect remodelling of their physical and mental traits: the lean become stout; they experience a great improvement in health. The robust or fat do not fight the battle of the change so well; they cannot convert their superabundant blood to other uses rapidly enough; they drag along very slowly; are more liable to hemorrhages. The breasts in all atrophy, but if women gain flesh or get stout, they usually become quite heavily loaded with fat and become pendulous. Once the change is consummated there is often a grand remodelling of the intellectual faculties, and it is satisfactory to know that the highest grade of intellectual culture, the most profound studies, can now do no harm; so it is at this period of life only that woman should engage in literary and scientific pursuits.

Its Cause and Treatment.—Before considering **Change of Life.** this subject in a practical light, it is necessary to have a proper knowledge of the generative organs of woman: they must be looked at in an anatomical, physiological and pathological condition as the great motive power, the potential lever of the world. It is the nervous system of the female reproductive organs that specially solicits our attention, as it is there, in its deep abyss, in its incomprehensible structure of animated tissue, that the ovum or egg is evolved, before any microscope can detect its organization.

In another part of this work, we divided the nervous system into three parts, although essentially one, a unit—the brain proper; the cerebellum and spinal cord, with the reflex centre, the medulla oblongata; and the great sympathetic or ganglionic nerve centre in the chest and abdomen; those three points, essentially one, work for each other; any damage done to the one injures the other two. The three persons in this trinity are co-equal, but as the uterus, ovaries, etc., are covered on their front part with the sympathetic or ganglionic nerves, we speak of it more

frequently, and as it is the potent instrument of life, a wondrous power, the citadel of the soul, we may have to recur to it again and again.

Definition.—Change of life may be defined to be that state in which the brain and cord fail to impart the necessary stimulus to the ovary, so as to enable it to secrete ova. It is a change, a crisis, a critical period, a failure to elaborate ova, and cessation of the menses.

Causes.—Although there is but one cause—a failure of the ovaries to shed ovules—still to be more explicit, we will arrange the causes into exciting and real. It is to be understood that it is just as natural for a healthy woman to shed ovules every twenty-eight days for thirty-two years, as for a tree to bear fruit. The exciting causes that bring about a sudden or early change may be any disturbance of the abdominal brain, as violent emotions, intense or unhealthy desires, grovelling affections, degrading passions; hence, fright, grief, worry, struggle, emotional or sensational reading, masturbation, promiscuous sexual intercourse, predispose to a change. Deleterious trades, or occupations, in drug or chemical laboratories are productive of ovarian change. The use of such drugs as bromide of potass, belladonna, ergot, opium, chloral, mercury, iodide potass, all acronarcotics, will in time produce effects analogous to castration—dry, wither, choke the springs of life. Blows on the head or back, poor or diseased blood, disease-germs of typhoid, of syphilis, cancer, tuberculæ, etc., are exciting causes.

The true exciting cause is when the brain and cord fail to send the stimulus to the ovaries, and as a result they are sterile, barren; then, as there is no further use for the organs, they shrivel up, waste, and disappear. The uterus also becomes inert, its normal waves are gone, even the source of their nutrition; their special plexus of vessels, not being needed, wither and become obliterated.

Symptoms.—In enumerating the symptoms, it is not our purpose to describe the changes that take place in the skin and bones, the vertical wrinkles and hair on the lip, or stray hairs; nor the atrophy of the ovaries; the changes of the womb, the obliteration of its neck and vessels; nor other changes. What we are desirous of doing more especially is to describe a train of symptoms, several of which are present in every case, and imperatively demand medical assistance. We shall begin with those of most frequent occurrence. We have already stated that there are at all times three millions of women between forty-five and fifty years of age, in the United States, undergoing the change of life. Now, it is fair to presume that one-half have lived in a

natural way, in conformity to natural laws, and pass over the change so easily as to seldom require any medical aid. The other half are those that suffer from one or more of the following symptoms :

Nervous Debility, with great languor and lassitude, is present in every case to a greater or less degree. It begins with the first indication of a change, grows worse and worse till final cessation; when that takes place it grows less and less till health is re-established. This is an essential symptom of the critical period, and usually begins to affect most women about forty. Some of the phases of nervous debility may be due to the ordinary wear and tear of life, and are common to both sexes; but at or about the change they form a special group by themselves, occurring with greater or less aggravation in different ladies, variable in each individual, never two alike, and most marked about three years before the complete stoppage, and continuing three years after the change has been completed and a new basis of life established.

Nervous depression, debility, weakness, or some form of nerve tire or trouble, is present in all cases. It is a marked characteristic symptom either in the brain, cerebro-spinal system, or ganglionic. The nerve prostration never slackens its pace, but persists till the change is accomplished, simply modified by location of weakness. It is a perfect revolution; when the stoppage or dropping of eggs ceases every organ supplied with the sympathetic is affected; the spleen, kidneys, liver, larynx, face, bowels, womb. The three brains have worked harmoniously for thirty-two years, and now there is a disturbance. This disturbing influence generally shows itself in a diminution of the flow; in a weariness, a torpor, a lethargy, headaches, and an indescribable feeling of goneness; the brain and cord fail to give an adequate stimulus to the ovaries, and energy is impaired; the ovarian loss itself gives rise to mild or severe nervous disturbance. If there be disease of the sexual organs the symptoms of ovarian disturbance will be more severe, and prolonged beyond their natural termination. If there be something in the nervous system eccentric, the reaction on the ovaries may be analogous to shock or paralysis.

We cannot be surprised at the immense train of nervous symptoms so common at the change, when we reflect on the great volume of brain concerned in the evolution of the eggs, and its complicated and artistic structure, rich in gray or intellectual matter; and when we turn to the visceral brain,—the ganglionic nervous system,—that incomprehensible seat of life, of vital force, of good and evil, located, centralized, and congregated into little

lumps of nervous matter, bound together by tangled skeins of nerves, reflected over the viscera, not only the seat of power, but guides nutrition, healthy and morbid, and controls the action of blood-vessels, heart, and lungs.

The third brain, the ganglionic system, and great sympathetic, is an offshoot from the cerebro-spinal at the junction of the last cervical with the first dorsal. The ganglia are scattered everywhere over the viscera, uterus, ovaries, and contain every kind of nerve matter, but are extremely rich in gray or sentient cells. These ganglia must be considered as little brains, each having its own range of power; being very sensitive, through them the brain becomes cognizant of ganglionic impressions. The ganglia serve for a storage of power, of vital force—a source of energy for the sympathetic; the fountain from which ganglionic nerves draw their supply; by the currents of which the capillaries and nutrition is maintained.

The centralization of vital force in the solar plexus and sympathetic renders the abdominal brain of immense importance at the change of life. To show its intrinsic value and its intensification of power, a blow on the stomach will cause instant death, and yet leave no lesion or mark to explain the cause, not a trace. The ganglionic nervous system furnishes to the human frame a nervous influence, a reservoir of nerve-force, giving to the cerebro-spinal a power of which the human mind only recognizes the force when it fails. In the reproductive organs of women, a prominent symptom, even in health, is occasional nerve prostration at menstruation, or after connection, parturition, or nursing; many women feel a great loss of energy. Woman cannot pass through any stage that communicates life without a momentary loss of a portion of her own vital energy. She reminds us of those animals that die when they have transmitted life to others. Nervous debility is so constant, and so intense in all women at the change, as to be fairly considered the primary symptom; and it is justly so; and her complicated mechanism readily explains it. Her nerve exhaustion fairly causes her to lose her equilibrium, and some special nervous disease is like to supervene.

Flushes of Heat are present in about eighty cases out of one hundred, and slight heats and colds in the balance. This symptom is present to some extent in all cases of nervous depression, but the intense heat prior to, during, and subsequent to change, must be explained by the great chemical change going on in the body. The heat is due to molecular action; and the intensity of the heat, as well as its quality, is due to the pathological conditions present, so that women at the change generate more caloric, because there is more change going on. In most cases

it is a dry heat, a dry exhalation. If perspiration be present, it is likely cold or clammy. It is to be regarded as a salutary effort at elimination. It usually has an irregular area of distribution, as flushes of the face, breast, body, hands, and feet, and if not diverted off by the safety-valve, the skin, may manifest itself internally in a burning in some organ. As a general rule, the heat starts from the solar plexus in abdomen, then the chest, and face; the parts are suffused, hot, like a burning stream. They are not preceded with a chill unless there is great nerve-shock. The flushes occupy from a minute to a quarter of an hour or longer in duration, and are repeated six or eight times an hour; usually begin three years before, and continue three years after cessation; face and neck are most obnoxious to them, but they affect any part of the body, even the nails, which often feel like fire. Stout or plethoric women suffer most intensely in their severity as well as long duration. These heats never affect the pulse, which is usually slowed. These heats must never be confounded with blushing, which is an act of the sympathetic; our women still blush, even at sixty, seventy, and upwards; and blushing will arouse them afresh. In blushing, heat is also evolved by the shock or emotion of the sympathetic. What this nerve does under emotion, it does also, to a certain extent, on the subsidence of ovarian stimulus, and aids, to an infinitesimal degree, in the production of heat. The heat flushes of the change are like tornadoes of heat, heated waves, which cause patient to discard some of her clothing and keep windows and doors open.

Perspirations are the next symptom in the frequency of its occurrence. It may follow the heats, if nerve debility is very great, but it very frequently exists by itself. It is often very great, amounting to twenty or thirty ounces in the twenty-four hours, independent of the insensible perspiration, which is increased. The skin is the most easily moved of all the safety-valves of the body, and is much influenced at the change of life. It is of great service in drawing off waste and solid elements not needed, and its active function is desirable. The critical nature of the sweats at this period is of much importance; they are often heavy, saturating body-linen and bed-clothes. As a general rule, these perspirations do not come from the entire body, but are generally restricted to portions, as the brows, face, breast, hands, feet, and pit of stomach. Like the heats, they begin early and continue on to cessation, and subsequently diminish in intensity and duration, and gradually disappear.

Leucorrhœa, or the Whites.—Next in frequency, we find this discharge from the vagina, beginning two or three years before

cessation, and continuing the same length of time after. It may occur all the time, or at irregular intervals, or periodic monthly. They are so common at the monthly period at this time that they may be considered as its legacy; especially so, when they come periodically. The critical nature of such discharges shows that they should not be stopped, although it may be proper to restrain them. When it occurs periodically, it usually continues several years after cessation.

Hemorrhage occurs in about sixty cases out of every one hundred; two-thirds of all cases from the uterus; the other third from nose, mouth, lungs, nipple, kidneys, rectum, pubes; skin, in blotches or excoriations. They are all critical, and are to be regarded as the harbingers of serious trouble. Flooding at the change, in some cases, prevents complications, and relieves nature, and affords time for the readjustment of the system to the new order of things. Successive floodings are very common in the robust; but may occur in any temperament as often as there is an overload of blood. The sanguine, with the florid features, are specially prone to it; blondes more obnoxious to it than the dark. A continual dribbling from the womb, at the change, is very undermining to the strength. It does not weaken down so much as when occurring at the regular periods. The best mode of stoppage is one gradual and progressive. Flooding is not always to be laid down to premonitory or existing cancer without the pain in front and back opposite, nor to ulceration of neck or womb. The whole net-work of uterine nerves are confused, upset, and a fright, emotion, passion, excitement, bad news, a fit of sneezing, a connection, may bring on a flooding. When floodings occur a few months after cessation, it is dangerous, because the system cannot repair itself fast, and the patient becomes much weakened thereby.

Next in the order of frequency of occurrence of symptoms are *Headaches*. We have no words to describe the dreadful headaches of the change of life. It is a frequent, and often a ruling symptom. The pain, and its location, is very variable; sometimes a dull, heavy pain, with drowsiness; at other times it is frontal, sharp, excruciating; in other cases it is in the temple, or top of the head, or at the occiput; most frequently behind. The nature of the pain may be described as shooting, throbbing, gnawing, boring, or like a nail driven in, or as if the head was in a vise. It varies in intensity from a mere inconvenience, to the most agonizing; sufficient to prostrate the most vigorous. It is often accompanied with nausea, or sickness in the stomach; in some cases there is vomiting. It is purely nervous, and is present in both plethoric and anæmic. It may be associated with pains

elsewhere. It is usually off and on, or periodic; and in some cases it is a true neuralgia of the brain, with flushes, perspirations, hemorrhages, etc.

Next in succession comes Drowsiness, Giddiness, like being tipsy, so that when she walks she likes to have something to hold by, or feels like a top. The drowsiness is peculiar; sleeps all night unrefreshed, and falls asleep during the day; sometimes feels stunned and lost for an hour, with hot pain at pit of the stomach. Before the change she was all life and animation; clever, sprightly; but now, stupid; lets things fall out of her hands, and falls down in attempting to pick them up. Such a condition is often present at puberty, and is often bad when the flow is scanty, painful, or absent. The tendency to sleep is great, and often accompanied with an uneasy sensation of weight in the head, a feeling as if there was a cloud or cobweb on the brain that required removal; loss of memory, power of exertion; heaviness of head; dulness of intellect. This drowsiness, stupor, is often a precursor of insanity. Mental stupor is often present during pregnancy, but passes off.

Catalepsy, Melancholia, Nervous Stupor are due to, and caused by a morbid action of the ganglionic system on the brain, brought about by the disturbed performance of the reproductive organs. It is a kind of spontaneous narcotism.

Hysterical Symptoms are quite common; but they are always associated with nervous debility, flushes of heat, sweats, abdominal pain, piles, or hemorrhages, such as a gush of blood from mouth or nose.

Epilepsy is very common at puberty; disappears when the menses are established, and is very liable to reappear at the change. Very frequently the attacks are periodic, corresponding to the flow; usually go away when the change is well over. Minor symptoms of epilepsy are very common, as vertigo, sensations, or *auræ*, temporary loss of speech and consciousness, twitching of the facial muscles.

Aphonia, or loss of voice at puberty, is very likely to recur at change, and then disappear finally; so with stammering or stuttering, fear or dread.

Chorea is very rare at change.

Insanity, from the best statistics, is more frequent among women from twenty to forty, while the reproductive organs are endowed with their greatest activity, than between forty and sixty. This latter time, when hope is fading, and physical strength giving out, is the period when men die insane, and when women are most exempt. From sixty to eighty, when the sexes most resemble each other, insanity affects them equally. The

change of life is not prone to insanity; the puerperal state and nursing more frequently give rise to it, which explains the reason of its prevalence between twenty and forty.

Delirium, Mania, at puberty, may be expected at change.

The two mental states known as Melancholia and Hypochondriasis are very common at the change, particularly the latter, which may be regarded as an exaggeration of other symptoms. There is often blended with it haziness of intellect, self-absorption, love of solitude, distrust of friends, and exaggeration of trifles. There is often associated with those mental states neuralgia and hysteria. They are most frequently periodic, corresponding to the monthly flow; at which period she becomes very gloomy, indolent; scarcely speaks, and imagines a fancied evil is about to befall her. This condition generally continues for three or more years after the change. This symptom is a most common one, often well masked and hidden by the lady; her sensitive and loving nature is disturbed when all is changing around her, and she feels cord after cord snap that anchored her to life; and she, if she has sufficient strength of mind, will conceal her condition. The flame of vitality cannot die without forebodings of decay, and there may spring up doubts about faded charms, failing energy, changed aspect she never before harbored, whether now she may be able to retain the affection of husband, the sympathy of friends, the admiration of the world. Because the strength, the vigor, the vivacity of youth is gone, some women try to convince themselves that they are useless, and make themselves miserable. If unmarried, this change tells her to put aside long-entertained visions of future bliss.

Apathy and sudden change of habits; dislike to exertion, mental or physical, with want of sleep; melancholy and suicidal tendency.

There is often a remarkable perversion of the moral nature; uncontrollable impulses to do things which they know to be wrong; often ungovernable, eccentric, reckless, extravagant, and in other cases avaricious.

The *temper* is strange, peevish, snappish, quarrelsome, invariably uneven.

The nervous system at the change is in a state of perturbation; there is an insatiable desire for alcoholic drinks; a true dipsomania.

An Impulse to Deceive.—Women always surpass men in their stupendous powers of deception. When a man has an object to gain he may deceive; but he does not, like a woman, find a pleasure in deceiving for deception's sake. Untruthfulness is very common, and it is not to be wondered at, under the mental

perturbation present. Delirium, vertigo, distorted ideas and false notions are crystallized with deception.

Kleptomania, or a desire to steal, is very common at puberty, during disordered menstruation, pregnancy, puerperal conditions, and at the change. It is most unaccountable, this impulse to steal, at all risks, at the critical period.

Homicidal Mania.—A tendency to kill is a lamentable consequence of the change.

Suicidal Mania is common at puberty, and recurs at the critical period; less common in women than in men; one woman to three men being affected. In women it is associated with the notion that they are possessed with the devil.

Eromania, or inordinate desire for sexual gratification, is suggested, promoted, and intensified by morbid ovarian influences, uterine affections, and brain irritation. Woman, at the change, is an irresponsible being, being afflicted with some form of insanity; the disturbance of the abdominal brain reacts upon the brain proper.

Apoplexy, Paralysis, in all their forms, are common at this period. In apoplexy, there is the vertigo, the specks and spots before the eyes, the noises in the ears, the choking. In paralysis, the numbness, the feeling of pins and needles, the loss of sensation and motion, coming and going in a part, or the whole of the body.

Nearly all women suffer from *neuralgia*, as well as paralytic symptoms, most common about the small of the back; lumbago in the abdomen all the time, or it may be simply monthly; ovarian pain, colic, numbness, paralysis, sciatica; numbness in the hands, arms, feet and other parts; neuralgia of the face, loss of voice, deafness, toothache. Nearly every woman, at the change, suffers from one or more of the above symptoms, and an endless variety not enumerated.

The pains in the back, or loins, and legs, are the most common, and are generally described as radiating from the back, and an aching, numbing, gnawing, dragging, burning, or grinding. Often a sensation as if the back was broken through entirely. These backaches are often associated with pain in the ovary, or abdominal neuralgia; numbness; pricking sensation in feet and hands; loss of power of parts are common; burning sensations, with numbness in arms, back, and temporary loss of power; neuralgia of the eyes.

There is a whole host of affections that attack the reproductive organs at the change, independent of flooding and leucorrhœa. There is a remittent form of menstruation; vaginitis; follicular inflammation of the vulva; inflammation of the labia; ulceration

of the neck of the womb; induration and enlargement of the womb; falling of the womb; uterine polypus; cancers; tumors; ovarian disease; irritation of the breasts; milk, or glutinous secretion from the breasts; copious phosphatic deposits in the urine, with often inability to hold it; bloody urine; erectile tumor at the mouth of the urethra; rectal trouble; piles; abscess; burning in womb and rectum. There is not much disposition to acute inflammation, as the general condition of degeneration going on protects the organs.

Itching about the vulva, or pruritus, is very common, and is due to the sugar in the urine at this period of life, and to that coming in contact with the parts.

Eczema on the lips makes the life of a woman unbearable. Prurigo and follicular inflammation begin at the change, and continue, in spite of the best treatment, for several years. Herpes, or tetter is another annoyance.

The great prevalence of vaginitis is to be explained by the continuance of sexual intercourse. Some cases are due to morbid states of the blood. A failure of health, gout, and extension of eczema up the vagina, or acrid discharges from the womb, which are muco-purulent, greenish, or yellow, or slightly tinged with blood, and more or less offensive and contagious. Vaginitis gives rise to heat; bearing-down pains; disturbance of bladder and ovaries.

The symptoms of change in the reproductive organs are manifold. The ovaries rule supreme over menstruation; and if there is any disease lying quiescent, as a nucleus of a tumor, it will either retard, or give increased activity to the change. From thirty-five to forty-four years of age, when cessation begins to dawn in most women, sexual desire is less intense; the married have fewer children, and the unmarried think less of marriage. This diminution of sexual energy accounts for a great decrease in the number and intensity of inflammatory uterine disease. Many women begin the change of life with uterine disease that has been undetected, or imperfectly cured, and all such conditions are likely to be intensified or aggravated by the change. Failing health gives rise to an exfoliation of the glands at the neck of the uterus at the change, so that the neck enlarges; becomes soft, baggy. The change is often suspected by disease in the womb, or other parts; but after the change, the uterus is not liable to the old diseases of its active state. Disease is rare after, and when it does take place, it is a residuary legacy from old times.

The obliteration of the neck of the womb, with the altered shape of the womb, vaginal prolapse, falling, uterine tumors, fibroid, fatty, and mineral degeneration, are quite common.

Women, with cancerous germs lurking in the system, are extremely apt to have them grow between forty and fifty; although cancer, between thirty and forty, is very common. The influence of the change on cancer is to give it an impetus, a start; to give it a rate of progression. The average duration of cancer here is sixteen months.

Swelling and irritation of the breasts commence at the change; they swell, become painful, nipples sore, ooze out serum or milk, or a gelatinous fluid, or a watery, bloody discharge. Tumors now put in an appearance; cancer, if the germs are present in the blood. When the lacteal ducts and connective tissue are disappearing, fatty or adipose tissue becomes very abundant, and there are apt to be lobules of that tissue thrown out. Although disease of the kidneys is rare at the change, still there may be bloody urine, continence or incontinence of urine, and chronic inflammation of bladder.

Two-thirds of all women, at the change, suffer from some irritation of the stomach, liver, bowels, as dyspeptic symptoms, toothache, swollen gums, vomiting of mucus, blood; biliousness, jaundice, constipation, diarrhea, inflammation of rectum, and enlarged abdomen.

Biliary derangement at puberty, and its recurrence at the change, is the most common of all the disorders of the alimentary tract. A very large number complain of being bilious; bitter, metallic taste in mouth, with headache, nausea, and vomiting; bile in urine, and jaundice. This liver-irritation gives rise to the burning in the rectum, and piles, which are often so troublesome. That piles should be a common symptom is not to be wondered at, when we see the unrelieved plethora of the liver at the change, and when we bear in mind that the liver, intestines, and reproductive organs are covered by ganglionic nerves; that the womb and all the viscera are supplied by nerves from the cord; that the veins of the liver, uterus, and rectum are identical and continuous; it is not surprising that when the uterine discharge is arrested, that the nervous energy and sanguineous current should flow by the intestinal surface, and gives us bleeding piles. The swollen gums, dyspepsia, diarrhea, constipation, spitting of blood are generally periodic.

A permanently enlarged abdomen is very common at the change, and is accounted for in two ways: (1.) by the increased deposit of fat in the omentum and in the abdominal walls; (2.) to some extent, by an enlarged, inflated state of the bowels, without either diarrhea or constipation being present.

The Skin gives decided, infallible indications of the change in every woman; it loses its softness, its elasticity, its fulness, and

shrinks, and becomes withered and wrinkled; then there are the heats, the sweats, the local burnings in hands, feet, legs, painfully hot; aching in the finger-nails, just as if they were being pried off, a peeling, a rotting of the nails. Besides these, there are various eruptions often present on the skin, as nettle-rash, erysipélas, eczema, blood-spots, tetter, prurigo; swelling of face and legs, either monthly or all the time; varicose veins; ulcers on leg; boils everywhere, but especially about the seat; abscess in the fingers, armpits, neck, groin; sensation of insects in skin are very common; peculiar exhalations from the skin are not uncommon; chronic rheumatism and gout, enlargement of the heart, chronic peritonitis, dropsy, are common at the change; ulcers, goitre, discharges from the ears, nose, mouth, and nipples are very often present; swollen gums, sore mouth, salivation, periostitis of the small bones, and other chronic affections more rare.

There is a long list of other symptoms: the long-continued, persistent debility, with regular monthly pain in ovary or womb, with laughing and crying fits, and intense burnings, to which so little attention is paid; the irritable rectum, with tenesmus; habitual oozing of mucus, or pus, or blood, is too often not attended to.

The most common cause of delay of change, and consequently, prolongation of symptoms, is to be found in congestion and enlargement of the body of the womb, and this uterine enlargement, which delays cessation, is generally the result of sexual excesses, or frequent abortions. This very state, irrespective of hysteria, may give rise to spurious pregnancy at the change.

If the patient is free from disease, and has led a temperate life, the rule, "like puberty, like change," will hold good, not otherwise.

The change is greatly modified by temperament, by constitutional peculiarities or eccentricities, social position; and these modify all symptoms, from the debility and heats, to the pricking sensations in feet, numbness of extremities, trembling of the limbs. Some imagine that the unmarried are more liable to flooding, cancer, ovarian tumors, at the change, but this is not true; the single pass over this critical time with much less trouble than the married, and suffer less. Women of loose habits, given to promiscuous sexual indulgence, prostitutes, those who resort to abortions, suffer immensely—words are inadequate to describe their sufferings. Such states keep up more or less inflammation through life, and predispose to much trouble at the change. Marrying late in life is also bad; those sexual states maintain congestion of the sexual organs, and are eminently calculated to

aggravate all the symptoms enumerated, as congestion and ulceration of the womb, if it exist.

Terminations.—Change of life in woman, at whatever age it occurs, is a final settlement, and exercises its sanative influence on the rest of her life. When it is effected, her mind emerges from a cloud, in which it has for some years been lost. All ladies, while avoiding causes that would be likely to give rise to congestion of the womb, should sustain their intellectual faculties well, read history, train their minds to take comfort from the fact that the period is past, which gives them an immunity from the perils of child-bearing, and the tedious annoyance of monthly restraint, thankful to have escaped real suffering. Women should not torture themselves into imaginary woes, but they should feel the ground steadier under them; they are now less dependent on others, and their mental faculties assume a more vigorous and masculine form.

The change of life does not bring talent, but it imparts the power to bring out latent faculties that have been for years in abeyance. The subsidence of ovarian action depresses one form of love,—those emotional impulses which give passion energy; but at last, when the heart becomes capable of listening to reason, love still rules paramount in the breast of woman, and whether it is called charity, friendship, affection, conjugal or maternal, it is still there. Sound religious ideas often become engrafted, and take a sure hold, covering the evening of life with unanticipated happiness. When once over, and anchored in this new haven, a woman looks back on the time when her health was disturbed by ever-recurring monthly trouble, and her mind distressed by delusion and passion. The importance to a woman of the change is great; she is healthier, lives longer, less risks to life, becomes stronger, and enjoys a great freedom from disease. It is said that a woman at the change loses all her personal attractions; but this is not so. The beauty of childhood appeals for a fostering care; the beauty of youth fascinates; that of mature age excites admiration; but in most women, after the change, there is an autumnal majesty, so blended with amiability, that it charms all who approach within its magic circle. Her sphere is wider, her social influence greater, her field of usefulness extended, and now is her time for intellectual pursuits and efforts. The cultivation of the mind, and its endowment with scientific lore, usurp the place of faded charms. Now woman becomes the guide, the mainstay, the pillar of strength to man in the difficulties and struggles of life; she harmonizes society, unites its discordant elements, and stimulates the race to great, noble, and laudable ambition.

Time may dull the eye, rob the cheek of its bloom, indent furrows on the brow, but it cannot smother the seraphic fire burning in the hearts of women, prompting them to console, heal the deep and ever-festering wounds that afflict society. Those who have attained their sunset without having been granted the anxious though desirable vicissitudes of wedded life, destitute of relatives and friends, may find in the philanthropic efforts of alleviating suffering humanity a grateful channel for their affection. Some women at the change are perfectly unstrung, unnerved, find themselves solitary and alone in the world, bereft of the sympathy of friends. Travel, occupation, history, religious duties capable of engaging her attention, should be inculcated. The continued friction of sound duties restores peace and harmony, prevents brooding, self-absorption.

Isolation causes everything to lose its natural and real appearance and to shine with morbid tints, and should be sedulously avoided.

Social Position.—The position in life exercises a special influence at the change of life. Women who live in a natural way, keep regular hours, avoid reading trashy or fictitious literature, exercise moderately, do not tight lace, and keep their health good, suffer comparatively little, except it be from the flushes and minor symptoms. Women in moderate circumstances get along the best; they are much freer from the symptoms than the spoiled and petulant daughters of the wealthy lords of civilization. The necessity for working hard, the struggle, the anxieties of poverty, the impossibility of escaping these, in our abnormal condition of society, together with insufficient food, insanitary states, increase the sufferings of the poor at the change.

Certain occupations have a good or bad effect: thus, sewing-machine operators and washerwomen suffer most; the movement of the leg, in the one, keeps up ovarian irritation; in the other, the changes of temperature to which they are exposed are highly deleterious. The close, damp, heated rooms in which mill-operatives, book-folders, catgut-workers, etc., work, increase their sufferings at the change. Hard work has its merits, it cures the nervous affections which assail the rich at this period of life; for luxury, ease, lounging on sofas, in shut-up rooms, is the hot-bed of nervous affections; there they grow in profusion and run into extravagant eccentricities. Few ladies are compelled to work in a heated atmosphere so injurious as the heated ball-rooms of the aristocrat. We would say to the rich and poor alike, that the best way to approach the change, is to get right down to a natural base in all things, and thus approach the critical period with a sound constitution. A condition of debility, which is the result

of all excess, prevents the regular succession of vital phenomena, by which the critical period is carried out; and as the change is marked by debility, when this is grafted on constitutional weakness, loss of power, ill health will be of long continuance with a train of nervous disorders. With those states of urgent debility present, there is not stamina enough left to carry them through the changes successfully. All constitutional affections, all forms of diseased blood, are increased by the change.

Prognosis.—Menstruation is a useful guide for the changes; as it is ushered in, so the change; storms at puberty will realize a stormy change. Diseases that preceded menstruation are likely to attend the change. Skin affections, as eruptions of all kinds; hysteria, epilepsy, bleeding at nose, discharges from the ear, boils, diarrhea; erratic pains before puberty, same condition before change; faintings, want of strength, precede the succession of vital phenomena and are likely to re-appear.

Puberty does not always bring health; there may be a lack of development, which may produce conditions that incapacitate for exertion; her mental faculties may be lost in dreamy forgetfulness; nervous irritability may give rise to fretfulness of temper, waywardness of disposition, mischievousness. The conduct of some girls at puberty often betrays a dereliction of all principle. There may be some jar or want of harmony between the action of the reproductive organs and the nervous system, so that the flow may come on on the fifteenth or twenty-first, instead of the twenty-eighth; same troubles at change.

Sisters are a fac-simile of each other as a rule; observe the same date, have the same peculiarities, same crisis, same complaints; as biliousness, headaches, mental condition, everything the same at puberty; same at change.

The plethoric and sanguine suffer most; very much more than the bilious and nervous, and chiefly from flooding and heats, and have a hard road to travel. A girl at ten, without any sign of cerebral or gastric disease, may manifest either a sleeplessness, or drowsiness, the result of the premature action of the ovaries on the nervous system; the precocity of the ovaries are very productive of nerve affections several years before menstruation takes place. Great irregularities and suffering at any period are warning symptoms of a change at any age. If the ovaries work well and smoothly at puberty, and the patient lives naturally, follows physiological laws, the change will be unembarrassing, irrespective of age. It must ever be borne in mind that it is only the minority of women who suffer those innumerable difficulties and obstacles at the change; the large proportion pass the ordeal with little or no suffering. Well-regulated habits, healthy ex-

ercise, good moral and religious surroundings, and avoidance of tight lacing, of balls, late hours, unhealthy society and literature. Women, from want of instruction suffer much; they are ignorant of what should occur, or form exaggerated notions of the perils that await them, and receive no help from their medical attendant, because he is ignorant of their suffering.

Let it, therefore, be clearly understood, that, if in tolerable health, and with ordinary care, they have only blessings to expect from the change of life. We say that the critical period is very dangerous to the tight-lacer, the dime novel reader, to the ailing, to the dancer, to the lazy, to the habitual sufferer at the menstrual period, to those suffering from uterine disease, to epicures, for ices, improper food, sitting on door-steps, sewing-machine operators, and sexual excesses. Very great difficulties are likely to arise from marriages at the change, especially if for the first time. Such a state at the change causes the womb to become congested, and it increases in size four or five times. If marriage is desirable, postpone it, hold it off till after the change has been consummated.

Diagnosis.—Have we the means of foretelling the change, and recognizing it when completed? Assuredly we have. The change can be predicted after forty, if there is a gradual diminution in the quantity of the menstrual flow, a gradual prolongation of the inter-menstrual periods, an occasional flooding, with heats and other symptoms; but the grand landmarks are not this gradual cessation, or at once, but in the organic changes that take place. The uterine wave disappears; the ovaries are shrivelled, withered, crumpled up in a peach-stone shape; obliteration of fallopian tubes; atrophy of the womb, becomes round, its neck grows shorter, and thinner, and disappears; vagina becomes narrow and short; coldness of the parts, from a shrivelling up of the pampiniform plexus; atrophy of the breasts; hairs on the upper lip, with vertical creases; stray hairs on the face and chin; and a peculiar, masculine physiognomy. There is a prevailing, all-pervading debility, which cannot be accounted for by disease; the complexion is pale, or sallow, a drowsy look, a sort of stupid astonishment, as of one seeking to raise herself to answer a question; always some irritation of the brain, which shows itself in a knitting of the brows; the disappearance of the menstrual flow, or its irregularity, or scantiness, or its too great abundance. Cessation is to be looked upon as positive, whatever be the age, when the above conditions are present, unless accounted for by nursing, pregnancy, or uterine disease. At forty-five it is a settled fact; but, in order to complete the diagnosis, it is well to add, the debility, the unusual heats, the sweats, the appearance of

discharge dirty brown, its total disappearance, and the other symptoms already enumerated.

The sanguine or plethoric exhibit unmistakable indications of a great aggravation of all the leading symptoms; whereas, the nervous, with their white faces, ever-anxious, nervous look, suffer least.

Cessation should never be mistaken for chlorosis, inflammation of the womb, uterine polypi, uterine tumors, uterine cancer, pregnancy, either spurious or real, or other eccentricities of the uterus.

Some diseases induce early changes in a woman's nervous system, and render her barren or sterile, such as the cholera germ, typhoid germ, the germs of pernicious, malarial, or yellow fever, the germs of diphtheria; under these the ovaries wither, and change takes place. Blows on head and back, fright, etc., we have already alluded to, and they should be weighed in the diagnosis of some cases.

Treatment.—As ladies approach the change, it behooves them to prepare for the crisis—to get rid of all little ailments or disease; to observe and carry out a special regimen, and, as far as possible, to so arrange themselves as to be ready for emergencies; eat the best of food, observe hygienic laws, and place themselves upon a course of alteratives and tonics, such as we will subsequently lay down. Those two kinds of remedies are specially useful at the change. Alteratives are particularly indicated, to aid the change, to rouse up all the glands, to relieve the system of all waste, or effete, or waste matter; and tonics, to aid in bracing up. In prescribing alteratives, it is necessary to guard against the prejudice, firmly rooted in the minds of many, that the change of life is synonymous with old age, which is not so; for the very prime part of a woman's life is before her, and at the change all ladies are benefited by alteratives which are not suitable for advanced years. Both at puberty and change, which are periods of a new birth, there is strong vital energy; it may be latent, but it is there, and the use of alteratives, which cleanses the blood, develops unexpected strength and great vigor, and is strictly in accordance with natural laws and the phenomena of the change. But before calling attention to those, we will lay down, briefly, the essential elements, in a dietetic, hygienic, and medicinal view, that should, as far as possible, be observed at the change in all cases, and then briefly allude to remedies for the predominant symptoms.

Diet.—Women, at the change, should eat plain food, as milk, eggs, boiled white-fish, broiled beef-steak or chops, chicken, game, bread, butter, oatmeal porridge and cream, vegetables of all

kinds, and an abundance of ripe fruit; the latter to be used freely, and to an extent not interfering with digestion. All farinaceous, or starchy food, or sweets, as puddings, tapioca, rice, pies, cakes, pastry, tend to load the system with carbon, and thus generate heat; prolong sleep; cause distaste for exercise, and a tendency to stoutness. Forbid, in all cases, the use of sugar, tea, spices, pepper; all stimulants, together with shellfish, salted fish, or bacon, ham, corned-beef; malt and alcoholic stimulants. Coffee to be used with moderation.

Women who have a tendency to become stout, require less food and more exercise than the lean. If there is great languor, weakness, nervousness, the diet should be made very generous, and the tonics increased. With the above diet, women will tide over the change well and have no further unsettlement of health to bear. If, however, women go in for eating heavy meals, stimulants, and excess, they will become like men, and have another change to meet after sixty-five. High living and stimulants at the change, give rise to early degeneration, which begins first in the capillaries, and steadily progresses to the larger vessels; then to the heart, spleen, liver, kidneys; and this degeneration is characterized by an increase of fat; a non-vital substance in the omentum, in the abdominal walls; and, as a result, the belly becomes large, protuberant, pendulous.

Clothing and Bathing.—Whatever the season of the year may be, or locality, or condition in life, flannel should be worn next the skin, at all times, to protect the surface from changes, to absorb perspiration, so as to prevent being chilled. Bathing the entire surface daily cannot be omitted, as it is a great safeguard; its neglect gives rise to great suffering. We might say it is imperative, for the skin is heavily loaded with waste matter. Warm baths are the best, as they remove from the skin copious saline deposits, and other secretions left there by the heats, or the perspirations; besides, being in a warm bath for three-quarters of an hour enables the skin to absorb moisture or water, which allays the cutaneous irritation and dilutes the blood. The warm alkaline bath is like a gigantic poultice, applying its warmth to all the peripheral expansion of nerves, so that it becomes a splendid sedative of nervous irritability. It is perfectly manageable in all cases; temperature increased or lowered at pleasure; and even while in the warm bath cold can be applied to the head, or a cold shower bath to the abdomen; or by a long-tubed syringe cold water can be thrown up the vagina or rectum to relieve uterine congestion. The alcoholic vapor-bath about twice a week; on other days the hot, or warm bath for over half an hour, followed by brisk friction, is always of utility, and, in some cases, it is well to follow up with massage.

In a small number of cases cold bathing is useful, provided there is vitality enough for reaction. The mineral water baths, whether of the sulphurous or alkaline kind, are always of the most efficacious character. Sea-water is not of so much benefit unless warm.

Exercise of the muscular system relieves the congestion of the internal organs; it depletes, causes the skin to perspire, the kidneys to work actively and eliminate uric acid freely; it rouses the liver to action. It should be taken in the mornings; should be moderate, not continued to exhaustion; long walks are objectionable, it should just be enough to carry off the redundant energy, which, when unemployed, or not wrought off, gives rise to fidgets, nervousness, temper. Driving is excellent; but horse-back exercise should never be indulged in at this period.

Change is most beneficial in all things. There is nothing that conduces so much to mental and physical vigor as change. It is a great strengthener of the nervous system in particular. Travelling places the patient in a new sphere; new scenes; new ideas, every one of which makes a call on her attention, solicits her interest, captivates her faculties, completely leads her away into new fields of thought; away from old habits and associations to which she had been long and painfully chained. Change has a most salutary effect on the brain; under it the mind is consoled, and resumes peace and tranquillity. Nothing so vitalizing; nothing so serviceable for the cure and prevention of disease at this critical period.

Fresh air is indispensable here; there must be an avoidance of close rooms, badly ventilated apartments, insanitary surroundings; the bedroom windows open at top and bottom.

Amusements.—The ordinary cares of the household are at this period a burden; there should be, if possible, a general easing-up, a lay-off, or rest. The mind could be occupied with reading history, because exciting stories, which are present in novels, induce nervousness of some shade or type; besides, excitement is injurious. For this reason, balls, parties, concerts, operas, theatres, are excitants, and the impure air breathed in those places, in addition to their moral effect, causes them to shock the impressible, susceptible nervous system, and renders the patient sleepless and irritable. All exciting agents are deleterious, being productive of continued irritation and want of sleep, and it must ever be borne in mind that continued sleeplessness is the precursor of insanity. Night after night at theatres habitually subjects the mind to an increased intensity of feeling, which in the silence, solitude, and darkness of the night that follows, destroys its sensibility, and eradicates its typical fissures. All amusements should be of the most stable and healthy kind.

Hygiene of the Reproductive Organs.—This is a most important consideration at the change, when those organs become atrophied and shrivelled up. Nature emphatically points, by this very condition, that their appropriate stimulus should be avoided, and it is neither wise to marry nor to have congress at this unsettled period of life. Connection at the change brings about uterine disorders and grave complications. Some assert that the sexual appetite is strongest at the change; that the flickering flame of sexual desire gives rise to a final blaze; that there is increased ardency. This no doubt occurs once in a while, but it is rare; the opposite condition is the natural one, merely a distaste for connection at that period. A marked increase of sexual impulse or ardency at the change is a morbid desire, depending on a condition of congestion of the ovaries, spinal cord, or brain. The sexual act aggravates the trouble, and leads to serious complications. No woman should marry at that crisis; defer it till it is over; because if performed it will result in flooding, uterine disease, the development of uterine cancer, etc.

Having regulated the general condition of the patient, she should be placed upon a general alterative and tonic course of remedies for at least five or six years; she does not want many remedies, only a few, but they should be good ones; but in all cases she should persevere with them faithfully, changing them at regular intervals of every seven days; and with those breaks the same remedies can be resumed again and again with great efficacy.

The best alteratives at this period are the saxifraga ozonized compound, the mother's cordial, the wine of aleteris farinosa, and the ozonized phytolacca. Select two out of the above list and give in the usual dose about two hours after meals, and change weekly. If the patient is in very straightened circumstances, so that she is unable to procure those invaluable alteratives, let her do the next best thing, make infusions of blue flag, tag alder, yellow dock, and take them instead, so as to aid the elimination of waste-matter from the body.

The best tonics at the change are the Peruvian bark, white mustard seed, the glycerite of ozone, kurchicine, golden seal, gentian, etc. Of these the Peruvian bark and white mustard seed are the most efficacious; the crude bark is better than its finer preparations: one ounce of the bark to one pint of good port wine, to which add one ounce of elixir of vitriol; allow the whole to settle. Dose, one tablespoonful three times a day one hour before meals. In some cases leave the elixir of vitriol out, then it can be given in wineglassfuls three times a day before meals.

The compound tincture cinchona and mineral acids is excellent. At all events, don't deceive the patient by worthless and inefficient preparations of the bark, nor delude her with tasteless infinitesimal sugar globules. There is a gigantic, a grave change to be aided, shattered vital force to be restored, and it must be effected on the principles of common sense.

Next in efficacy, as a tonic, is the peroxide of hydrogen. This is one of the valuable remedies at the change. It is particularly useful to meet the symptoms of debility in a worn-out constitution; invaluable if there be indigestion, or liver trouble, with heartburn, pain or cramp, or a numbness, or a failure to sleep, nerve-tire, prostration. The cinchona stimulates the brain; favors the making of red blood, and is slightly astringent; whereas the peroxide of hydrogen operates in a most extraordinary manner in disorders of the organs of digestion and assimilation; on the stomach and liver especially; stimulates the ganglionic nerves lying over the womb and ovaries; corrects all irregularities, and improves the general health. It is a valuable tonic, stimulant and aperient; strengthens all the organs in the abdomen; imparts activity. The efficacy of the peroxide of hydrogen does not depend on any specific power, but from the vitalizing energy which it imparts. There is no better remedy at the change—not one that can excel it. It relieves that indescribable feeling of debility and languor; overcomes drowsiness; soothes the irritable; strengthens; invigorates; increases assimilation one hundred per cent., and aids the vital forces under the terrible prostration, enabling them to hold their own by its effect on the nervous system. To ladies who need constant help it affords great relief; inestimable benefit. It should be taken one hour before meals, three times a day, in 10 to 20 drop doses, always exercising care not to give an overdose. It never fails to afford great amelioration. Its gentle action on the bowels is very salutary, as it is always important that bowels and skin should be stimulated. One or two teaspoonfuls of the *aleteris farinosa* wine should be administered every three hours for five days out of every seven, then on those two days, she should take the comp. syr. partridge berry. Those two remedies should be taken steady for a period of four years, embracing, some time before, during and after that period. The *aleteris* is a powerful uterine tonic and restorative of the greatest efficacy, in tiding ladies over this, the critical point of life. The glycerite of ozone operates well in all cases, and combines the action of both tonic and alterative. The extract of kurchicine is also a very valuable tonic. Infusions of golden seal, gentian, collinsonia, wine bitters are good tonics, but not of much utility at the change. Next to the

Peruvian bark and white mustard seed may be placed the kurchicine. All tonics are best given one hour before meals. In ordinary cases the above simple alteratives and tonics are all that the great proportion of cases require, and can be readily carried out by the patient herself.

But in addition to these there are often met a train of symptoms some of which are present, and require special remedies and management. To these we will now solicit attention.

Nervous Debility.—This debility at the change is peculiar; sometimes it depends on an excess of blood, and in other cases upon too little blood. If it depends on an excess, for which there is no drain, it is a good plan on the first appearance of irregularities which characterize this period, to curtail rather than augment food. Debility, when in the family way, or nursing, is benefited and often overcome by a very liberal and generous diet; but at the change this surplus blood cannot be utilized. In some cases it is advisable to establish a drain by applying two small blisters, about two inches square, on each side of the nape of the neck for six hours, every second or third day, so as to keep up a slight discharge. These off and on periodic blisters to the nape of the neck are of great utility when disease-germs are suspected to exist in the blood.

In debility, with anæmia or poor blood, these must be more and better food, with rest, and a free use of the tonics already laid down. It is almost useless to experiment with others. Preparations of phosphorus, although very strengthening, imparting keenness and vivacity to the mind, are contra-indicated, because they predispose to fatty degeneration of tissue; of the heart, liver, spleen, kidneys. The same objection is to be urged against malt and spirituous liquors. Iron is not a good tonic at the change, as it increases the heats by retarding the action of the liver. If it is tried, the acetated tincture is to be preferred.

Flushes of Heat.—The skin at the change suffers from flushes, heats, sweats, eruptions. They all pass off, as a rule, after the change. The flushes are the most tenacious, often holding on for years. Prurigo, itching, and eczema are the most troublesome, and are blended with the hot flushes; have their origin in the latter. In the treatment of them, it should be borne in mind that they are increased by emotion, nerve-shock, external heat, as in cooking, washing, ironing, baking, hot rooms, hot drinks, over-feeding. In arresting diarrhœa, leucorrhœa, flooding, over-clothing, all these, as far as possible, should be avoided; the Peruvian bark mixture, the white mustard seed, are to be increased in dose; the bowels to be kept rather open, and the usual

daily warm baths scrupulously carried out. Various local applications, "cooling," should be applied, as bay-rum and borax, borax water, and the face, cheeks, neck, breasts, or other parts can be dusted occasionally with puff powders, which are very cooling, and contain no deleterious agent.

In some cases the flushes are preceded by a chilly sensation, or coldness; some even tremble with cold before the heats come on; others have associated with it aching in the nails. When sweats follow, it denotes great debility and congestion of internal organs. Sometimes the flushes are anomalous, preceded by strange sensations in the skin, which in numerous cases resemble a beating, like an animal throbbing in the stomach, or the fluttering of a bird, sensations that disappear when the perspiration comes. Some women are living furnaces, and insist upon the doors and windows being left open in winter time, and woe betide delicate women compelled to live with them.

In such cases good results follow the use of salines in alternation with preparations of sulphur, as the tincture, in twenty or sixty-drop doses three times a day; or glycerite of sulphur, or sulphur and cream of tartar; or sulphur, fine flour-sugar, and white resin. In other cases infusions of sassafras or yellow dock are of efficacy.

Sweats.—These are simply evidences of great brain prostration, sweat running off the forehead or the entire body, obliging the patient to change linen several times a day, and when in bed literally soaking the bedclothes.

To a certain extent sweats are beneficial, they clear the body of superfluous material; but when they are excessive they hinder the insensible perspiration—that exhalation so necessary to health. Besides, when they are excessive they denote a passive permeability of the skin, caused by a loss of nerve power. It is not well to check them entirely, as such a proceeding will cause internal congestion.

Try such simple remedies as aromatic sulphuric acid and quinine, tincture of sulphur, or in some case a tea of pleurisy root.

Leucorrhœa.—This should not be stopped, although it is well to syringe out the vagina three times daily with infusions of white pond-lily, or witch-hazel, or strawberry leaves, and if there is any itching or burning, boroglyceride should be added. As a general rule, the injection should be tepid or cold. All these remedies failing, occasionally packing the vagina with boroglyceride is of immense utility.

Hemorrhages from nose, mouth, ears, nipple, navel, ulcers, vagina, are common. If they are not excessive, mitigate them,

but do not check altogether, as they are often salutary. The regular treatment by alteratives and tonics should be adhered to, but if they are violent or excessive try ergot, gallic acid, and port wine, digitalis, or the alcohol, turpentine, and sulphuric acid mixture. At the same time, if from the vagina, enjoin rest in the recumbent posture, head low, foot of bed elevated, cold drinks or ice in mouth, small sponges, saturated with vinegar, inserted up vagina, and changed every three hours. Great care and good judgment should be exercised in its arrest.

Headaches are often promptly relieved by guarana, four teaspoonfuls of the fluid extract every few minutes, or two or three grains of caffeine, or, that failing, a four-drop capsule or pearl of nitrate of amylin inhaled; these failing, treat it under the following head:

Sleeplessness, Giddiness, Drowsiness, with Headache, or Cerebral Neuralgia.—In those depressing states, hyoscyamus is of great utility; repeat till it affords relief. Hyoscyamus suits the nervous disturbance of the change in a most excellent manner. The dose and its frequency of administration will depend on the condition. When the pain is very great try either croton chloral, bromo-caffeine, or guarana. If these fail, then bromide of potassa and bromide of ammonium are of utility, either alone or combined with chloral hydrate, as follows: Take one ounce of camphor-water, three drachms of bromide of potassa, one drachm of bromide of ammonium, and two drachms of chloral hydrate. Mix. Dose, one teaspoonful every two or three hours till relief is obtained. But if that fail, and nothing will allay the intolerable pain and giddiness, which render existence unbearable, give morphia sufficient for the purpose rather than let the patient suffer. Sleeplessness, with cerebral neuralgia, at the change, often resists our best remedies, and it is necessary to tack around considerably, and only in the event of all remedies failing should the morphia be given, as at no period of life is a habit so easily acquired as at the change, so that with alcohol and opium we should exercise great care. Camphor is a valuable remedy in those cases; it stimulates the nervous system to increased action; it corrects the toxic influence which the reproductive organs have upon the brain of some women; it abates the sexual sting by acting on the cerebro-spinal nerves of the internal organs of generation, not on the ovary or testicle. Large doses of camphor to child-bearing women do not prevent conception, like bromide of potass, nor induce impotence, but simply appeases the excitement of the generative organs at the change. It may be given alone, or with lupuline from the hops. Sambul or musk-root, tincture of green root of gelsemium, operate beneficially. The inhalation of the

nitrate of amyl moderates cerebral irritability; sulphonal or urethan both extremely efficacious. Topical applications to the head are often of great value; as, for instance, take two pints of water, to which add two ounces of liquor ammonia, one ounce of spirits of camphor; mix, and apply to the head for fifteen or thirty minutes, or longer, and then remove and apply vaseline ointment. Or, another good remedy is to take two ounces of olive oil, the same of chloroform, and half an ounce of menthol; mix, and rub into the painful part. The irritability of the brain at the change is caused by and aggravated with ovarian disturbance, and it is a good plan to use both rectal and vaginal suppositories of belladonna and opium. *Veratrum viride*, and aconite or antipyrine may be given with benefit if there is plethora. The same characteristic symptoms, as headache, giddiness, drowsiness, are present at puberty, and at that period bromide of potass is inadmissible, and never should be given.

During the change the brain is often unhinged, so that catalepsy, epilepsy, melancholia, hypochondriasis, insanity, apathy are present, for the management of which see those different heads.

Clever women often lose confidence in themselves at the change, and are unable to manage their own affairs, and their moral treatment, for a few years, requires great care. The disturbance of this crisis tells heavily upon her. Very frequently her mode of dealing with everyday occurrences of life betrays a want of principle, strongly contrasting with her previous rectitude, and a return to that untruthfulness that may have existed at puberty. There may also exist every idiosyncrasy—peevishness, irritability, ill-temper, ingratitude, passion, eccentricity. It is no uncommon thing for a high toned Christian lady all through life up to the change to desert her husband and children for a scamp, while others make life intolerable by their tyranny and hate the long-cherished object of their affections. Some become moody, silent, gloomy; neither loving nor hating. Others again, in the midst of wealth talk poverty and indulge in a propensity to steal, while another class feel like committing grave crimes. The nervous system is unhinged, still it will pass away and must not be regarded and treated as insanity, for all the strangeness of temper, the fitfulness of spirits, the perversion of character will abate and disappear under proper care. But the patient requires judicious care, removal from home excitement, new scenes, the intelligent sympathy of friends, and the support of strong minds. The most amiable at this time become annoyed with trifles, and are often passionate, quarrelsome, fretful, by the slightest worry or excitement. Derangements of the stomach and liver are very common.

This disturbance shows itself in every imaginable form of dyspepsia and biliousness; the kidneys also suffer. The general treatment as laid down for those affections should be carried out, and nitro-muriatic acid and phosphate of soda given. Diuretics are very valuable and deserve attention.

Diarrhea is salutary and must not be hastily checked. Sometimes useful to encourage by giving small doses of either of the following mixtures, say about ten or twenty grains thrice daily: sulphur, one ounce; calcined magnesia, half an ounce; mix; or equal parts of borax and sulphur. In some cases of diarrhea great benefit accrues from the use of the liquor ammonia acetatis in teaspoonful doses as above.

Colic. A most painful affection, caused by violent contraction of the muscular fibres of some portion of the intestinal tract, generally near the umbilicus, occurring in paroxysms. Pain almost invariably relieved by pressure, never aggravated by it; there may be vomiting, and generally constipation; an entire absence of either fever or inflammation. During its occurrence pulse is lowered; surface of the body cold; face white and anxious.

There are numerous varieties, as microbial, bilious, nervous, brass, lead, tin and other mineral varieties.

Microbial Colic, formerly known as flatulent, due to the presence of bacteria, the degraded bioplasm of mal-nutrition, induced by excess, indigestion, perverted nutrition, improper or deleterious articles of diet, the delicate nerves of the intestine are affected toxically by the ptomaines of the microbe.

Best relieved by the administration of an active germicide; if an adult, a teaspoonful of either eucalyptol, or kurchicine, or Warburg's tincture; if a child, some aromatic, as menthol; concentrated ozone; peroxide of hydrogen; resorcin, etc. These means failing, an emetic of lobelia combined with bicarbonate soda, copious draughts of tepid water.

Bilious Colic.—The irritation of acid or acrid bile, or other morbid secretions, often irritates the nerves of the bowels, and causes contraction of the muscular coats.

In those cases there are usually the dulness, the brown coat on tongue, the yellow tinge on the white of the eye, fetor of breath, etc.

This is best relieved by the administration of small doses of the anti-spasmodic tincture, or a warm infusion of the wild yam or dioscorea, followed up with the compound licorice powder, or neutralizing mixture, with leptandra, oil of peppermint and anise,

or with more active remedies to stimulate the liver, as phosphate of soda or nitro-muriatic acid.

Nervous Colic comes on from fright, cold, hysteria, gout, rheumatism, or from irritation of adjacent organs, as the bladder, uterus, or morbid conditions of the alimentary canal.

This must be promptly relieved by the administration of chloroform in sweetened water internally, or belladonna or antispasmodic tincture, phosphate of quinine, colchicum, and the cause removed.

Tin Colic.—This form of mineral colic has become very common since the introduction of canned vegetables, fruit, beef, fish; and also caused by cooking soup in tin culinary vessels on petroleum cook stoves.

Relieve the pain and spasm by the usual means, and put patient on the iodide of potassa and carbonate of ammonia.

Copper Colic.—A most severe form of twisting or griping; comes on suddenly; pain is intense; nausea, vomiting; bowels generally loose. The countenance is anxious, of a peculiar sallow hue; eyes sunken and lips livid; a purple line around gums. Common among copper-plate printers, brass founders, and from copper cooking vessels. Treatment same as lead colic.

Bismuth Colic.—Bismuth introduced into the stomach blunts the sensibility of the gastric nerves, but when extensively used, as it often is by ladies in face powders and cosmetics, gives rise to colic, with a peculiar bluish, shrivelled, or wrinkled appearance of the skin, and after death, the duodenum is black with the debris of the metal. Same treatment as lead colic.

Lead Colic.—Due to the absorption of lead; hence, it is common among operatives in lead works, oil-cloth factories, painters, plumbers; drinking from lead pipes, soda water from lead taps, snuff adulterated with lead, claret drinkers, as sugar of lead is often added to wines to render them cooling; and wine casks absorb the lead, and if ever used for carrying water in ship, they re-impregnate the water, and the sailors, or those drinking the water, become affected. Lead, whether inhaled by the skin or bronchial mucous membrane, or absorbed by the glands of the mouth, or swallowed in water or food, or breathed from a newly painted room, diffuses itself through the body, but seems to spend the force of its poisonous effects on the fine, delicate nerves of the duodenum, giving rise to an irritation which speedily terminates in a spasm or contraction of the muscular coat of the bowel, so that it is usually ushered in by a grinding or twisting near the umbilicus, with retraction of the abdominal muscles to the spine, and pain in the back, vomiting, constipation, metallic aspect of countenance, a blue or slate-gray line round edges of the gums, with general languor and debility.

Treatment.—To prevent absorption of this metal, workmen employed in or about it should exercise great care, resorting to daily baths, wear flannel clothing, keep bowels regular, eat the most nutritious diet and spend a good portion of time in open air.

Aromatic sulphuric acid, fifteen drops thrice daily in water, prevents absorption, and is undoubtedly the best prophylactic. Alum is not a preventive, but, if given after the lead is in the fluids and solids of the body, it will unite with the metal and form an innocent sulphate. Although alum has this remarkable chemical property of changing the lead, it does not prevent its ingress into the body, like the aromatic sulphuric acid.

In suffering from an attack, the first thing to be done is to relax the spasm and relieve the patient from pain. The compound lobelia, with capsicum and valerian, should be administered by mouth and rectum in small doses, often repeated, so as not to excite emesis; and if the spasm does not yield, administer thirty drops of chloroform with it for several times. Relieve pain by hypodermic injection of morphia.

As soon as the spasm is relaxed and a free motion of the bowels brought about by oil, begin with iodide of potassa. This drug unites with the lead, sets it free, and also eliminates it by the skin, kidneys and bowels. The dose of the iodide should not be less than five grains, three times daily; but it is often beneficial to give it in ten-grain doses, and combine it with either bicarbonate of potassa or carbonate of ammonia; the whole to be given in syrup of stillingia compound. While pursuing this treatment with iodide, an everyday bath of the sulphuret of potassium. This should be done in a wooden bath-tub, with tepid water enough to cover the body, to which one pound of carbonate of soda and sulphuret of potassium should be added. The patient should remain in bath not less than half an hour, even a little longer.

The diet should, while pursuing this treatment, be generous to a fault.

Shock, prostration, extremely great depression
Collapse. of the vital forces, such as may follow any accident, injury, concussion; inhalation or absorption of any poison; or even from some depressing passion.

The symptoms are very variable, most commonly, however, we find the patient lying on the back, with a cold skin, feeble pulse, sighing respiration, half unconscious. If the force of the shock, or injury, or poison, has fallen upon the vascular system, there will be syncope or fainting, pulse and respiration imperceptible;

if upon the nervous system, patient bewildered, incoherent, vomiting, coma, convulsions, paralysis of sphincters.

The duration of the stage of prostration is variable, depending on the power of vital resistance inherent in the patient and the amount of violence inflicted, or poison absorbed, or degradation of living matter, commonly from a few to forty-eight hours.

The mode or manner of recovery from shock or collapse is termed *reaction*—everything depending on the nature, degree, or quality of that reaction. If, aided by proper means, it is perfect, we have recovery; if in spite of our best efforts it is altogether wanting, we have death; if it is imperfect, then it is followed by *fever*, a salutary effort of vital force for recovery.

The indications in treatment are to stimulate vital forces to healthy reaction. If the patient is cold, shivering, respiration and pulse feeble, diffusible stimulants should be administered, such as brandy and water, or capsicum, or some preparation of ammonia; if incapable of swallowing, the same remedies should be administered by the rectum in an emulsion of slippery elm, and spirits of turpentine added. The patient should be bathed all over with ammonia and warm water, after which he should be well dried and rubbed with dry mustard. If no reaction is perceptible, dry cups or scorching hot pillows should be applied to both sides of the spine, and mustard plasters with heat to the feet. Rubbing the skin is of the greatest importance, as we thereby stimulate the periphery of nerves, which stimulus is carried to the brain. Artificial heat by means of bricks wrapped in flannel, or bottles of hot water, should be applied all around the patient's body, especially inside of arms and thighs. Stimulation must be persevered with, and other remedies, such as nitro-glycerine in drop doses, or quinine, resorted to, the object being to establish an equilibrium in the body, and the greatest care should be observed not to over-stimulate, as we thereby produce exhaustion with cerebral excitement. What is desired is perfect reaction, so that fever, the condition of imperfect reaction, may be obviated.

Insensibility from various causes is worthy of the
Coma. most earnest consideration.

When an individual has been picked up on the road or street insensible, irrational, or inarticulate, and his antecedents unknown, what is the matter? Is he ill, drunk, drugged, or suffering from some brain concussion, or from coma after an epileptic fit, or otherwise?

Syncope, trance, catalepsy, coma, are names used by medical writers to designate states of insensibility, which the public call fits.

Syncope is fainting, a condition of the body in which there is a death-like pallor, with loss of muscular power and consciousness; a faint is usually transitory, due to shock. In it the person collapses, rather than falls to the ground; his knees are bent under him, he subsides into the sitting posture, his head drops forward, and by the time his head has thus sunk to the level of the heart, or below it, the circulation of the brain becomes sufficiently restored for consciousness to return. In a faint, a person seldom bruises his face. Upon waking, he may feel sick, giddy, or alarmed, but his brain resumes its thinking functions at once, and entirely.

Recumbent posture on right side, articles of dress loosened, dashing cold water on face and front of chest, cautious inhalation of ammonia, diffusible stimulants.

Trance is a state of death-like faintness, in which some consciousness is retained, but inability to speak. In trance, the body appears inanimate, there is no power to move a muscle, the limbs are flexible; he may hear, see, and remember all that goes on around him. There is no perceptible pulse or respiration; hence trance has been, and often is, mistaken for death, as the temperature is lowered; muscles re-act to galvanic stimulus. There should be no hurried burial alive, or post-mortem unless rigor mortis or signs of putrefaction be present.

Treat same as *Collapse*—artificial heat, enemata of turpentine, cups to both sides of entire spine, over abdomen; and as soon as he can swallow, diffusible stimulants.

Catalepsy, a rare inanimate condition; insensible, stiff, unable to move, or articulate; pulse slow, respirations diminished; extremities cold and flabby. He or she may be pinched, pricked, beat without flinching—statue-like, but perfect muteness. There is neither the lividity of asphyxia, nor the pallor and general flexibility of syncope, nor the stertor of coma, nor the paralysis of epilepsy, nor the movements and dreamy mental automatism of somnambulism.

Treat same as neurasthenia.

Coma, or deep sleep, may be due to very many causes as pressure exercised upon the brain from effusion within the ventricles, and outside of the membranes; to alteration in the molecular state of brain from concussion, contusion, apoplectic extravasation; to brain-poisoning by insufficiently oxidized blood; to disease germs, to uræmic blood, narcotics, anesthetics, inebriants.

It is impossible to give accurately positive landmarks for diagnosing each kind of coma.

Profound Coma is present in serous effusion into the ventricles

of the brain, such as arises from extensive burns, or from tubercular meningitis in later stages. Patient is first sleepy, then drowsy, then stupid, slow of comprehension, difficult to wake, and finally, incapable of being roused at all. The breathing is stertorous; at first he can swallow, then he fails to do so; pupils are not characteristic, most frequently contracted, and then dilated.

Coma, due to fracture or effusion of blood, as in sanguineous apoplexy, is sudden in its advent. The breathing is stertorous, pupils contracted, heat may be normal, skin perspires freely. In fracture of the skull there is oozing of blood or serum from ear and nose; or there may be blueness, humidity, ecchymosis of the eye, neck. In apoplectic cases, face often turgid with blood.

Coma, due to molecular death of a portion of the brain, the face is pale, heat lowered, pupils unequal, evidence of hemiplegia, or some form of paralysis.

Coma, due to some brain-poisoning, as deficiency of oxygen in pneumonia; nitrous oxide gas; the nose, lips, neck, face, and other parts are livid, often black.

If patient has breathed carbonic acid gas, say from a lime-kiln, or sulphuretted hydrogen from some source, those two gases arrest the oxygen-carrying properties of the blood, and this blood-change, or damage, is not recoverable from brain-poisoning; and coma by anesthetics and inebriants is usually detectable by the breath of the comatose person. Apoplexy and dead-drunkenness are often mixed.

In Brain-Poisoning try artificial respiration, abundance of fresh air, cloths out of boiling water over heart; enemata, say one and a quarter pints of cold or warm water, with a table-spoonful of salt; cups to nape of neck; mustard to feet and hands; free purgation, if he can swallow.

Fever Coma, due to the presence of disease germs, spores, and ptomaines in blood and brain, loxically affecting the functions of life.

Easily recognized by the history of the case, and febrile state. It is an imperative call to push bactericides to destroy the factor of the fever.

Uræmic Coma is recognized by œdema of eyelids, or extremities; wax-like pallor, uriniferous odor of breath and skin, furred tongue, pearly conjunctiva, dilated pupils.

Try warm bath, free purgation with salines, and hypodermic injections of pilocarpine.

Coma of an epileptic fit is usually recognized by the bruises, torn or soiled clothes; indications as if the tongue were bitten.

Patient to be placed on right side, clothes loosened or re-

moved; enemata of lobelia, capsicum, and valerian; or hypodermic injection of one-fourth of a grain of sulphate of morphia, if over seventeen years of age; dashing cold water on the patient, of little service.

Alcoholic Coma.—Alcohol, a toxic agent, an arrester of general metamorphosis, has a special action upon the brain and liver. In large doses it produces insensibility, partial or complete. Symptoms vary according to the amount of poison imbibed. There may or may not be stertor; slow or frequent pulse, temperature lowered two or three degrees; pupils contracted, more frequently dilated. The odor of the breath chloroform, chromatic spirits of ammonia or liquor ammonia acetatis is the best agent to clear the poisoned brain.

Opium Coma.—Profound stupor, closed eyelids, contracted pupils, upturned eyeballs, pale face, cool, clammy skin, forehead beaded with heavy perspiration, limbs lax; breathing slackens, reaching as low an ebb as six per minute; coma profound; no responsive movement to pricking, pinching, or other stimulation. The body will not walk, it is only dragged; lips become livid, surface colder, breathing, at long intervals, and pulse, nearly imperceptible. This coma may be mistaken for effusion into the pons; so it is well, in all cases of profound coma, with contracted pupil, to exercise care, unless there be collateral evidence, as a laudanum or morphine bottle about, or marks of a hypodermic syringe, lest the case be apoplexy into the pons—a kind of coma that is not benefited by bastinado, beating with wet towels or willow rods, walking about, or all the caffeine, or coffee pumped into the body. In all cases of effusions, fracture, apoplexy, adhere to cups to nape of neck, stimulants to extremities, open bowels. (See *Opium*.)

A formation of solid, unorganized masses

Concretions. within the body, either by chemical preparations from the fluids, or by the accidental aggregation of solids introduced from without; in the former case it is termed a calculus, in the latter concretion.

A concretion may be wholly composed of solids foreign to the body, or there may be a mingling with the elements of secretion, as with mucus or calculous matter. Beans, peas, noodles, and other foreign bodies, introduced into the cavities of the body, often become the nuclei of concretions, by attracting around them mucus, or crystalline deposits. The most remarkable forms of concretions are those found in the stomach and intestines of man, from the more solid and indigestible parts of food or of substances improperly swallowed.

Remarkable concretions are formed in the stomach and intestines of man and the lower animals, from the solid, undigested part of the food, or of substances imperfectly cooked and swallowed without proper mastication. The swallowing of hair, the use of raw oatmeal, the continual use of animal food, the use of carbonate of magnesia as a laxative, insoluble carbonate of iron, phosphate of lime, pulverized bone are apt, if continued steadily, to give rise to solid concretions, varying in size from a walnut up to that of an orange. They invariably give rise to pain, constipation and obstruction of the bowels, as they are pushed along. They are very apt to lodge above the sigmoid flexure, and thus give rise to backache, derangement of the kidneys and bladder, a wearied sensation or rather neurosis of the sacral nerves, numbness on the posterior part of the limbs, general prostration.

The annexed wood-cut gives a beautiful illustration of one of those concretions that were passed from the bowels, under the influence of copious enemata of warm glycerine into the lower bowel daily, patient in the recumbent posture, enemata passed by a long tube above the flexure.



Section of an alvine or intestinal concretion formed in situ successive layers upon a raisin seed.

The localizing of disease germs in different parts of the body is extremely liable to give rise to concretions.

The tubercular bacilli is the most prone to effect this, especially if the deposit is made in the brain, parotid, lungs, stomach, intestines, ovaries, testes, pancreas, spleen, female breast, etc.

There is an irritation somewhere in a tubercular patient, effusion takes place, the bacilli aggregate together, form a round mass, which by-and-by becomes milky, then cheesy, and latterly calcareous—phosphate of lime; that is, the tubercle takes on the form of degeneration and death.

A shock or concussion is usually caused by a
Concussion. jar, blow, fall, or some mechanical injury; and it may also be the result of some depressing passion. No part of the body, no organ or tissue is exempt from a concussion. Thus we have concussion of the brain, stomach, bowels, etc.

Concussion of vital organs is much more common in our

highly civilized state, than is generally supposed. For example our improved means of railroad travel and electric lighting, are highly detrimental from the repeated jars and shocks produced thereby. The strain and struggle for existence are greater—the emotions, desires, affections are more intensified, and give rise to shock to vital organs. Certain drugs have a depressing, or jarring action, alcohol, opium, quinine, if in large doses, give rise to a cerebral shock—phosphorus, if large dose, irritates, jars the function of the stomach, etc.

All concussions are spent upon the brain, whether the cause be direct or indirect.

In the treatment of brain shock, or concussion, absolute, perfect rest in the recumbent posture in bed, so as to enable the vital forces to rally. Sulphonal or hyoscyamus should be administered in sufficient doses to procure sleep; bowels opened, stimulants applied to the extremities, and if need be to the head. A skilled physician should be in immediate attendance, who will prescribe some cerebral sedative, as aconite, or belladonna, sambul, valerian, bromide of ammonia, so as to induce sedation, even an excess of sleep.

If brain shocks or concussions were more actively treated, there would be fewer cases of cerebral disease.

If any people in the world require great precaution against concussion of the brain it is our people, with brains feverishly active and literally starved for a diet of phosphates. There should be an improvement here, better brain nourishment, which our people would find in boiled white fish, oat-meal, whole corn-bread.

A retention of fæces beyond the usual

Constipation. period, so that when they are passed, it is with difficulty, and in a comparatively hard or indurated state.

A normal condition of the body demands a movement of the bowels following the morning meal; if this does not follow there is inertia of the intestinal track.

Constipation is a most troublesome and prevalent affection.

Causes.—This may be due to some constitutional defect, inherent weakness of organization, or inertia of the nerve centres, which gives rise to scanty mucous secretion, deficiency of bile, a defective nerve supply, as exists in neurasthenia. Add to these habitual inattention to nature's calls, sedentary habits, use of drastic cathartics, malaria, alcoholic drinks, erroneous drug treatment, adulterated food, hasty or insufficient mastication, dyspepsia, anything which will arrest the peristaltic wave.

Symptoms.—Looking at the rectum with its immense supply of spinal nerves, its mucous membrane studded over with the most active absorbents, any retention of the fæces over twenty-four hours will give rise to headache, fetid breath, drowsiness, fever, due to the absorption of deleterious gases, poisons, and disease germs re-entering the circulation, such a state necessary gives rise to a morbid state of the kidneys, bladder, skin, lungs.

The pressure of a loaded rectum gives rise to prostatorrhœa, and seminal emissions in the male; ovarian, uterine, and vaginal disturbance in the female.

Its reflex effect tells disastrously upon the brain, often giving rise to serious nervous disorder.

Treatment.—In the treatment of constipation, the cause if possible should be ascertained, and removed. The patient should be instructed, that there is no rule of health of so much importance as a well regulated state of the bowels.

It is a very common belief that the rectum is but a receptacle for the fæces, or the refuse matter of the intestinal canal, but this is a mistake. The rectum is not a storage for the fæces, as they are naturally stored in and above the sigmoid flexure, just above the rectum, but when habitual constipation is induced, it is often compelled to act that part.

As the rectum has a greater supply of nerves, of blood vessels, and its mucous membrane literally studded over with absorbent follicles greater than any other part of the intestines, it clearly explains why persons who suffer from habitual constipation, have dry, hard stools, fetid breath, rough skin, febrile exacerbation.

Every individual should be taught a regular habit, a daily evacuation from the rectum, of all matter that approaches it for exit from the body. The great trouble is that all disease germs and ptomaines contained in the fæces, on entering the rectum, if they are not promptly discharged, re-enter the circulation again, rendering the blood germ-laden, irritating, deranging, interfering with the healthful working of every organ. Let this continue from day to day, and it silently but surely produces disease of the rectum itself.

The evil results of constipation are not limited to blood poisoning and nerve irritations. The failure of the bowels to excrete, throws additional work upon the skin, lungs, kidneys; deranges and produces disease of vital organs. Habitual constipation occasions great distress and produces grave pathological changes in the brain, heart, lungs, bowels, organs of assimilation, often gives rise to chorea and epilepsy.

It is often difficult to ascertain the cause, but a careful examination of the rectum should be made for chronic inflammation or

catarrh, for ulceration or other morbid states. Cathartics for the relief of this difficulty are worse than useless and invariably do more harm than good.

Rational attention should be paid to diet, exercise, bathing, massage, accompanied by regularity in going to stool to solicit movements; if the condition does not yield, there is some trouble with the liver, mucous membrane, nervous system. We shall enumerate briefly a few of our best remedies for habitual constipation.

Kolatina is the best remedy in the materia medica for all forms of constipation. This principle is isolated from the African kola nut by a peculiar process of maceration, and converted into a pleasing palatable paste, and this into a refreshing fruit lozenge.

Kolatina has many properties: it rejuvenates the nervous system in all cases where a poverty of nerve force exists—by this action on the brain the liver is roused into activity, the peristaltic wave heightened, strength augmented.

The dose is from a half to a whole lozenge and should be taken at bedtime.

It is indicated in all cases of constipation, particularly those dependent on defective or perverted nutrition, combined with indigestion. It has been used extensively, and all have been fully satisfied of its wonderful power as a therapeutic agent, and the very best remedy in constipation, producing full, easy stools, without nausea or tenesmus.

Another very valuable formula in or among neurotic patients who suffer from constipation, caused by a want of nervous energy, is three drops of the tincture of belladonna and the same amount of the tincture of nux vomica, added to a little water, administered two hours after eating. Tincture of sulphur is also a most effective remedy, in doses ranging from five to fifteen drops added to water.

Enemata of one or two ounces of glycerine either alone or medicated with tincture of belladonna or nux. This is a most efficient remedy in habitual constipation, and intestinal obstruction.

Cascara sagrada lozenges, two at bedtime, are most effectual in overcoming this difficulty.

Ox-gall, charcoal pulverized, and extract of nux vomica is invaluable; thus, ox-gall, thirty grains; willow charcoal, pulverized, sixty grains; solid extract nux vomica, five grains. Mix. Make thirty-six pills. One at bedtime; or the following: solid extract golden seal, sixty grains; comp. solid extract of colocynth, thirty grains; extract hyoscyamus, five grains. Mix. Make thirty pills. One or two at bedtime, as the case may require.

Contusions. Injuries inflicted with blunt or obtuse instruments are usually followed by an extravasation of blood either into the cellular tissue or skin.

Treatment should be active, and should consist of such remedies as rest, the application of the tinctures of marigold or arnica, so as to stimulate absorption of the effused blood.

If these fail, then take half and half of peroxide of hydrogen and water and apply to the part, which will prevent the evolution of micrococci.



Chains of micrococci found in contusions, followed by ecchymosis; magnified 1000 diam.

Coryza. Inflammation of the mucous membrane lining the nose, frontal sinuses, throat, accompanied with fever. The cause is usually exposure to cold or wet, or disease germs.

Symptoms.—Languor, lassitude, debility; pain in head; aching in back and limbs; fever, thirst, loss of appetite, rapid pulse, increased heat, coated tongue, discharge from nostrils; profuse lachrymation, hoarseness, sore throat.

In addition to those symptoms, the discharge from the nose is liable to become acrid, and coming in contact with the lips causes an eruption of fever blisters or herpes. In a few days symptoms will subside and pass into a subacute form, and tonsilitis or bronchitis may supervene, and the patient recover. If he happens to be feeble, or possess a tubercular habit, it may pass into ulceration, and a chronic form be set up. In all cases there is a degradation of the living matter that supplies the mucous membrane of the nostrils, frontal sinuses, posterior nares and throat, into the disease-germ, amœba, which, if not speedily relieved, will produce grave changes.

The treatment to be promptly effectual must consist of bactericides. During the feverish stage jaborandi to diaphoresis, followed by antifebrine and tincture of belladonna till throat becomes dry, or salicylate soda in liquor ammonia acetatis, alstonia, pulsatilla, cimicifuga race., alternated with peroxide of hydrogen, or else quinine; chloride of ammonia.

Inhalations of glucozone, benzoin, ammonia, camphor, menthol, nasal bougies, prepared from menthol; benzoin, cocaine, applied locally, will often cut short an attack.

This is an indication of the presence of microbe
Cough. in or on or near the larynx and bronchi, and is a symptom of various microbial diseases, as catarrh, laryngitis, asthma, croup, pleurisy, pneumonia.

The act of coughing consists in first, irritation of these and other germs, and in a deep inspiration, closure of the glottis and violent expiratory effort by which the glottis is forcibly opened by the compressed air, which carries with it, in its exit, mucus or other matters which may have lodged in the lungs or respiratory passages. The nervous centre for this act lies in the medulla oblongata. It is bilateral, and situated on each side of the central raphe. It is excited into action reflexly by irritation of the respiratory branches of the vagus, distributed to the folds of the epiglottis, to the whole interior of the larynx, to the trachea, especially at its bifurcation, to the bronchi, to the substance of the lung itself, as well as the pleura when it is inflamed. Irritation of the internal auditory canal at the point to which the auricular branches of the vagus are distributed, also causes coughing; and so may irritation of stomach, liver, spleen. As coughing is a reflex act, excited by irritation applied to a sensory nerve, and reacting through a nerve-centre upon the respiratory muscles, it is obvious that it may be lessened either by removing the source of the irritation, that is, destroying the germ, or by diminishing the excitability of the nervous mechanism through which it acts. Both methods are employed in practice; one of the most common being to lessen irritation by the use of mucilaginous, or saccharine, or oleaginous substances which have no action upon the nerve-centres; the other by acting on the nerve-centres.

The action of germicides is ever for good; the wonderful action of either the tar or creosote syrup; the syrup toluentine compound cannot be too highly extolled.

The probable action of marshmallow, gum licorice, is to soothe irritation at the root of the tongue, around the fauces, as well as the trachea, bronchi or lungs. This probable action in relieving cough depends to a great extent on the mucilaginous coat. Sedatives relieve cough by entering the blood, and being carried to the medulla lessen the excitability of the nerve-centres, such as bromohydric acid with spirits of chloroform and syrup squills, or a mixture of solution of hydrochlorate of morphia; dilute hydrocyanic acid, of each, twenty drops; glycerine an infusion of gentian, of each, two ounces; chloroform, three drachms. A teaspoonful, as indicated, every three hours. Muriate of ammonia, in five-grain doses in syrup is excellent.

Cough, from teething, intestinal irritation, is best relieved in the former by lancing the gums; in the latter by getting rid of the parasite.

Cough from relaxed, or elongated uvula; hypertrophy of the tonsils requires first, a trial of astringent gargles; that failing, alteratives, iodide and excision.

Cough, due to disease of the ear, mullein oil.

Nervous cough, avena, kephaline, sambul, coca, pulsatilla, gentle exercise, sea-bathing, shower baths, nutritious food.

Coup de Soleil, by solar heat and evaporation of the serum
or of the blood.
Sun-stroke. It gives rise to faintness, a craving for

water, heat and dryness of the skin, high temperature of coldness, great nervous depression, vertigo, tightness across the chest; pulse variable, often quick and full, at other times thin and feeble, so that it can scarcely be felt. As the case progresses heart's action becomes violent; stupor, so that the patient cannot be roused; face becomes pallid; vomiting, coma, great difficulty of breathing, contracted pupils. While in this state the conjunctiva may become congested, action of heart intermittent, and just prior to death dilatation of pupils, gasping respiration, and it may be vomiting.

In some cases symptoms are very insidious: mere listlessness and stupidity, with languor and debility, head feeling strange, yet in a few hours death. In other cases after exposure to the sun, the individual has suddenly fallen down insensible, made one or two gasps, and died in a state of syncope; the brain being enervated, the blood deficient of its serum (clotty), and the secretions deranged. If recovery does take place, convalescence is apt to be retarded by a slight fever, some complications of heart, lungs, liver, kidneys, or from paralysis or prostration. Patient not free from danger for some time. A great while after apparent recovery symptoms of paralysis and insanity may be developed. In every case, just like recovery from inflammation of the brain, the patient is easily affected, and never the individual he was before the attack.

Treatment.—If one has to be exposed during the hot season to the sun's rays, quinine is our best drug as a prophylactic; besides, proper care of the dress and an abundance of water not iced. On no account must alcohol be used, but there may be utility in coffee or malto cocoa.

The greatest good is to be derived from the judicious use of tepid or even moderately warm water, wrapping the patient in a nude condition up in sheets or blankets saturated with or wrung out of warm water, keeping them moist by pouring it

freely over them, so that the skin may imbibe the water, an element essentially needed in the blood, besides the revulsive effects of the water on the periphery of the nerves on the skin. The head, also, should be encased in packs, and even copious enemata of tepid water. If the tongue is coated, an emetic of mustard and salt, allowing the patient to drink freely of tepid water and bicarbonate of soda. After it has acted gently, follow with half a teaspoonful of compound licorice powder, in which one drop of croton oil has been rubbed up, and repeat if bowels are not promptly opened. Allow the patient as much water as he may desire to drink, for water is the remedy.

As soon as the patient can swallow, half teaspoonful doses of the sesquicarbonate of ammonia freely diluted with water, is a good remedy to liquefy the blood, given as often as indicated by the condition of the heart. If the patient does not react, no improvement, then cup the nape of neck, shoulders, and apply mustard plasters to feet and hands, still holding on to the water, and an alkali internally. If a stimulant is necessary, carbonate of ammonia, liquor ammonia acetatis and artificial heat; otherwise, the case should be managed like chronic inflammation of the brain.

This is the utmost limit of deterioration which **Cretinism.** can be reached by a human being without death.

It may be regarded as defective, or imperfect formation or development of the body, accompanied by a dwarfish stature, malformation of the head, which is usually flat on top and spread out laterally; accompanied with mental imbecility; vacant staring countenance; devoid of intelligence; the physical deformity is variable in degree; in mild cases (sporadic) the shortness of the limbs is most remarkable. The tips of the fingers, instead of reaching well down to the middle of the thighs, only extend as far as the umbilicus in many instances. The arms and hands are very short, the fingers scarcely longer than the toes. The legs are as short in proportion as the arms; in well marked cases (endemic) the mouth is gaping wide, tongue protruding, saliva flowing; goitre; brutalized habits; squinting blindness; deaf-mutism.

The endemic form is common in valleys, gorges, in which neither sunlight nor purified air enters, where the inhabitants are necessitated to drink ice or snow water deeply impregnated with silicious or calcareous deposits. In addition to impure air, there is usually associated with it bad or meagre diet, extreme poverty, insanitary conditions, sensuality, incompatibility consanguinity.

Whenever either endemic or sporadic cretinism is developed,

and the cretin survives and reaches the age, say, of 15 or 20 years, its condition is equally remarkable and characteristic. No signs of puberty make their appearance and the mental condition is that of idiocy. Such being the case, cretinism never can be transmitted, an impure sustained breed cannot be produced. A cretin never can beget a cretin, procreation ceases—there is no establishment of a morbid race.

Probably a hundred years hence, when our population reaches two or three hundred millions, the population necessarily restricted to given areas, this disease may appear in our mountain gorges or valleys.

The disease admits of no treatment. Its prevention is important; this embraces legal enactments to restrain marriage among those closely related by blood or temperament, those affected with the tubercular bacilli, or crypta syphilitica—to restriction in the use of alcohol which atrophies and whittles down the brain of the modern Caucasian.

Under this term there are usually classed three

Croup. distinct pathological states: (1) a spasmodic action of the larynx, usually caused by reflex irritation, as teething, worms and derangements of the digestive tract; (2) a species of laryngitis, due to cold, wet, exposure, often accompanied with œdema of the glottis; and (3) true croup with the formation of a false membrane on tongue, tonsils, uvula, larynx and trachea.

In true membranous croup, we have a micrococcus very much resembling that of diphtheria and croupous pneumonia, and although not deemed contagious and infectious, nevertheless is so, the microbe being very heavy, the living germs of contagion are limited to the patient.

The microbe is easily isolated, either from the false membrane or blood, bears cultivation well, the cultures injected into animals produce the identical pathological condition, to with a pale red gelatinous exudation on the mucous membrane of the air passage, giving rise to bronchitis, pneumonia. The bacillus indicum appears, patient dies from exhaustion, suffocation, convulsions, thrombosis.

The microbe is pathogenic of the disease, and is associated with a special diathesis.

Symptoms in the early stage are very similar to catarrh: slight fever, cough, hoarseness, drowsiness, suffusion of eyes and running at nose. In the course of a few hours wheezing respiration; fits of hoarse coughing; occasional spasm of laryngeal muscles. Then the characteristic symptoms, alteration in cough, which has

now a peculiar ringing sound, rendering it brassy; inspirations prolonged, accompanied with a crowing or piping noise; redness and swelling of tonsils, uvula, but not so diffused as in tonsillitis; increased fever; breathing becomes more hurried and impeded; cough frequent; great prostration, with irregularity of pulse; great thirst, irritability and restlessness; patient's features expressive of alarm and distress; he grasps at his throat, thrusts his fingers into his mouth, as if to remove the cause of his suffering; symptoms much worse towards afternoon and evening; a remission towards morning. If vital force properly aided with remedies overcomes the disease, cough loses its peculiar twang, becomes moist, crowing inspirations cease, expectoration takes place. But if all fail, and death is approaching, drowsiness becomes great, sleep is uneasy, child starts and wakes in terror, breathing becomes gasping and interrupted, suffocation seems impending, congestion of lungs, skin cold, covered with a clammy sweat, asphyxia, coma, convulsions or fatal thrombosis.

Treatment.—There is much good to be derived from general management. Patient must be confined to bed in a room with a moist atmosphere, whose temperature is 75° Fahr.; steam atomizers kept running near the bed, with either resorcin, creolin, or distillation of jequirity, or iodine, or lime-water, alumina, or lactic acid; or all failing glucozone. Calcium sulphide alternated with peroxide of hydrogen acts well in hoarseness. If symptoms resemble asthma, give quinine in from one to five grains every four hours; and every half hour 30 drops of the acetic syrup of blood-root, and if there is any tendency to spasmodic action of the muscles, add lobelia. Hot fomentations to the throat, consisting of solutions of boroglyceride with cocaine act well.

Nasal bougies composed of resorcin, lactic acid, creolin, etc., pushed up the nostrils have an excellent effect.

Case must be carefully watched, every point guarded, and germicides pushed. Diet very nourishing; beef tea, cream, milk and lime-water, malted milk; bowels kept open with enemata; if there is fever give antifebrine, alternated with liquor ammonia acetatis and salicylate of soda. An energetic germicide treatment is essentially curative, prevents complications, as embolism.

A term applied to a variety of morbid conditions in which the microbe indicans appears in the blood and all vital organs, as the heart, brain, lungs, etc., its presence is indicated by a gasping, respiration, general coldness and blueness of the cutaneous surface; more especially the nose, lips, ears, fingers. It is a diagnostic symp-

tom of asphyxia, pneumonia, Addison's disease, malarial poisoning, purpura, organic disease of the heart, etc.

In asphyxia and pneumonia, non-aeration, or non-oxygenization of the blood; in disease of the suprarenal capsules, the excretion of indican is often so great as to stain the underclothing blue; the alkaloid ptomaine from the malarial germ in bad cases, evolves the indican microbe in immense quantities; in purpura, the factor in the production of the germ is poverty of the nerve-force; in organic cardiac disease, the presence of this microbe is a precursor of an early termination in death. The presence of the microbe is invariably associated with embolism of the blood.

Cyanosis at or subsequent to birth is dependent on some deficiency or defect in the construction of the heart, as the septum not arriving at its full development at birth; or from permanence of the foramen ovals allowing a passage of blood from the auricles; or from the origin of aorta and pulmonary artery from a single ventricle, or from contraction of the pulmonary artery; any state or condition which permits a mixture of venous and arterial blood.

In the diagnosis, the history of the case, the blueness and coldness, the difficulty of breathing, fainting on movement or excitement, violent palpitation. In the congenital form, tips of fingers and toes become bulbous, nails incurvated; imperfect development; dropsical effusions, mostly congenital; if so, patient blue all over, often present at the termination of valvular disease.

In the treatment, each individual case, dependent upon some special disease, must be managed according to its own pathology; asphyxia and pneumonia, liquor ammonia acetatis and salicylate soda, alternated with peroxide of hydrogen and compound oxygen; in purpura, malaria, disease of the suprarenal, eucalyptol is a priceless remedy.

If it is a congenital, the best plan is to be very cautious in any opinions of the case, as in one-half the cases the organic mischief is irreparable, whilst in the other it is amenable to treatment. So it is well to keep the little patient warm by keeping it rolled up in blankets, with external artificial heat; nourish carefully; administer one or two drops of digitalis twice daily; in a large proportion of such cases, the digitalis will contract the orifice and a cure be effected.

When it appears as a symptom of other maladies, palliate the condition by the administration of bactericides; plain nourishing food, mild tonics, rest, freedom from mental care or worry.

A species of degeneration which may have a congenital origin, or may be acquired by some degenerative action. Properly speaking they are tumors consisting of a sac containing solid or liquid substances. They may arise by the formation of definite cavities in the meshes of the areolar tissue; by the dilatation and growth of obstructed gland-duct or follicles; by the erratic development of nucleated cells, which become exaggerated into cysts. Some contain serum, others a jelly-looking substance; some blood, others solid matter.



Cysts in the kidney.

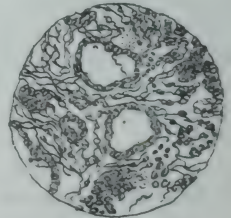
Cysts in the brain are usually either hydatids or cysticercus--both have been found, solitary or multiple, and may attain considerable size, and cause atrophy of the brain.

Cysts in the kidneys are met with in four different forms of degeneration. Two of them follow as a natural sequel from Bright's disease: (1.) Cysts varying in size from a pin's-head to a hazelnut are common, as a result of interstitial breaking down and obstruction. (2.) General cystic degeneration from atrophy and obstruction, and expansion or dilatation of uriniferous tubes.

(3.) Small cysts are often met with on the surface of the kidney, which do not interfere with its function in any way. Sometimes they attain a great size, and form an appreciable abdominal tumor. (4.) Congenital cysts, complete or incomplete, or kidneys made up of cysts without any trace of secreting tissue; usually combined with other malformations.

If the result of chronic desquamative nephritis, treatment same as for degeneration. In the other forms the symptoms are often obscure.

Cysts in the Liver are still more common. There is a variety of views as to their origin and nature; some believe that they are formed by a degenerative process of the hepatic cells; others that they are due to dilatation of the minute canals; others that they are a new formation of vacuoles in the hepatic cells that these vacuoles are formed by obstruction and dilatation of the biliary ducts, vacuolation of branches.



Cysts in the liver.

Encysted, knotty tumors, containing a cheese-like substance

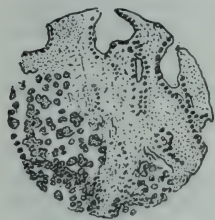
are found in the glandular substance, varying in size from a pea to that of a hen's egg. They arise from irritation and inflammation of the hepatic ducts; steatomatous contents composed of irregular granules, free oil globules, and occasionally plates of cholesterolin.

Simple Serous Cysts, with clear watery contents, are sometimes found scattered over the liver, usually about the size of a small bean.

Sacculated Cysts, containing a glairy fluid, are also met with. In some cases they resemble a honey-comb. The liver in some cases is crowded with such cavities.

I can suggest no explanation of the fact that such changes in the liver should be so commonly associated with similar changes in the kidneys. We have no means of determining in which organ the change commences, though the destruction of the kidney and interference with its functions are the more marked. In some cases the increase in size of the liver is much more obvious than in the kidney, which from its position is accessible to examination.

There seems to be no way in which the changes in the one could be secondary to the other. The connection between the organs is functional only; neither anatomically nor by development are they at all related. Perhaps, to take a broad view, we may look on the changes in both organs as a constructive attempt, possibly making use of embryonic remnants, and intended to resist degenerative processes in the organism due to the strain of advancing years and failing powers of excretion and secretion.



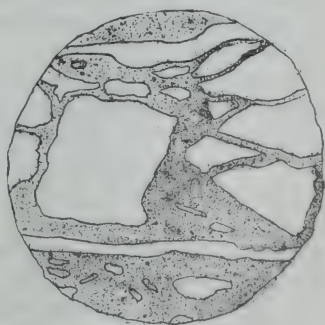
Cysts of the lung.

Cysts in the lung are neither so common nor so numerous as in other organs.

They are altogether different in their origin and pathology from emphysema.

Cysts in the mesentery are still less common; when they do occur, they are found of very peculiar shapes and sizes.

Cysts in the pancreas are due to the retention of the pancreatic secretion, from obstruction of the duct by calculi, or from the external pressure of tumors. Hemorrhagic cysts are rare; when the duct is closed near its



Cysts in the mesentery.

mouth, there is apt to be hemorrhage; atrophy and cirrhosis of the gland may result from these cysts.

Cysts of the uterus, closed sacs, filled with serum or otherwise, are often found developed in the walls of the uterus, or beneath the internal lining membrane or serous covering. Sometimes one part of the uterine walls is invaded with cysts, or small bladders, while another part is infiltrated with fibrous tissue, or the ordinary fibroid tumor. These cysts give rise to trouble and inconvenience when they attain any size, such as leucorrhœa and hemorrhage. If within reach, they may be punctured. They, like the others, are unaccompanied with pain; not infrequently give rise to uneasiness. The best treatment is a general alterative and tonic course.

In order to avoid those three common forms of uterine disease, there should be a rigid avoidance of irritation of the uterus, either by tight lacing, wearing sponges or pessaries, masturbation, abortions, irritating caustics of doctors, especially nitrate of silver; even certain occupations, as the sewing machine, should be guarded against, or other forms that aid in the production of congestion.

The ear with its appendages is a perfect instrument by which the brain receives the undulations of sound from the external world, through the medium of the auditory nerve reflected upon the membrana tympani.

A normal state of the brain and ear is essential to perfect hearing.

Loss of hearing may be the result of a great variety of states or conditions, and supervenes as a sequela of nearly all affections of the middle and inner ear.

Every disease germ incidental to the human body, when present in the blood, finds the ear a favorite structure for deposit and growth; the microbes of typhoid and typhus fevers often leave the ear in a state of dilapidation; tubercle, syphilis, rheumatism, gout, their spores, germs, and ptomaines are destructive to the ear, and often cause irreparable deafness; the migratory germs of scarlatina, mumps, diphtheria, measles, nasal catarrh, produce great havoc in the ear by giving rise to points of ulceration (nests), and various inflammatory changes in the ear.

Microbes in the nose, fauces, throat, often find their way up the eustachian to the inner ear and give rise to pathological changes and deafness.

Besides these and other affections in which the hearing is impaired or permanently lost, there are *five* other states in which the hearing is either impaired or lost.

1. A class of cases due to *anæmia* of the brain, in which the emotions, desires, affections, passions, play an important part; among these emotional deafness, the death of a friend, fright, news of a painful character; exhausted vital force, by sexual excesses; shocks; masturbation; want of nutrition in the brain; action of the sun; railroad jars; meagre brain food; isolation; monotony; sameness; obliterating the typical brain fissures.

Best treatment for deafness due to *anæmia*, is *avena sativa*; glycerite of kephaline; nitro-glycerine; coca wine; cerebrin; peroxide of hydrogen; removal of cause; nourishing brain food; every thing possible to create richer blood.

2. Deafness due to *congestion*, a determination of blood to the brain, as in apoplexy, etc.

Best treatment, foot baths; hot mustard water; free purgations, stimulants to the nape of the neck and shoulders.

3. *Reflex*, chiefly due to teething, worms; irritation to stomach, liver, bowels, uterus, sexual organs.

The chief point is to get rid of cause.

4. Often due to the careless and indiscriminate use of such drugs as quinine, chloral hydrate, opium, belladonna, tobacco.

Coca wine; *avena sativa*; glycerite of kephaline.

5. *Organic*, due to bankruptcy of the brain; white softening; atrophy, obliteration of its convolutions; very hopeless.

In all the different varieties an effort at cure should be aimed at by placing the patient upon a general alterative and tonic course of treatment, as all affections of the ear are most amenable to constitutional treatment.

The introduction of so many invaluable remedies of late have effected a complete revolution in aural diseases. For example, the internal use of nitro-glycerine alternate with *avena sativa* operates like a charm in some cases; in others the glycerite of kephaline, in alternation with the peroxide of hydrogen, with the use of mullein oil dropped into the ear. Brain food is essential in all cases, change of air, especially the mountains where the atmosphere is highly rarefied and ozone is abundant.

Diabetes, Saccharine diabetes, a complicated chronic
 or malady, characterized by the presence of glucose
Mellituria. or grape sugar in the urine, blood, and all the
 solids and fluids of the body.

The liver is the great sugar-forming gland, and it is to that organ we must look for the grand predisposing cause. Any irritation transmitted to it through the medium of the eighth pair of nerves from the brain, produces an exaggeration of the

hepatic secretion, and an augmentation in the flow of urine. Still, the liver may be irritated reflexly by a diseased stomach, pancreas, spleen, either by the presence of disease germs in the blood; or the abdominal brain, the great sympathetic, may be damaged by worry, struggle, mental depression, depressing passions.

This irritation, central in the brain, peripheral in the liver, may be directly due to shocks, falls, blows, concussions, over-work, exposure to the sun, drinking ice-water when heated, or vicissitudes of climate.

As a rule it comes on slowly and insidiously, with great muscular and nervous debility; greatly increased flow of saccharine urine, of an apple odor, of a high specific gravity of from 1035 to 1060. Still, cases are often met with in which the specific gravity is lower; skin invariably very dry and harsh; obstinate constipation, gradual failure of health and strength, with loss of sexual power, pain in loins; extreme prostration; coldness of extremities, with sense of burning in hands and feet. Debility



The glucose fungus of Diabetes, or Mellituria.

increases, weight diminishes, body shrinks, withers; œdema of feet; sometimes albuminuria; breath has a chloroform odor from imperfect combustion of sugar; gums spongy; teeth drop out; mental depression and irritability; constant sense of sinking at pit of stomach; appetite for food voracious; thirst extreme; strong tendency to cataract. After it has lasted months or

years, the lower lobe of the right lung, which is so fully covered by branches of the sympathetic, becomes literally invaded with tubercle, colonizing from below and proceeding upward. There may be boils, eczema, psoriasis, lichen, with pruritus of the genitals.

The above are the common symptoms, when it originates in the brain, the great co-ordinating chemical centre; but when it starts in gastric intestinal catarrh, from the presence of some poisonous substance, or microbes, with its ptomaines, or morbid material generated in the intestinal tract, there may be in the early stage localized or paroxysmal pain in the upper part of the abdomen, and vomiting of green-colored matter, exceedingly obstinate constipation, heart affection, cerebral irritation, somnolence, great prostration, febrile spells, in which the pulse is frequent and small, with very rapid breathing, with remarkably deep inspirations, dry tongue, intense thirst, and no elevation of temperature. By-and-by the symptoms coalesce.

The whole train of symptoms point to a nervous origin at the

base of brain in the fourth ventricle ; even the eye-symptoms can be partially explained. The spinal root of the optic blending with the sympathetic and passing the origin of the eighth pair, in the base of the brain, may receive a pathological effect ; at all events, this root brings the retina into direct communication with the co-ordinating chemical centre and the medulla. The existence of this branch is interesting, as it throws light on the physiological relation between the parts affected in diabetes, the medulla and retina, and it constitutes the undiscovered link between certain diseases of the spinal cord and eye. There are often wandering, or aching pains in the bones ; hyperasthenia of the soles of the feet ; flesh is tender ; feel as if they were walking on pebbles ; cannot maintain their balance ; sciatica is common.

Besides, the very common termination ; tubercular consumption, bronchitis, pneumonia, peritonitis, gangrene, may take place, or the patient die from exhaustion.

To constitute the morbid condition, there must be a persistency of sugar in the urine with the symptoms. This can be readily detected by the potash, copper, or fermentation tests.

It is clearly to be understood that the liver, under this weakened or irritated nerve, can, will secrete, and continue to secrete, sugar, without either sugar or starch being introduced into the stomach. If sugar or starch is taken in, we then are feeding a poison the system cannot get away with. What becomes of the sugar that is taken in, in some cases, even in large quantities, seeing none of it is ever found in the chyle or portal vein ? It must be transformed somewhere, and this transformation is, no doubt, effected in the duodenum by the agency of the pancreatic juice. If the digestion of sugar does take place in that way, and it should happen that the pancreatic secretion was insufficient, from disease of pancreas itself, from the disturbing and inhibitory influence upon the nerves controlling the secreting function of pathological events, or from the constant ingesta of sugar in too large amount, a greater or less quantity of sugar which has escaped transformation must accumulate in the intestines. Of all tissues that keenly absorb sugar the intestinal tract is the most active, especially the small intestines.

When the co-ordinating chemical centre in the brain is damaged, and the irritation is transmitted to the liver, grape sugar is elaborated in such quantities that the ozone-forming faculty of the lungs is incapable of burning it up, hence the presence of this agent in all the tissues of the body engenders the formation of a fungus in the blood, which is easily isolated, especially from the urine.

This glucose fungus is pathogenic of diabetes, capable of culture in any starchy or saccharine liquid at a temperature of between 80 and 90° F. Cultures injected into animals give rise to precisely the same symptoms as in man.

*As a rule animals into which those cultures are injected die before the microbe of boils and bacilli of tubercle put in an appearance. There is a pathological alteration of cell-life throughout the organism by virtue of which a greater or less part of the elements have lost the capacity of destroying the sugar secreted in excess.

Treatment.—In the general management of the case, daily bathing, flannel clothing, bowels to be opened every morning, for great improvement follows the abundant evacuations of extremely offensive and almost black quantities of excremental matter loaded with ptomaines, so, as a rule, empty the bowels daily; for it is not too far-fetched an idea that the sugar has undergone decomposition or some chemical change in the intestines, and aids in producing that terrible burning and thirst so common in diabetes.

The diet is to be highly nutritious, and free from sugar and amylaceous ingredients, for then the pancreatic juice is sufficient to meet the trifling amount of sugar present. How far the pancreatic juice suffices for the transformation of sugar in different cases, it is not easy to say. It is difficult to prepare a diet list entirely free from sugar, for even flesh, yolk of eggs and most acid wines contain sugar; and with regard to vegetables, the stalks and ribs of salad and leafy herbs all contain sugar. In short, with the exception of cheese and sour milk, there is scarcely any edible to be found that does not contain sugar. If in spite of a diet of flesh, white-fish, game, eggs, beef-tea, cream, cheese, bran-loaf, gluten bread, herbaceous vegetables, the sugar does not disappear, we know that the case is beyond the reach of pancreatic influence, or the patient may not have adhered strictly to the rules. Rigidly forbid cane sugar, but allow saccharine fruit, confectionery, potatoes, carrots, parsnips, beets, turnips, radishes, rice, sago, arrowroot, tapioca, liver, oysters, lobsters, crabs, beer, whisky, coffee. If able, gentle exercise in open air. Two small irritating plasters, an inch square, should be kept constantly applied to the nape of the neck; one on each side, and stimulation over the region of liver. A persistent alterative and tonic course commenced and persevered with; vegetable extracts, with iodine and such tonics as cinchona. The appetite for food and drink is best appeased by the administration of the glycerite of kephaline or tincture of oats.

After attending to the general management of the case, our

treatment becomes decidedly empirical, and is confined almost exclusively to the use of cerebral tonics and bactericides.

These are a few remedies worthy of most serious consideration.

Sambul seed finely pulverized, introduced into a capsule or pearl which will hold five grains, to be taken after every meal, has a magical effect in diabetes. The use of five grains of this drug after each meal, corrects the faulty condition of saccharine fungus evolution, and it disappears from the blood and urine while taking this remedy, and the patient may eat anything on the entire list of dietetics, and for years he may prolong his life in comfort, but let the remedy be discontinued, the fungus promptly re-appears in both blood and urine. Although not a curative drug, while taking it its action works wonders.

Drugs of any utility in this disease must have a germicidal action.

Salicylic acid, combined with the acetate of ammonia, and alternated with the glucoside of the poplar bark is most effectual in old, stubborn cases, and is worthy of a trial.

The glycerite of ozone acts very energetically upon the glucose fungus in the blood, and destroys it at the same time; appeases the appetite for drink and food, brings the specific gravity of the urine down to a normal condition; patient improves under its use.

Chlorate and permanganate of potass, comp. oxygen, ozone water, peroxide of hydrogen, glucozone, etc., all operate most efficaciously in sterilizing the fungus.

All the vegetable balsams, such as copaiba, petroleum, oil of sandal wood, pine needles distillation, will, when administered, destroy the fungus, bring the urine to a normal standard.

The sulphide and chloride of lime are essentially remedies of great value.

Lactic acid, salol, resorcin, iodol, sulphonal, naphthaline and saccharine, with very little benefit except a slight amelioration of the symptoms.

Saccharine has probably been more extensively used than any other of the phenol products, but its prolonged use gives rise to gastro-intestinal irritation and a sweet taste in the mouth, which is very disagreeable.

Good results have been obtained from full doses of the citrate of lithia in alternation with boroglyceride in from ten to twenty grain doses.

Where pains are prominent, either rheumatic or neuralgic, the salicylate soda[†] and liquor ammonia acetatis, afford immediate relief.

When the disease can be traced to chronic liver disease, the nitrate of uranium is invaluable.

If the attending physician views the case as one of irritation of the visceral brain, he will use opium or codeia, in alternation with white hellebore and quinine, with most satisfactory results. Codeia is undoubtedly the best form, so long as it exercises a salutary effect over the disease; narcotic symptoms early present themselves.

Excellent results follow the exhibition of the cascara sagrada lozenge; two following each meal often effects a perfect revolution upon the fungus.

Exalgine is the most recent remedy, and there is no doubt that by its peculiar action on both liver and brain, it greatly diminishes the amount of sugar in both blood and urine. The dose is from six to twelve grains in the twenty-four hours.

Any cutaneous affection that may appear, is due to the sugar fungus, whatever it may be; eczema, lichen, psoriasis, pruritus, must be treated by the application of bactericides, as resorcin ointment, cerate of the pine needles, iodol ointment, ichthyol lotion, or essence of peppermint.

This is usually defined as the discharge of fluid or semi-fluid fæces from the bowels without pain or tenesmus. It is met with in an acute or chronic form. Both forms are characterized by frequent loose evacuations from the bowels, due to either functional or organic derangement of the small intestines, and produced by either local or constitutional causes. The evacuations vary in consistence and quality, as well as in quantity and frequency; they may be fluid or semi-fluid; sometimes they are watery and serous, at other times they are mixed with mucus and occasionally a little blood. In children diarrhœa is readily produced and is often very troublesome to cure; it may be acute or chronic, and in both forms is dangerous to life. Under five years of age the mortality from this cause is greater than at any other period of life, and the greatest liability is shown during the period of teething, from six months to eighteen months or two years of age. In hot climates diarrhœa is more common than in cold. As regards the time of year, diarrhœa is far more prevalent in the summer and autumn than in spring or winter.

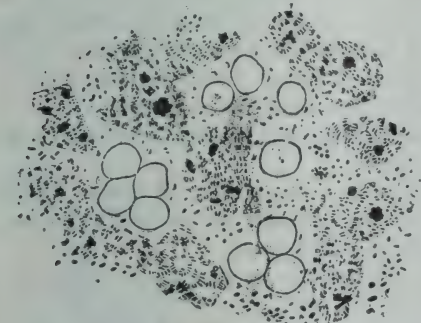
The causes of diarrhœa are numerous and varied, and are divided into local and general; among the former are to be classed indigestible food, impure air and water. Amongst the latter may be enumerated disease germs, which induce a diminution of vital power. It is often beneficial and due to an effort of the irritated bowel to throw off its noxious contents, as in cases where decay-

ing fruit or vegetables, or tainted meat or fish are taken; in such cases a fatal result may follow from ptomaines being evolved; hence in order to treat a patient with success, it is always important to make out thoroughly the cause; hence it is imperative to make a division of the subject into a variety of forms, but in each and all of them are to be found the pathogenic microbe of diarrhoea.

This microbe is the factor of all cases, it bears culture well, and the cultures injected into animals give us the disease.

The Summer Diarrhoea of Infants.—The factor operating in the causation of the summer diarrhoea of children is to be found in the presence of micro-organisms in the food, either before or after it entered the body. Putrefactive changes split up complex molecules and form chemical poisons.

Milk is the natural food of all young children, and next to raw beef is a great attractor of germs, especially so when the insanitary surroundings are bad, an organized ferment is present; this is called *tyrotoxinon*, present



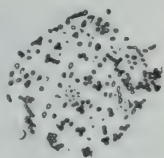
The summer diarrhoea of infants.

in milk when exposed to germ-laden atmospheres, and when subject to variations of temperatures as in the thawing and again freezing of ice-cream, and in the imperfect curing of cheese. This highly poisonous substance can be isolated from all cow's milk, when that fluid has been subject to changes or exposure, or a temperature of from 90° to 100° F., and when given to children causes violent vomiting with purging.

The most efficient preventive treatment consists in withdrawing the milk or in taking means to sterilize it, or in prescribing sterilized malted milk, so as to insure the destruction of the bacteria.

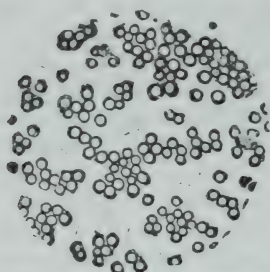
These views are confirmed by the most eminent bacteriologists of this country, who emphatically state that the chief factor at work in the production of the summer diarrhoea of children is to be found in the food, water, insanitary surroundings, with increased solar heat

The change by which toxic principles (ptomaines) are evolved is due to the presence of the microbe *amylobacta* and its own microbe.



The microbe of diarrhoea.

This micro-organism by itself may cause mucous, serous diarrhea, but when it is



Milk globes as seen in fresh sweet milk, unchanged after one year, from the sterilized Malted Milk Co. of Racine, Wis. In such milk no "tyrotoxin."

active, as it is in certain grades of milk, it excretes ptomaines and a peculiar poisonous substance, "tyrotoxin," then in addition to the diarrhea, there is violent vomiting, purging, emaciation, and often death. Certain grades of ice cream, and cheese, contain those poisonous principles in great activity.

It is indispensable therefore that milk, unless sterilized or malted, must be rigidly forbidden as an article of diet.

The principles of treatment to either sterilize or annihilate the microbe are: Cold water baths twice daily, fresh air, animal and farinaceous diet, with rest in bed. Some germicide application applied to abdomen, either aromatic spices or concentrated ozone, with chloroform.

Select one or other of the following drugs, and administer in small doses every hour when awake.

Essence of mustard, a few drops in a decoction of kaki. This essence ranks next in bactericide power to the chloride of calcium.

Resorcin, a few grains extremely efficacious.

Naphthaline, a germicide of rare power in microbial bowel affections.

Salol must not be overlooked, on account of its chemical affinity for this germ.

Ozone water, peroxide of hydrogen, must not be overlooked as great intestinal disinfectants.

Cascaradyne lozenges are also of the utmost utility.

The above have entirely superseded the use of the salicylate soda in summer diarrhea; all are effective in killing the germ amylobacta and antidoting the *tyrotoxin*.

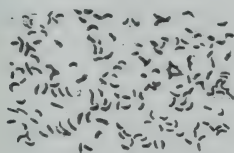
Feculent Diarrhea, generally due to bad, indigestible food, impure water, such as contains the decomposing juices of animal or vegetable matter, is a fruitful source of this form of diarrhea, or an aid to the evolution of germinal matter and its ptomaines. Unripe fruit or vegetables as well as decayed are very deleterious.

Fish, shell fish, if not perfectly fresh, may cause considerable distress with nausea, vomiting and purging. All meats, fruits, vegetables, no matter what their chemical character may be, preserved in hermetically sealed cans, are but microbial masses of all sorts of bacteria, which when swallowed on the stomach begin to germinate, breed, develop spores and ptomaines, and cause diarrhea mechanically as well as toxically.

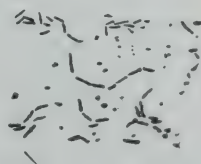
In simple irritative diarrhea, the patient will feel, a few hours after a meal, some flatulence and pain in the bowels, followed by loose evacuations; this purging may and generally does relieve the pain; the motions are feculent, and consist of a brown fluid containing small lumps of solid fæces; if the purging continues, the motions become more liquid, and contain mucus. Generally the diarrhea will cease of itself as the noxious cause is removed by the purging. If the cause should be diseased or putrid food and water, then the diarrhea will be more severe and exhausting; there will be considerable constitutional disturbance; the pulse may become feeble, and the surface of the body is colder than usual. In children simple irritative diarrhea is very common in the summer and autumn months. If the attack comes on in previously healthy children, it generally attacks, and is attended with vomiting of the contents of the stomach; at first the excreta are natural, then they assume a yellow color, which changes to green on exposure to the air, or they are slimy. The following microscopical illustrations will demonstrate more clearly than words some of the causes of diarrhea:



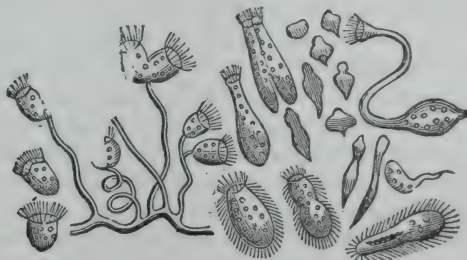
Bacillus Figurans, magnified 400; found in garden earth and on green vegetables, as parsley, salads, etc.



Comma Bacillus, as seen in river water into which sewage enters, and which supplies some of our large cities—a common cause of diarrhea to strangers.



Bacillus Megatherium, as seen in sauer-kraut, productive of intestinal irritation.



Various forms of Animalcules.

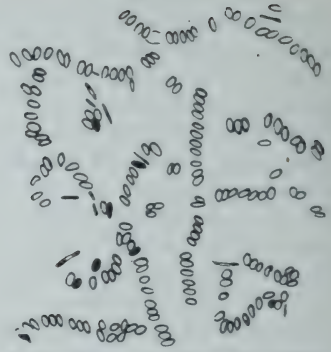
Found in stagnant drinking water, which give rise to diarrhea.



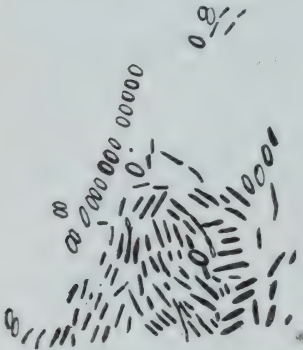
Water in marshes, usually loaded with Spirillum volutans, which gives rise to diarrhea.



Bacilli in putrid fish, showing the protoplasmic threads; the eating of such is not only toxic, but is productive of diarrhea and leprosy.



Bacillus Alvei, as found in honey, which, if used, is not only productive of diarrhea, but mellituria.



Bacillus Alvei, as found in honey, which is eaten by children, is productive of diarrhea



Bacillus Megatherium on boiled cabbage half an hour after being cooked, gives rise to irritation of the bowels, diarrhea.

In the treatment of feculent diarrhea, caused by the ingestion of bad or germ-laden water, or by deleterious food, or otherwise, the stomach and bowels should be cleansed out by an efficient cathartic; rest enjoined; concentrated ozone applied over the entire abdomen; over and above the flannel roller. Following the action of the cathartic, select some one of the following bactericides and administer in suitable doses every hour, as amelioration takes place at longer intervals between. Peroxide of hydrogen, resorcin, naphthaline, salol, salicylate soda, acetate of ammonia, etc., or fl. ext. stone crop, or collinsonia, or infusions of kaki, or bayberry, etc.

Mucous and Serous Diarrhea, the former where the mucous coat is relaxed; the latter when the serous coat is irritated.

Both forms, if the tongue is clean, may be successfully treated with rest, the application of a flannel roller over abdomen, and mild vegetable astringents, such as infusions of kaki, cranesbill, stone crop, collinsonia, or by the mineral acids and quinine.

Germicides, as sulphur water, resorcin, naphthaline, creolin.

Boiled milk in which cinnamon sticks are incorporated.

Biliary diarrhea is most common in the summer months, caused by intense solar heat, carbonaceous food, alcoholic drinks; malaria, or the damp, faint-smelling emanations from a marshy district, which are very injurious; in summer time, walking along the banks of the river, where the stream is sluggish and rank vegetation abundant, it may be often noticed that, as evening comes on, a faint, damp smell is present, which is very injurious to those subjected to it. Bad dwellings and cold, damp houses, especially those which are situated low and badly drained, will cause this disease; and so also insufficient clothing will aid in its production.

This form of diarrhea is easily recognized by the injected conjunctiva, brown skin, and heavily coated tongue; stools exhibit a great excess of bile.

In the treatment, rest, in the recumbent posture, hot fomentations over liver; if there be nausea, vomiting, an emetic of ipecac, cleanse out the bowels with one, two, or more doses of euonymus and caffeine, follow with: Comp. tr. cinchona, four ounces; nitromuriatic acid, three drachms; simple syrup, two ounces. Mix; a teaspoonful every three hours. Quinine and aromatic sulphuric acid, peroxide of hydrogen.

Chronic diarrhea is said to exist when either of the other forms last a long time. There is very apt from the nature of things, to exist some, if not a good deal of ulceration of both the mucous and serous coats. Besides, in chronic diarrhea, we have to contend with a perfect loss of tone in the bowel, an inability on the part of the lacteals to absorb the digested products, and on the part of the bowel to hold its contents.

In all forms of chronic diarrhea, the diet should be solid, light and of the most nutritious character. *Forbid fruit*, the flannel roller should be worn and rest inculcated; an alterative and tonic course prescribed. Movements of bowels restricted to one per day with a pill composed of equal parts of pulverized opium and tannin. Sufficient quantity to be taken to insure the result. Then follow with special remedies to vitalize the bowel, such as kaki, bayberry, collinsonia, poplar bark, and stone crop. A strong infusion of one of them should be made every morning and drank freely during the day. The stone crop and collinsonia are best prescribed in the form of a fluid extract—in teaspoonful

doses, thrice daily—using one for a week, then alternating with the other.

In the Diarrhea of Typhoid bactericides should be energetically pushed, especially naphthaline, creolin, and resorcin. The diarrhea must be arrested at all hazards, never encouraged on the fallacious idea that the microbe escapes by the stools. True the retention of the germ is bad, but diarrhea is always weakening, and very dangerous as it tends to rupture the thin-based ulcers on the bowels.

Melæna or black stools in diarrhea, or evacuations like tar, are due to the presence of blood from the stomach and bowels, acted on by the intestinal juices. Degeneration of the liver necessarily gives rise to congestion of the gastric and intestinal vessels, a condition that gives rise to extravasation of blood from the gastro-intestinal membrane. It may be present in enteritis and other morbid conditions of the alimentary canal.

A disposition, some constitutional affection of the body, some predisposition to certain diseases more than others. Before the discovery of the germ theory of disease, there was a large variety of diatheses ingrafted on all our medical works, as the tubercular, cancerous, gouty, rheumatic, etc. More recently the classification has been greatly curtailed, reduced to three, namely:

The uric acid diathesis.

The phosphatic diathesis.

The oxalic acid diathesis.

The uric acid diathesis is the most common, and to appreciate it thoroughly we must have a due appreciation of the function of the kidneys.

The human kidneys are situated in the region of the loins, on each side of the spine, and are imbedded in a layer of fatty tissue.

The average length of each kidney is about four inches, its weight from four to six ounces. The substance of the kidney is dense, extremely fragile, and of a deep red color.

A vertical section of the kidneys will show them to consist of different substances, which are named from their position, the external or cortica, and the internal, or medullary substance. The cortical substance forms by far the greater portion of the gland, and sends numerous prolongations inwards between the pyramids and medullary substance. It is soft, granular, and contains numerous minute, red, globular bodies, diffused throughout it, which are called from their discoverer, the Malpighian bodies. Its substance is made up of uriniferous tubes, capillaries, lym-

phatics and nerves, held together by an intermediate parenchymatous substance.

The medullary substance consists of pale, reddish, conical masses, usually twelve in number, although these often vary from eight to eighteen, their apices point to the hollow space, which is termed the pelvis of the kidney, which occupies the interior of the gland. The medullary substance is firmer than the cortical, and instead of being granular, presents a striated appearance from its being composed of minute, dense, gray, uriniferous tubes, which run in straight lines through the kidneys, after having received a highly convoluted course through the cortical portion.

The cavity or pelvis of the kidney is lined by mucous membrane through the medium of the ureters, which extend into the tissue of the kidney to meet the uriniferous tubes. The mucous membrane forms cup-like cavities around the termination of each pyramid. The cavity termed the calyx receives the urine from the open termination of the tubes and conveys it towards the pelvis, from whence it passes down the ureters into the bladder.

Each kidney is supplied with blood by renal artery, a large trunk which comes off at right angles to the aorta. The blood enters the kidneys and is there subjected to a filtration or separation of the various matters which constitute the urine, after which it is returned into the venous system by the renal or emulgent vein.

The nerves are derived from the renal plexus and belong entirely to the sympathetic system.

The respective function of the essential elements of the kidneys is the anatomical arrangement of the tufts, so as to secrete urine from the blood, to separate the various organic constituents and inorganic salts, which collectively form the solid constituents of the urine.

The secreting cells do not undergo rapid decay and renewal, they seem impervious to change, but their great faculty is their innate power of selecting certain waste materials from the blood, and eliminating them without the disintegration of their own structure. Their function is secretion of urine, one of extreme importance, for if arrested by any cause, death is inevitable; the selection, the secretion of waste, effete matter, complex fluids which have played their part in the organism from the blood. They do not eliminate disease germs, although those microbes may aggregate in the kidneys, block up the tubuli, and force themselves through by a laceration of the tufts, as seen in scarlet, malarial and yellow fevers.

An ordinary sized man in twenty-four hours will pass fifty-two fluid ounces of urine. This yields, on evaporation, nine hundred

and thirty-five grains solid constituents ; five hundred and twenty of this is urea ; two hundred and sixty-six chloride and phosphate of soda, lime, ammonia, creatine ; while the remaining one hundred and forty-nine grains is uric acid and its salts ; depending much on the kind and quality of the food and drink. These constituents in health render the urine very slightly acid, but the acidity of the secretion of the kidneys and stomach stand in an inverse relation to each other, so that the urine loses its acidity and may even become alkaline during stomach digestion. Disease either diminishes or increases certain urinary elements, and tells whether the disease is gaining or losing ground.

In all fevers and inflammations, except the nervous, the uric acid is vastly increased owing to the metamorphosis of tissue. In gout and rheumatism, in a state of sameness, isolation or monotony, the urea and uric acid is greatest, incidental to a perverted state of nutrition.

Just as sexual neurasthenia increases so does the rate of kidney trouble and disease, for the weak back and albuminous urine are present in self abuse, spermatorrhœa, prostatitis, impotency, perverted sexual appetite, debility.

All disease germs, their spores and ptomaines, when in the blood, if not destroyed, have a damaging effect on the kidneys. The microbe of scarlet fever, variola, measles, the bacteria of erysipelas, the streptococcus of diphtheria, the bacillus of malaria and numerous others, become impacted in the kidneys, give rise to congestion and passage of albumen. Properly speaking no disease germs can be eliminated ; they must be destroyed in the blood. In the migration of disease germs, when they are present in the blood, the liver, spleen, lymphatics, glands, especially the rectum, become the abode of the living, breeding microorganisms ; the kidneys resist the egress of living germs, although it is a hot-bed of spores and ptomaines. The dead germs of tubercle, cancer, syphilis, of malaria, of fevers, are to be found here.

The presence of the living germs of disease, either alive or dead, in the kidneys, weakens their structure, impairs their secreting power, deranges their function, so that the urea is imperfectly separated from the blood, and consequently imperfectly eliminated, congestion ensues and exudation of albumen and fibrin is the result.

If disease germs could only pass through the kidneys, instead of lodging in their interstitial structure, humanity could be spared a vast deal of Bright's disease.

This terrible malady is due in two-thirds of all cases directly or indirectly to microbes in the blood, and the other third to strains.

blows, venereal excesses, drugs, drinking, over-indulgence in malt and alcoholic liquors.

Disease germs in the blood, their micrococci lodged in the kidneys, give us the languor, the lassitude, the debility, the neurasthenia, albuminous urine, the drowsy aspect, the bloodless, flabby, uriniferous look of a large percentage of our people.

The late increased prevalence of kidney trouble has been attributed to drinking of the well-drugged beer of the present day; but although true to a certain extent, it would be more correct to place it to the credit of genital debility in young men whose genito-spinal centre has been unduly excited by excesses in masturbation, who have fallen into a state of mental and physical bankruptcy, suffer from albumen in the urine, of nerve origin.

Urea is, however, the grand source of nearly all kidney trouble. The sources of urea, besides the ordinary tear and wear of the body, arise from all the vices and defects of civilization; from adulterated food and drink, from insanitary states, isolation, monotony, sameness either in habits, food, or otherwise, from disease, especially gout or rheumatism; a perversion of nutrition takes place and an excess of urea or uric acid, and with it degraded living matter, disease germs.

The uric acid diathesis may be recognized by chemical and microscopical examination of the urine, and general languor, lassitude and debility, which is invariably present, by a damaged state of the co-ordinating chemical centre in the brain, which gives rise to indigestion, and a conversion of all the starchy and saccharine elements of the food into uric acid; that this faulty digestion and imperfect assimilation, are greatly aggravated by monotony of life, isolation, confinement indoors; sameness of diet and habits; that this mal-conversion is aggravated by the *sarcinæ ventriculi*, disease of the liver and pancreas; imperfect aeration of the blood by the skin, lungs; rapid oxidation as in fevers, or excessive muscular exercise; its recognition is assured when we find a persistent copious deposit of red gravel, a brick dust sediment, from a few grains to a considerable amount, deposited when the urine cools. Uric acid is most most irritating to the kidneys, bladder, prostate, giving rise to undefined sensations of irrita-



Magnified view of uric acid in different forms. The dumb-bell shaped forms seen in upper part of the figure were formerly supposed to consist of oxalate of lime. It has recently been shown that they are a form of uric acid crystal.

tion in the loins; sometimes excruciating pain in the kidneys; nausea, vomiting, aching in the thighs; retraction of the testicles; irritation of ovary; itching at the orifice of the urethra; irritable bladder, with continence or incontinence of urine. The passage of the urine causes a burning or smarting sensation; and when the uric acid crystals are large, a cutting, tearing sensation, as if particles of glass were being passed, with bearing-down and prostration.

Treatment.—Special attention should be paid to giving the patient immediate relief, and this can only be done by the administration of alkalis, a class of remedies whose use is likely to be detrimental if administered for any length of time; still, for a few days, they had better be given, say, five or ten grains of bicarbonate of potassa thrice daily, While thus affording temporary relief, proceed to the removal of cause—sameness, monotony, isolation; inculcate change of habits, diet, of everything that savors of sameness or monotony, for a high grade of mental and physical existence can only be attained by change. The essential element of life is incessant change; and in order that the highest state of existence may be procured, this must be attained. The make-up of the tissues of the body exhibits that facts; the fresher they are, the more complete their change; provided construction exceeds destruction, the more serviceable they are. The secretions are to be regulated; daily tepid alkaline bathing; flannel clothing; moderate exercise in the open air; diet is to be variable but nutritious, rigidly forbidding fat, malt and spirituous liquors, sugar, or starchy agents.

In the medical treatment, vegetable alteratives and tonics are always of the greatest efficacy.

Discontinue the alkali, and substitute benzoic acid in ten-grain doses, with same amount of boroglyceride, for the purpose of changing the uric acid into a non-irritating agent in the body. If for some cause it is not thought best to give the benzoic, substitute the salicylate of soda, with acetate of ammonia which is a remedy of the greatest efficacy. This remedy has the effect of improving or restoring the tone of the co-ordinating chemical centre, and preventing the formation of the acid, and also of chemically causing its disintegration. The uric acid solvent is of the greatest efficacy in all cases.

Sulphate and phosphate of quinia are also valuable, but possess none of the chemical properties of the salicylates.

Besides the above, a course of alteratives and tonics for a few months, embracing compound extract saxifraga, ozone-water, glycerite of ozone, and kephaline.

The *phosphatic diathesis*, in which the urine is persistently loaded with phosphates and chlorides, which are deposited in the form of a floury mass, or white, gritty substance, calcareous in its character, called white gravel. The urine may or may not be alkaline but microscopically has this appearance.

When human urine becomes alkaline, it is due to one or other of the following conditions: To excess of the alkaline carbonates of potassa and soda, which is apt to occur after a meal, especially of fruit and vegetables; to excessive elimination of the phosphates, as in brain and bone waste; to the formation of ammonia in the urine from decomposition of urea.

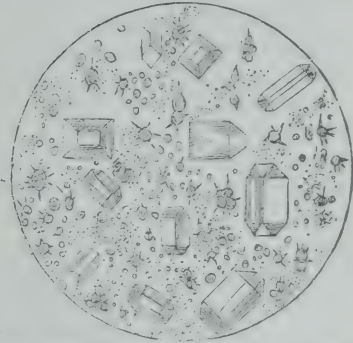
The reaction of the healthy urine in the twenty-four hours is slightly acid; but if separate samples are taken at different intervals, great variation is observed; and these are constant. The acid reaction increases and diminishes, commonly, with the secretion of gastric juice—acid before a meal, alkaline after and during digestion. This is called the alkaline tide, and may be caused by the entering of newly-digested products into the blood, or a preponderance of alkaline bases in articles of diet.

There is another channel by which acid is withdrawn from the blood besides the gastric juice secretion, and that is by the lungs. The exhalation of carbonic acid gas by the lungs is increased by food and the conscious state, and diminished by fasting and sleep.

The urine need not, however, be alkaline, in the phosphatic diathesis; it is sufficient, in order to constitute this condition, that there be an excessive elimination of brain elements, that it be loaded with phosphates, the metamorphosis of such tissue.

Causes.—Cerebral exhaustion, shattered nervous system, nervous disease, nervous dyspepsia, chronic disease, irritation transmitted, study, worry, gout, sexual excesses, etc.

Symptoms.—The general indications are those of an intense nervous temperament; white skin; sharp features; emaciation; some chronic or nervous disease. There is no pain or irritation whatever; hence it is often unobserved by the patient; so there



Phosphatic Urine. Magnified urinary sediment, consisting of large prismatic crystals of triple phosphate (or phosphate of ammonia and magnesia), and globular bodies often studded with points, which consist of urate of ammonia; from the alkaline urine of a patient suffering from paraplegia, consequent on disease of the spinal cord or brain

are few symptoms but the amount of gravel present in the urine each twenty-four hours, which, grain for grain, represents so much waste of brain-tissue, just as the uric acid represents fibrine, muscle, etc. If the alkaline condition be present, it is due to two causes: either from the presence of the carbonate of a fixed alkali (potash or soda), or of the alkaline phosphate of sodium; or from the presence of the carbonate of the volatile alkali, ammonia, which is due to the decomposition of urea.

The white gravel that is deposited in the last, the decomposition of urea, is formed as follows: Healthy urine contains phosphate of magnesium in a state of solution; if the urine becomes alkaline from decomposition of urea, a portion of the ammonia combines with the phosphate of magnesium and forms a triple salt, which is insoluble in the urine. This triple phosphate is usually an admixture of phosphate of lime. Urine of this kind, being allowed to settle, a scum forms on its surface, which under the microscope, resembles the salts we have described. But the urine may become alkaline from the presence of the carbonate of potassa or soda, and then, no ammonia being present, instead of the triple salt, there is a deposit of amorphous phosphate of lime. In these cases the urine is generally alkaline, pale, copious, slightly turbid, of a low specific gravity, and of a peculiar odor.

Treatment.—Generous diet; daily bathing; flannel clothing; well-regulated secretions; the treatment of the morbid condition upon which it depends, and a resort to general alteratives and tonics.

The special remedies are such as chemically disintegrate calculi. Pichi, as prepared in the uric acid solvent; has a most remarkable action upon all calculi and is worthy of a trial.

The oxalic acid diathesis, is one of the leading symptoms of intense neurasthenia, and is often present in nervous disease, its characteristic is oxalic acid formed and appearing in the urine. Now, this diathesis is dependent upon very great nervous prostration, especially in the nerve-centre and nerves that supply the lungs, stomach, pancreas, and liver. Generally found in old cases of chronic bronchitis or nervous dyspepsia, and is characterised by the persistent appearance of crystals of oxalate of lime in the urine.

Rhubarb may cause a temporary appearance of oxalic acid, which disappears as this vegetable is discarded or discontinued.

The crystals appear in the form of minute, transparent octahedra, or like dumb-bells.

The persistent presence of oxalic acid in the urine indicates the very low state of vital power, and is very liable to give rise to two distinct and dangerous complications:

1. A concretion of oxalate of lime (mulberry calculus) may form, either in the kidney, bladder, or prostate.

2. The poisonous action of oxalic acid in the blood is liable to produce irreparable lesions in the brain, heart, stomach, etc.

Treatment.—Great attention should be paid to diet. It should be generous, consisting of animal food, eggs, fish, milk, etc.; all articles that contain oxalic acid, as rhubarb, sorrel, tomatoes, sugar, etc., be forbidden; daily shower-baths, followed by friction; flannel clothing. Vegetable alteratives and tonics should be administered. Our best tonics are iron, cinchona, hydrastis; muriatic acid in compound tincture chincona is invaluable in alternation with the uric acid solvent and peroxide of hydrogen.

The above three states are what is understood when we use the term "gravel," being the passage of one or other of those three bodies in the form of a gritty powder, or sand-like bodies, or small calculi, occasioning pain, irritation of kidneys, ureters, bladder, and urethra.

Of those three principal forms, the uric acid is present in about eighty per cent. of all cases, and gives rise to more irritation than either of the other two forms. All ages and both sexes are liable to be affected. They often give rise to nephralgia or neuralgia of the kidneys.

In order to relieve this condition promptly, hot baths, hip-baths, hot fomentations to loins; open bowels with salines, and administer copious drinks of mucilaginous agents, in alternation with the uric acid solvent, or tincture of the green root of gelsemium.



Oxaluria. Magnified urinary sediment, consisting of uric acid, urate of soda and oxalate of lime; from a person convalescent from typhus fever. The uric acid crystals are here chiefly seen in large dense bundles, joined two and two by their bases, each bundle being composed of an enormous number of the long whetstone crystals. The dark crystals with light cross-bars are composed of oxalate of lime, while the dark-colored granules occurring either singly or in masses are urate of soda.

In the human blood, in a normal condition, **Diphtheria.** we have the living matter or bioplasm, which gives nourishment to brain, bone, skin, muscle, gland, every structure of the body. It is a well-known fact that this living matter is capable under adverse states of being changed, altered, degraded into other living matter, which is capable in or out of the body of an independent power of existence, provided heat, nourishment, and moisture be present.

Thus for example, the degraded living matter of ordinary nutrition becomes bacteria; that which constitutes the nerve-nutrient matter, the microbe of typhoid fever, etc. Among the lower animals, even vegetables, we see the same laws prevailing, whenever or wherever they are brought in contact with conditions inimical to their well-being and growth. Among vegetables, cereals, plants, trees, vines, when the soil is poor, or exhausted, a change of their normal living matter takes place, which is termed a blight or rot. A change or degradation of the cell elements of the organism of the plant, cereal or tree. We see daily examples of this in the potato or grape rot, in the spurred rye, corn smut—being contagious and infectious in the vegetable, as well as the animal kingdom.



The microbe of diphtheria, forming a polypoid mass, growing from the edge of uvula, completely arrested and destroyed by painting and spraying with lactic acid, dil.

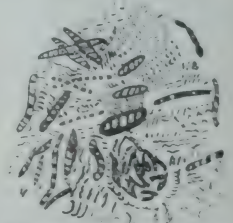
In the human body, when vital force is very low, reduced to bankruptcy, suffers great deterioration, whittled down to a very low point, we, too, take the rot, or blight. Certain vital elements within us are changed, degraded into a disease germ.

This micro-organism is best seen in the false membrane of a diphtheric patch on the mucous membrane of the fauces; although it can be isolated from the blood or caught from the breath on a piece of glass held to the mouth coated with glycerine.

The microbe isolated from a patch, forms a streptococcus, consists of oval cocci, lying singly, in pairs, in rosaries, in spherical or cylindrical masses.

The streptococcus of diphtheria is an active microbe, causes *directly* the formation of the false membrane on the mucous membranes on all parts of the body; *indirectly* it is a most active ptomaine excretor, hence its toxic work is soon visible in the production of death. Very doubtful if any chemical agent has yet been discovered which will destroy its spores. Even buried in the earth its protoplasmic life remains good.

They are found in all the fluids and solids of the body. In badly smitten cases, the blood, capillaries, and uriniferous tubules are blocked up.



The Streptococcus of Diphtheria.

No doubt, this disease has existed from time immemorial, in localities in which intermarriage was common, in which the drinking water was calcareous; in which overcrowding, and other insanitary states prevail.

Both the microbe and its spores are aerobic, as millions upon millions emanate from one infected individual every hour, everything animal: woollens, carpets, clothing, cats, dogs, rabbits, within a radius of fifty feet are literally swarming; so it spreads by infection and contagion, and prevails endemically, as well as sporadically.

As the term *rot*, is not congenial to the ears of the fastidious, pusillanimous members of modern society, it has been dignified by the name of diphtheria.

The predisposing causes are very numerous, and embrace such states as a tubercular diathesis, inherent weakness of constitution—a reckless carelessness of all sanitary measures. The drinking water of our large cities, and quite a deal of our food are contaminated with sewage.

Cases could be cited in which this microbe appears among our domestic animals, as turkeys, chickens, calves, cows, dogs, cats, rabbits, etc., having the disease, and propagating either directly or through their milk or flesh to man, giving him a predisposition to the disease. The microbe on the tongue and trachea of a turkey is microscopically and chemically indential—pathogenic of the same affection in man.

The emanation from salt on ice or snow on railroad tracks—the fumes from imperfect combustion of kerosene oil; the vapor of sewer gas, are highly depressing, nay toxic, to the laryngeal mucous membrane, it affords a predisposition, affords a causation, at least, of the malignancy of the disease. Malignant cases where tracks are salt, terribly epidemic where oil is burned. Putrid sore throat and diphtheria are certainly more common and more fatal when those states exist.

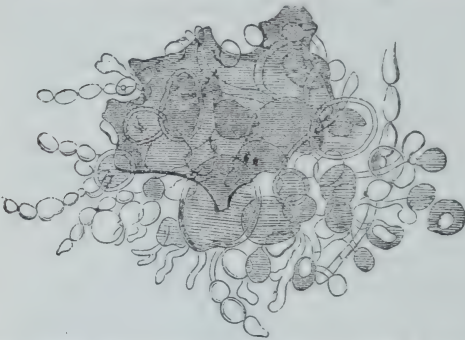
Although these aid materially as predisposing causes, they do so by depressing the powers of life.

The exciting causes embrace all insanitary states, as overcrowding, stagnant, pent-up, air, reeking with animal effluvia, poor and adulterated food.

As the germ of diphtheria has a special affinity or attraction for all animal matter, no pet bird, dog, cat, or any domestic animal within a radius of 300 feet is free from the germs of the disease, with a diphtheric patient in that area.

Such are to be classified as exciting causes, namely, close contact to such.

The milk from cows, both in the rural districts as well as that in cities, is a fertile source, and a most active exciting cause of this malady. Insanitary states, such as grazing on dairy meadows, or drinking marsh water, or being housed in wet, filthy sheds or



The rot fungus foot disease *oidium albicans*, magnified 750 diameters, so common among milch cows who feed on damp pastures, or stand upon imperfectly cleaned stalls—a prolific source of the streptococcus of diphtheria and scarlet fever.

barns, bring upon cows the foot fungus disease, which by some unknown transformation becomes the diphtheric microbe.

Prophylactic measures are of the greatest utility. The disease is essentially contagious and infectious, and every possible means should be resorted to to isolate the

affected. Still it by no means follows, that real, inevitable danger exists of contagion from one person to another; if ordinary precautions are observed, and the highest possible standard of health maintained, with strong vital force, it is certainly premature to conjure up danger. A teaspoonful of the glycerite of sulphur could be taken morning and night, which would keep the blood thoroughly sterilized, a state in which if any germ entered the blood it would become at once annihilated. With due attention to the thorough cooking of all poultry, meat and milk, there would be but slight fears of the disease.

Another valuable prophylactic is the *sulpho-carbolate of sodium*, its action, very certain to destroy the streptococcus, two to three grains every three hours, either on the tongue or dissolved in a little water. It is a priceless remedy, destroys all germs, does not interfere with any other remedy or mode of treatment. It sterilizes the blood, keeps it in such a state that no germ will enter it.

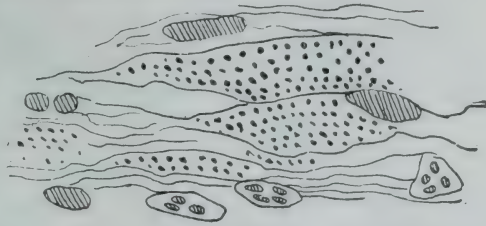
Sulphurous fumigation of all suspected houses of infection should be the rule.

The special characteristics are in all typical cases, with the formation on the mucous membrane of the tonsils, uvula, tongue, cheek, of the white layer, an enormous accumulation of micrococci, constituting the false membrane, extending over the fauces, larynx, trachea.

A piece of this membrane placed either on blood serum, or in

veal or lamb broth, affords magnificent culture of the germ, but their inoculation into healthy animals does not give us the symptoms of the disease, but produces septicæmia.

The contagium vivum resides in the walls of the rods constituting the chains, it is pathogenic, but from the purest cultures thus far successive generations are not obtainable.



Section of a diphtheric membrane, the embryonic micrococci seen in the process of evolution; the membrane is a focus of microbes.

The question how this microbe acts as the factor of disease has long been in doubt, but the progress of science has in some measure cleared away this obscurity. The first idea was that when first evolved or taken in, they acted like parasites, lived upon the blood and tissues of their host. To a certain extent this is true, that they swarm in the blood, abstract from the red corpuscles the oxygen they require for vitalizing the tissues, yet it often happens that death is so sudden that the bacilli have not had time to develop in the blood in numbers sufficient to produce a fatal result. An explanation of this state of things is necessary.

All disease germs excrete or eliminate a poisonous substance, resembling snake venom, an alkaloid, the ultimate product of putrid fermentation of organic matter, the alkaloid is termed ptomaines. As soon as ptomaines are elaborated in the blood, rigors, fever, vomiting, diarrhea, spasm, paralysis, torpor, collapse, death. Poisoning by tainted meat or fish, is due to the presence of ptomaines.

The action of the pathogenic microbe of diphtheria is complex, it is nourished and multiplies at the expense of the vital fluids, and it excretes more rapidly and in greater abundance than most other germs the alkaloid ptomaine, hence its great mortality, as seen in heart failure, paralysis of the larynx and other vital parts.

The general pathological appearance consists in a membrane or a granular infiltration of some mucous membrane, generally on the tonsils, uvula, pharynx; beginning at some point on the tongue or nasal passage, the microbial mass may extend either downward in the trachea, or upwards into the sinuses of the head, eustachian tube or nose.

By and by all the affected parts become infiltrated, lose their normal state and become converted into one homogeneous mass of disease germs. Heart is pale, flabby, friable; blood germ-



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SECTION OF DIPHTHERIC MEMBRANE.

laden, and embolised ; spleen enlarged, tense, shining ; capillary hemorrhage ; kidneys congested, plugged full of germs.

Infarction, the result of emboli, is apt to occur in all the vascular organs.

The symptoms are somewhat variable. When the vital forces in children are very feeble, especially if the surroundings are bad, as dirty, damp, badly-drained abodes, it may break out spontaneously ; if so there is usually great prostration ; when received by contagion or infection, it comes on slowly and insidiously, with languor, lassitude, debility, headache, pain in back, calves of the legs, rigors, fever of a continued type ; tongue heavily coated, brown, dark at root ; rarely diarrhea ; mental condition dull, stupid, drowsy ; heat, pulse, and respirations high ; face flushed ; skin hot ; often delirious. Tonsils become inflamed and swollen ; the parotid and other glands sympathize. Inflammatory action spreads to the uvula, fauces, pharynx, deglutition becomes difficult ; if it is not properly arrested, a soft, plastic exudation or growth, vesicular in shape, fibrinous in character, is developed on the mucous membrane, in which millions of the living streptococci are lodged or imbedded. At first this growth looks like little vesicles or blisters, white at first, then ash-colored. They speedily coalesce and form large patches resembling dirty, damped, washed leather ; if vital force is very low they grow with extreme rapidity. As they increase in numbers they also increase in size, extent, and thickness, firmly adherent to the mucous membrane beneath. If forcibly removed a new patch is at once formed, and this colony will grow ; besides, the breath, urine, stool, are loaded with young germs which are very light, so much so that they may alight on the cheek, gums, glottis, conjunctiva, vagina. When the germ dies, membrane becomes gangrenous, sloughs, separates, decomposes, and the breath becomes terribly offensive. When the mass is thrown off there may be sloughing or gangrene, or if vital force be well sustained, the tissues around may acquire a healthy appearance. In cases of extreme prostration it may appear on the cutaneous surface.

The constitutional symptoms vary much, the breath being very fetid, and occasionally hemorrhages from nose, fauces, bronchi.

Albuminuria in diphtheria is due to the action of the mycelia

The illustration, on the opposite page (272), exhibits a section of the diphtheric membrane, showing the mother germ and its spores at work in the formation of extensive microbiotic masses on the mucosa of the uvula and tonsils. The engraving was prepared by the illustrious bacteriologist, Prof. George H. Day, M. D., Monroe, Orange County, N. Y., one of the most eminent physicians of the age—the most successful in the cure of microbial disease.

on the blood and to the fact that the kidneys are literally crammed full of the disease germs. Death may take place from exhaustion, uræmia, hemorrhage, gangrene, asphyxia, embolism. In the event of recovery it is tardy, sequelæ being anæmia, nerve affections, paralysis, sleeplessness, impaired or defective sight or hearing. It is apt to leave a weak or hoarse state of the voice.

Stage of incubation usually about eight days.

Its duration is from one to two weeks.

One attack is no protection.

No disease is so easily recognized as diphtheria, the general symptoms are well defined, the languor, debility, prostration, sore throat, the false membrane or germ colony, first appearing as vesicles, then coalescing into patches, having the peculiar washed leather appearance; invariably the offensive breath; often a discharge from the nostrils; enlargement

of the lymphatic glands of the neck; rigors; fever, difficulty in breathing, stupor, delirium.



The membrane of diphtheria, as seen on the hard palate, completely destroyed by papoid and distillation of jequirity.

The prognosis in any single individual should be carefully guarded, because the microbe of diphtheria is of rapid growth and liberates or excretes ptomaines abundantly, so that death may take place at any moment, either from the ptomaines paralyzing vital organs as the brain, spinal cord, heart, lungs, causing asphyxia; dangers of anæmia from obstructed kidney; from hemorrhage due to anæmia, the microbe destroying the red discs. In the event of recovery, the spores and ptomaines are apt to leave some lesion of the brain or cord which

gives rise to aphonia, strabismus, paralysis, which time will eradicate.

In the treatment, it must ever be borne in mind that there is scarcely any disease so insidious or more fatal. It calls for immediate energetic administration of germicides and nourishment, yet even with our most approved remedies, in the most skilful hands, often incurable. Specific treatment a humbug and a farce; the one idea that must prevail is to kill the microbe, build up vital force; even bactericides must be administered with judgment, a judgment which can only be possessed by the highly educated medical man. No amateur doctoring in such a fatal

disease as this; no delay; no mistake in the line of treatment when the blood is loaded with germs and their ptomaines, whose limits are incompatible with life.

The patient should be isolated, placed in the best ventilated apartment in the dwelling; free from carpets, and every precaution taken to prevent its dissemination, as it is essentially infectious and contagious. The entire body twice or thrice daily should be sponged off with tepid water to which mustard and peroxide of hydrogen are added.

To the throat a solution of peroxide of hydrogen should be constantly applied, removed and re-applied again and again. It is customary to administer repeatedly small doses of tinctures of aconite and belladonna, to allay irritation in the fauces, and reduce temperature; but this procedure is unnecessary, because the germicide which must be administered to destroy or sterilize the germ, the factor of the disease, will, by its action on the microbe, reduce temperature, relieve pain, ameliorate all the symptoms. Sulphur is the natural antidote to the streptococcus of diphtheria.

The best, most efficient preparation is the ozonized glycerite of sulphur. The moment the case is diagnosed, this preparation should be administered in sufficient doses every hour until it acts upon the bowels. This will not occur until every microbe is killed. In alternation with this, a few drops of peroxide of hydrogen should be administered.

For inhalation from steam atomizer; for a gargle slightly diluted; for painting on the diphtheric patch, no bactericide can excel the ozonized distillation of jequirity; this remedy causes the membrane to shrivel up and exfoliate, and check further exudation of germinal protoplasm. The jequirity affects a diphtheric patch or colony totally different from all other germicides, causing the patch to shrivel up and exfoliate.

If the physician has not the distillation of the jequirity, then he can use the sulphuret of calcium, which is prepared in the following manner: Lime, one part; sulphur, two parts; water, twenty parts; boil until the quantity is reduced to twelve parts. To be used with the spray every half hour, or less frequently, according to the severity of the case. For infants, a small quantity of water is to be added. A change in the false membrane is rapidly induced, and general amendment follows. In some cases the membrane had entirely disappeared in one day.

Cerebral and blood nutrition of the highest possible grade precludes the possibility of the elementary bioplasm being degraded. So the moment the glycerite of sulphur affects the bowels, the entire microbial mass is sterilized, on the verge of

annihilation; then tonics, as sulphate of quinine, should be administered, and nutrition pushed.

The very presence of this disease germ among our children demonstrates most conclusively and emphatically that vital force is low, shattered; that the brain, the nervous mechanism needs nutrition—fertilizers to aid in its reconstruction, to promote vitality.

If from some cause or other, those remedies are not deemed the best, then the attending physician must select some other less active bactericide from some of the following, which we classify according to their intrinsic worth.

Hydrogen peroxide as a local and internal remedy in diphtheria has not received the recognition it deserves, simply because worthless compounds have been foisted upon the profession. A medically prepared C. P. aqueous solution is perfectly clear, colorless fluid, specific gravity 1.012, without odor or taste, having a faint sensation of carbolic acid upon the tongue. Hydrogen peroxide does not act so well as the distillation of the jequirity as a solvent upon the diphtheric patch, but it effectually sterilizes the blood, annihilates the entire germ area in the blood, prevents the evolution of more germs. It is always worthy of a trial when the fountains of life are stricken with this microbe.



Excavations made by the microbe upon the hard palate; germ evolution arrested by spraying it with g ucozone.

Ozonized boroglyceride, internally and locally, is deemed of utility. The drug when actively pushed, is eliminated by the muciparous glands of the throat and salivary glands, tends to soften and exfoliate the germ membrane.

Oil of turpentine often affords most excellent results, it is administered in an emulsion in doses from one-half drachm up, disguised with oil of peppermint.

Very favorable results are also obtained from lactic acid, pyridin, creolin, chlorate of carbon; sodium salicylate and benzoate; creosote, iodoform, papoid and trypsin; hydrocyanic acid; chinoline, chloral hydrate, eucalyptol, quinine. All the essential oils, such as peppermint, rue, thyme, cloves, cinnamon, and other odoriferous bodies, when exposed to the atmosphere, are absorbed by the oxygen, which enters into combination with them and forms new bodies. This power of absorption is possessed by them all, but in the highest degree by turpentine and peppermint camphor.

Expose any essential oil to the atmosphere, about summer heat, oxygen is absorbed, the oil oxidized, an unstable compound is the result, which in the presence of water is split up into peroxide of hydrogen and an exceedingly soluble camphoric acid. This process of oxidation and conversion into negative ozone, is peculiar to all essential oils which contain *terebene* or *camphoric oil*.

One of the sources of ozone in the atmosphere then is due to the slow oxidation of the essential oils or perfumes which are given out by odoriferous plants when exposed to the sun. Their action either destroys or weakens microbes, or so attenuates them that their destructive action is prevented, hence their use in all germinal diseases.

Very favorable results are obtained by inhalation; glucozone in a hand spray atomizer, or better still the ozonized distillation of the jequirity in liquid ozone in a steam atomizer.

Mercurial fumigations; iodoform dissolved in liquid ozone is said to have a marvellous action.

Gargles or mouth washes of chlorate of potassa and tannic acid, or of resorcin must not be neglected.

Bactericides then are the remedies to kill the streptococcus; the selection is important.

Once recovery is assured, the greatest possible precautions should be observed for a few months, for there is still danger of paralysis and heart clot from the ptomaines of the germ.

Quarantine for a period of twelve weeks. All persons recovering from diphtheria should be considered dangerous; therefore, such a person should not be permitted to associate with others, or to attend school, church, or any public assembly until the throat and any sores which may have been on the lips or nose are healed, nor until in the judgment of a careful and intelligent health officer he can do so without endangering others; nor until after all his clothing has been thoroughly disinfected, and this without regard to the time which has elapsed since recovery if the time is less than one year. Nor should a person from premises in which there is, or has been, a case of diphtheria, attend any school, Sunday-school, church, or public assembly, or be permitted by the health authorities, or by the school board to do so, until after disinfection of such premises and of the clothing worn by such person if it shall have been exposed to the contagion of the disease. The body of a person who has died of diphtheria should be washed with a zinc solution of chloride of great strength, then wrapped in a sheet wet with the zinc solution, and at once be buried. In no case should the body be exposed to view.

No public funeral should be held at a house in which there is a case of diphtheria, nor in which a death from diphtheria has recently occurred. Except under extraordinary precautions there should be no public funeral of a person who has died from diphtheria. No child should attend, and it would be better in most cases that few adults should attend, a funeral of a person dead of diphtheria.

To Avoid Taking Diphtheria.—Avoid the living germs of the disease. This is especially important to be observed by children, and all whose throats are sore from any cause. Children under ten years of age are in much greater danger of death from diphtheria than are adults; but adult persons often get and spread the disease, and sometimes die from it. Mild cases in adults may cause fatal cases among children. Because of these facts it is often dangerous for children to frequent places where adults might go with impunity.



The germ actively at work on each side of the uvula; painting and spraying with distillation of jequirity.

Do not let a child go near a case of diphtheria. Do not permit any person or thing, or a dog, cat, or any other animal to come direct from a case of diphtheria to a child. Unless your services are needed, keep away from the disease yourself. If you do visit a case, bathe yourself, and change, and disinfect your clothing

before you go where there is a child.

It is probable that the contagion of diphtheria may retain its virulence for some time, and be carried a long distance in various substances and articles in which it may have found lodgment. Diphtheria contracted from germs carried several blocks in a sewer may, perhaps, be as fatal as when contracted by direct exposure to one sick with it. While it is not definitely proved that the germs of diphtheria are propagated in any substance outside the living human or animal body, it is possible that they may be found to be thus propagated. Therefore, and because the breathing of air laden with emanations from decaying fruit, vegetables or meat, or from sewers, cesspools, sinks and other receptacles of filth, is believed to endanger health, great care should be taken to have the house, premises and everything connected with dwellings, kept clean and dry; to have sewer

connections well trapped and house drains constantly well ventilated, and to have all carriers of filth well disinfected. Do not permit a child to enter a privy, water-closet, or breathe the air from the water-closet, sewer, etc., into which discharges from persons sick with diphtheria have entered, nor to drink water or milk which has been exposed to such air.

Do not permit a child to ride in a hack or other closed carriage in which has been a person sick with diphtheria, except the carriage has since been thoroughly disinfected with fumes of burning sulphur.

All influences which cause sore throats probably tend to promote the taking and spreading of this disease. Among the conditions external to the body liable to spread diphtheria, perhaps the most common are infected air, infected water and contact with infected substances or persons. Because of this, and as a means of lessening the danger of contracting other diseases, the following precautions should always be taken, but more particularly during the prevalence of any such disease of diphtheria. Avoid exposure to wind and to breathing cold, dry air; also the use of strong vinegar or any other article of food which tends to make the throat raw or tender. Do not wear or handle clothing worn by a person during sickness or convalescence from diphtheria.

Beware of any person who has a sore throat. Do not kiss or take the breath of such a person. Do not drink from the same cup, blow the same whistle or put his pencil or pen in your mouth.

Beware of crowded assemblies in unventilated rooms.

Do not drink water which has a bad taste or odor, or which comes from a source that renders it liable to be impure, especially if there is reason to believe that it may contain something derived from a person sick from diphtheria, such as the drainage of a burying ground into a well or river.

Dropsy consists in an accumulation of watery fluid in the lymph spaces of the subcutaneous cellular tissue, and in the serous cavities of the body. This fluid or lymph is derived from the capillaries, and under normal circumstances is poured out into those spaces, but taken up again by the venous and lymphatic radicles as fast as it is poured out.

For the production of dropsy, the equilibrium of this arrangement must be upset by either an increase in the outflow of fluid, or a failure on the part of the veins and lymphatics to take up the effused fluid.

The principal source of power in pumping those lymph spaces dry is the heart; it is assisted by the aspiratory action of the thorax in respiration, and the contraction of the muscles of the limbs. When the heart fails to maintain a negative pressure in the veins, œdema sets in. All that is at present known on the subject may be embraced in the following sentence: Dropsy is an accumulation of lymph, or watery fluid, in the lymph spaces of the body, as a consequence of heart-failure, by which the fluid is allowed to accumulate; changes in the blood and capillaries by which the outflow of fluid is increased.

We must ever bear in mind that in dropsy we have to deal with a failing heart, and our chief reliance must be upon remedies that increase the heart's energy. Digitalis comes first, strophanthus and convallaria next, citrate of caffeine, nitro-glycerine and sulphate of strychnine follow; then sparteine and a class of minor cardiac stimulants.

The heart is the organ to look after and every possible means must be taken to invigorate it: local stimulants over that organ, in the form of the irritating plaster; the most nutritious, highly animalized diet; massage to the entire body, morning and night; an entire freedom from care, worry or excitement.

Dropsical effusions must be removed by the aid of diaphoretics, diuretics, hydragogue cathartics.

The best of all diaphoretics is the alcoholic vapor bath (See interstitial nephritis); the most efficient diuretics are the hair-cap moss, apocynum, juniper berries, bitartrate potass, nitrate potass, broom.

The most active hydragogue cathartics are elaterin, colocynth.

Dysentery. An affection of microbial origin, which gives rise to irritation, inflammation of the different coats of the rectum and colon, which terminates in ulceration of the different coats of the lower bowel.

Isolated from the muco-purulent matter and other products, it appears in the field of the microscope as a body slightly elongated and oval, or short and cylindrical, with rounded ends. They divide by fission, like micrococci, the individuals elongating and becoming constricted in the middle, capable of spontaneous locomotion, having a flagellum at one or both ends, with which they perform active spinning or darting movements. They form zooglœa in



The microbe of dysentery.

the corrugations of the bowel, in which the interstitial gelatinous substance is more copious.

The microbe is pathogenic of the disease, repeated cultivations in any nourishing broth, even for successive generations; the cultures injected into animals produce in them the original disease in all its virulence.

It is contagious and infectious in the true sense of the term.

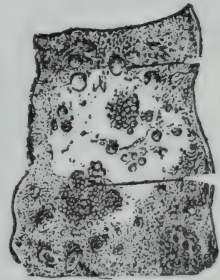
The presence of this microbe in the rectum, sprouting and breeding spores by millions, gives rise to great constitutional disturbance and fever, and the microbe excreting ptomaines gives us the intolerable griping and tenesmus, with bloody mucus. During our heated term this microbe is one of the greatest scourges of our country.

The presence of this germ in the rectum and colon is found at all seasons of the year, but it is roused into activity and rapid growth, prodigious spore evolution and ptomaine excretion by weakness, solar heat, moisture, dampness, hot oppressive atmosphere, ice water, indigestible articles of food, green fruit, alcoholic drinks, malaria, mental depression.

These and numerous other causes do not operate directly upon the rectum and colon, but rather upon the liver. They cause a general condition of congestion, debility, in which area of vital depression the dysenteric microbe puts in an appearance.

Symptoms.—Great constitutional disturbance in the acute form; rigors, headache, fever, biliary symptoms, brown tongue, sallow skin, conjunctiva tinged with bile, nausea, perhaps vomiting; frequent evacuations of the bowels, accompanied with pain and uneasiness of a griping or bearing-down character; the inclination to go to stool is frequently accompanied with ptomaine excretion and tenesmus. At first, the stools are dark, ginger-bread color; then mucous, thin, scanty, bloody and often mixed with little hard lumps of fæces. The scanty stools give great distress; the griping and straining, or tenesmus, is most excruciating, with evacuation; motions are often dark-colored, and peculiarly fetid, mixed with blood, muco-purulent matter, and shreds of lymph. The bladder sympathizes; micturition is frequent, and a constant desire to urinate; there is strangury, or only a few drops coming at a time; amount of urine scanty and high-colored; in some cases there are violent hemorrhages.

It may last a few weeks and terminate in recovery, or run into a chronic form; or recovery may take place with thickening, effusion of lymph, and stricture, or gangrene of the bowel and



Appearance of the mucous surface of the rectum in the first stage of dysentery; the microbe actively at work.

death ; or the patient may succumb to the violence of the fever and inflammation.

The pathological appearance of the walls of the rectum are most significant, especially during the first and second stage, if permitted by inefficient treatment to run that way. Every day in which germicide remedies are delayed, more havoc is made by the germ degeneration of the intestinal glands, atrophy of the mucous membrane, indurated cicatrices in both colon and rectum.



Appearance of the mucous membrane of the rectum in the second stage of dysentery ; the microbe making ravages in the ulcers.

In the *treatment*, general principles must guide ; if there be a very irritable state of the stomach, an emetic may be administered with advantage, followed by an alcoholic vapor bath, and it would be well to cleanse out the alimentary with a powder of euonymine and caffeine, say one and a half grains of each, every hour till they had done their work.

Rest in the recumbent posture in bed ; one dose of exalgine in the morning, another in the evening ; during the day tincture of green root of gelsemium should be given, alternated with peroxide of hydrogen, it will completely paralyze the organism. If not it may be noted that this microbe is either sterilized or completely annihilated by the administration of either of the following germicides, which can be used here with brilliant success, one of which could be selected :

Naphthaline in five grains, in a capsule, repeated frequently.

Resorcin and turpentine, combined in mucilage of acacia, perfectly annihilates the microbe.

Eucalyptol, ten to thirty-drop doses, is excellent.

Caffeine, one grain every hour.

Stone crop and sulphate of quinine are most efficacious.

Resorcin, naphthaline, perfectly annihilate the microbe.

Kaki, as an infusion, does effective work in effacing the microbe from the bowel.

This is an efficient germicide where we have a specific micro-organism inhabiting the intestinal canal, as in typhoid, diarrhea, dysentery ; besides it has a decided action in neutralizing the ptomaines, generated or excreted by the microbe. Its first dose affords relief, fetor disappears from the stools ; subsidence of pain ; stoppage of the diarrhea or hemorrhage, reduction of temperature and a general return of all the vital functions.

The bark of the root of calotropis gigantea is even more powerful than kaki ; like kaki, best administered in infusion of the powdered bark.

The bisulphide of carbon is much esteemed as a germicide in dysentery, the dose is variable, but when administered it quickly relieves the tenesmus, the motions diminish in frequency, the stools lose their offensive odor, the germs disappear.

Enemata of infusion of kaki, green root tincture of gelsemium, creolin and resorcin kill the entire colony of microbes. The method of giving the enemata must be considered; the patient's buttocks should rest upon a pillow at the edge of the bed, so elevated that the natural tendency of the fluid entering the rectum would be to travel down into the colon. A fountain syringe is the best, with a long flexible pipe. An effort should be made to pass this into the sigmoid flexure. One enema is often sufficient to effect a cure. Whatever remedy is selected a cocaine suppository should be inserted up the rectum thrice daily.

Difficult or painful menstruation appears

Dysmenorrhœa in gynecological practice under three forms, (Neuralgic). the first being due to neurasthenia.—Nervous

dysmenorrhœa is very common among highly educated and refined ladies—those who have developed their nervous systems at the expense of the physical, those who have insufficient exercise for body, who lounge, and keep reading our fictitious, debasing, modern literature—that deadly poison which undermines their nervous systems. It may appear at puberty, but more generally it comes on from enervating causes after some years of painless menstruation, especially in the unmarried. In married life it may come on from the irritation of frequent abortions, and the use of means to accomplish that act. It may be due to incompatibility in the sexual act.

Symptoms.—General languor, lassitude, debility, headache, with pains in the back, sacrum and lower part of abdomen, coming on a few days prior to period; an aching soreness of inner and upper part of the thighs; bearing-down, with a sense of weight in the pelvis. As soon as the discharge comes on freely, relief is promptly experienced; if the flow is scanty, and comes on in slight gushes, the suffering is often excruciating; it becomes paroxysmal, pain comes and goes; often considerable pain in left ovary, sometimes in both; no swelling or heat, or increased sensibility in parts. There is flatulence, constipation, hysterical symptoms or convulsions.

If the patient is seen during an attack, a warm hip-bath, teaspoonful doses of comp. tincture of serpentaria and the introduction both into the rectum and vagina of an obstetric cone—patient in bed. Usually this affords instantaneous relief. If it

fails, let her inhale twenty to thirty drops of chloroform, and an hypodermic injection of a quarter of a grain of sulphate of morphia might be given. She must be tided over the crisis with great care. If aware of the attacks coming on, they often can be prevented by inducing anesthesia of the lumbar plexus of nerves with belladonna, a plaster of this, four inches wide by nine inches longways across the loins; the administration of tincture of belladonna internally, till throat becomes slightly dry and pupil dilated; the introduction of a pastile up vagina, and suppository up rectum, every night at bedtime, each containing one grain of opium and one-quarter grain extract of belladonna. The above to be commenced five days before period.

From two to three weeks during the interval, the following treatment should be carried out: Daily, alkaline baths, followed with friction or massage; flannel or silk under-clothing must be worn next the skin, especially over the loins; most nourishing easily digested food, avoiding tea, coffee and other stimulants. Sleep must be limited to eight hours, abundance of gentle exercise, games, moderate work so locomotion is active; if circumstances permit, horse-back exercise. Rigidly forbidding sedentary habits, novel reading, and if married, sexual congress. If there is any evidence of indigestion, columbo infusion or some bitter tonic, bowels to be regulated by taking two cascara lozenges after meals.

Then the true treatment of the case begins, and select four of the best remedies in the materia medica to vitalize the uterus and overcome this neurasthenia, namely, tincture of oats and kephaline, with wine of aleteris farinosa and comp. syrup partridge berry. Place the patient upon two of them, oats and aleteris, one week; kephaline and partridge berry the next, and so repeat till case is cured.

All other remedies as pulsatilla, cimicifuga, are greatly inferior to the above.

In ladies of a rheumatic and gouty condition, afflicted with intra-uterine catarrh, there are in the cavity of the uterus quite a conglomeration or heterogeneous number of disease germs in the cavity of the uterus, as the amœba, yeast-germ, sarcinæ and others. Such microbes naturally excite irritation of the internal uterine walls, and when the menstrual function is excited there is great hyperæmia of the entire uterus. Those of a sanguine, plethoric or lymphatic temperament are its victims.

Causes.—Aside from the diathesis, gouty or rheumatic, and

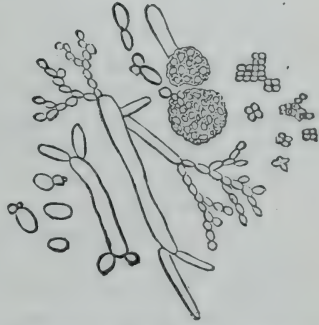
pelvic irritation, general plethora of the genito-urinary organs, from sedentary habits and occupations, it may be caused by local irritation, as abortion, exposure to cold and moisture; sluggishness of the liver, displacement of uterus, and metritis.

Symptoms.—Suffering begins four or five days before each period, in a general sense of languor, or weariness, with headache, pains in the loins; a feeling of weight in the pelvis; general restlessness, and irritability of the bladder; there are heats and colds, with other evidences of nervous depression. The weight in the uterus becomes a pain of a throbbing character; then dragging in the back, aching in the hips and thighs, and bearing-down, especially when pain is on. Discharge, after a few days suffering, makes its appearance, usually slowly and gradually, scanty at first, but subsequently, after the system is relaxed by the condition of prostration, it comes freely. It may come in small clots, or shreds, or flakes of membranes, or sometimes in the form of a large pear-shaped clot, covered with a false membrane, an exact cast of the cavity of the uterus. This membrane looks like the epithelial membrane lining the cavity of the uterus, analogous to the decidua. In some cases there is no congestion of the uterus, in others it is much engorged, often displaced; ovaries very tender, with swelling and tenderness of breasts. If the portal circulation is sluggish there will be piles.

The treatment, during the period, should consist in ameliorating the condition as far possible, hot vaginal injections of a solution of boroglyceride, warm hip baths; free action of the bowels, the administration of obstetric cones per vaginam and rectum, with warm, relaxing infusions of asclepias, or eupatorium per.

When the period is over, and for the next three weeks, patient should be placed upon good food, daily warm alkaline baths, followed by massage; bowels to be kept open with the cascara sagrada lozenge; the patient to be placed upon alteratives and tonics, saxifraga, alternated with the aleteris far.; phytolacca comp. alternated with the partridge berry. With an energetic course of these remedies for four or five months, a cure may be effected.

A cure, however, may be effected much more speedily, when



The yeast plant and sarcinae present in all cases of intra-uterine catarrh; the yeast plant, sarcinae and other germs found in the cavity of the uterus in congestive dysmenorrhœa.

germicidal bougies are used about every four days. These bougies are composed of thallin, resorcin, naphthaline, creolin, etc., and other bactericides, and are inserted into the cavity of the uterus, patient in the recumbent posture, and permitted to dissolve and come in contact with the internal walls, entirely rejuvenating them, and destroying all germs. If any difficulty is experienced in introducing, the original plant can be dissolved and a four or six catgut bougie can receive a heavy coating and be introduced, say for one-half an hour, until the germicidal substance is dissolved. The method is most successful.

This term is applied to a thickening, induration, cartilaginous degeneration, or stricture of the external and internal os uteri, or neck, or a narrowing of the entire canal of the neck. It may also be due to some tumor, or uterine displacement, as ante or retro-flexion; these latter we do not include in the following remarks. What we speak of here is either a narrowing of the canal of the neck, or its infiltration with lymph, or cartilage, or a true stricture of the external or internal mouths of the cervical canal—conditions that cause sterility as well as dysmenorrhœa.

Dysmenorrhœa
(Mechanical).

Causes.—The causes that give rise to this induration, or mechanical obstruction, are inflammation, such as acute and chronic vaginitis, leucorrhœa, self-abuse, excessive coition; congenital irritation common cause.

Symptoms.—Are those indicative of obstruction to the escape of the menstrual fluid. There is the languor, prostration, nausea, vomiting, pain in loins, hips, and thighs, bearing-down; pain in ovaries and uterus, usually some time before a scanty flow makes its appearance. When discharge does come, it is in gushes, each gush preceded by pain, and an aggravation of all the symptoms. The bladder becomes irritable, and there is often considerable tenderness over both uterus and ovaries; anæmia, constipation; very much resembles labor; uterus struggling to expel its contents. An examination of these cases reveals either a small os uteri, or an orifice of the natural size, but the canal leading to the internal os, thickened, indurated, strictured, or suffering cartilaginous degeneration—conditions that can readily be felt with the finger, or the uterine sound. In some cases the obliteration is confined to the inner os. In nervous or neuralgic dysmenorrhœa, the repeated irritation from month to month often aids in bringing about this condition.

In the treatment of these cases, the same plan of treatment

should be adopted as in the neuralgic during the flow, comp. serpentaria tinct., the introduction both per vaginam and rectum of the obstetric cones, and all failing hypodermic injections of morphia.

During the intermenstrual period, there are various forms of treatment which might be resorted to. In all cases, it is well to place the patient upon an alterative and tonic course, administering either comp. saxifraga, or phytolacca, alternated with aleteris farinosa; relieving the dyspeptic symptoms with bitter tonics and the constipation with cascara sagrada lozenge. Every other night, the vagina should be packed with boroglyceride paste, and permitted to remain over night. During the eight hours of sleep there will ooze away from four to six ounces of serum; this has a most marvellous effect on an indurated, structured, or hypertrophied neck, besides it is most vitalizing to the blighted os. Perseverance with this remedy is invariably attended with success.

Another method, still more heroic, attended with less trouble, but still most efficacious, is the introduction of one or two jequirity wafers or capsules right against the uterine neck, permitting them to remain over night. These if properly applied, will cause a complete exfoliation of all the tissues with which they come in contact. If it is not deemed advisable to use it in that way, the contents of the capsule can be blown on the os and neck of the uterus, and the same result obtained. This procedure will bring away large fibrinous masses, a peeling off without causing any breach of surface. Its use should be followed with mucilaginous injections. Most successful, still there are cases it fails to reach.

Dilatation, by means of sponge-fents, sea-tangle, and metallic and rubber dilators are worse than useless, setting up more irritation and additional obstruction. Those expanding instruments may produce no bleeding, but they are very destructive, and if often repeated are most harassing to the patient, and invariably after their use the canal returns to its former size, even a little narrower. There is no good in either slow or rapid dilatation, and even the new method of dilating, lacerating, tearing, by divergent blades, is useless; there is danger of irritation, if not of metritis, pelvic cellulitis, or peritonitis.

Incision is the best plan, as it gives rise to no suffering, gives a sure result, and is free from danger if properly performed and rapid. This is best performed by a pair of scissors, made for the purpose, one blade terminating in a probe-pointed end, which enters the os; the other by a hook, which seizes and fixes the vaginal portion at the point desired. One stroke of the scissors divides the intervening tissue in a straight line. The proceeding is then repeated on the other side of the os, and the operation is

then completed. There is a tendency to contract again even after that. To meet this, there should be a slight nick made of the internal os, just sufficient to divide the mucous membrane and some of the superficial circular fibres of the muscular coat. This will allay spasmodic sphincteric action. The incision should be no greater, because it is superfluous, and even dangerous. At the mouth of the inner neck there are blood vessels in profusion, and of considerable size. Large veins, without valves and small arteries, gap at the uterine level, and are apt to bleed very profusely if uterus is cut into. A piece of lint, saturated with the juice or extract of hemlock bark, is to be inserted between the cut edges, and patient kept in bed under opium.

If the patient and friends are willing, the best plan, if the suffering is great, is to perform the operation at once, as it is only a waste of valuable time to exhaust the usual list of remedies on her first.

Indigestion, terms used to express or indicate

Dyspepsia, a train of symptoms caused by a functional derangement of the digestive processes; when they are confined to the stomach, they constitute gastric dyspepsia; when in the bowels, duodenal dyspepsia.

The indigestion, or failure on the part of the stomach to digest, takes place immediately after a meal, and continues for two, four, or more hours, according to the gravity of the disease, or kind or quality of food introduced; whereas, in intestinal or bowel dyspepsia, the uneasiness or symptoms of indigestion do not commence for several hours after eating. In the stomach, the food, after being slowly and perfectly masticated, and incorporated with the secretion of the parotid and other glands of the mouth, is subjected to the action of the gastric juice, a powerful solvent, being made up of a substance called pepsin. In the bowels, the digested food or chyme, is subjected to the action of the pancreatic secretion, (a gland almost immaculate, enjoying a freedom from disease most remarkable,) which emulsifies the fat, starch, and other products, rendering them fit to become proper constituents of nutrition. The process of healthy digestion is easy, speedy, and complete; there can be no excess of it, for food cannot be too quickly and completely converted into blood; whereas, indigestion is slow, painful, and imperfect.

Painful, from a slight uneasiness, to pain, or actual torture; *slow*, when the stomach fails to digest in the ordinary time, and chemical decomposition or change takes place; *defective*, when the food is either altered, or fermented, or decomposed, or formed into vegetable germs, like a yeast plant.

Indigestion is divided into numerous forms or varieties according as one or more symptoms predominate.

It is called *simple*, when there is loss of appetite, pain, weight, fullness or oppression about the stomach after meals; flatulence, nausea, vomiting, constipation or diarrhea, coated tongue and fetid breath, with headache, palpitation, heartburn, water-brash, hypochondriasis.

It is called *slow digestion*, when there is a deficient secretion of gastric juice; a feeling of fulness and distension at the pit of stomach, with the other symptoms.

It is called *painful*, when gastralgia and heartburn are the prevailing indications.

Wind Dyspepsia, when flatulence, eructations of gas, and acid water, as water-brash or pyrosis; there is usually gastrodynia, or stomach-ache.

It is termed *Boulimic Dyspepsia*, when, with the ordinary symptoms, there is an excessive hunger or craving for food, and even not appeased by large quantities of food.

Nervous Dyspepsia, when there is a nervous temperament, white face, sharp features, emaciation, phosphates and chlorides in urine; all or most of the symptoms are present, but especially headache, like a band or scalp flying off, and hypochondriasis a decided and prominent symptom, etc.

Causes.—The causes are not only numerous but varied, and embrace every derangement and lack of tone in any organ, or of the entire body. Hurried eating, with imperfect mastication from whatever cause; improper food; drinking of fluids at meals, or the use of iced or cold drinks or food, highly depressing to stomach which arrest digestion; want of exercise; mental anxiety; strain on mental powers by study or struggle for existence; general debility, or nervous exhaustion; use of whiskey, beer, tobacco, and drugs; excessive drinking, especially cold drinks; diseases of the blood; and often due to reflex causes, as diseases of the liver, spleen, lungs, heart, kidneys, and to diseases of the nervous system generally. There is, so to speak, an endless chain of sympathetic and other causes.

Symptoms.—Are very variable in their nature and severity. Loss of appetite, pain, weight, fulness at or about the stomach after eating; acidity, flatulence, eructations, nausea, vomiting, pyrosis, tightness, heartburn, oppression, wearing cramp, languor, debility, giddiness, with headache, frontal, or like a band round head; a sensation as if there was a movement of the ground; constipation most common; still, there might be diarrhea; tongue coated white or brown, or if intestinal, buff coat, with transverse fissures; fetid breath; palpitation; pains in loins

or limbs; often cough; liver very torpid; eyes tinged with bile; urine scanty, high-colored, and deposits phosphates and chlorides; skin dry, contracted; the brain is often seriously affected, both through reflex action, want of nutrition, and otherwise; so that hypochondriasis is always present in either a mild or aggravated form.

A look at the physiology of the stomach will satisfy anyone of the existence of an immense nervous connection—the very secretion of the gastric juice being a nervous act—for there is no gastric juice in a healthy stomach until the stimulus of food is impressed upon the gastric nerves, which is carried to the brain, and if that organ is healthy, gastric juice will be thrown out. The ultimate relation of the stomach with the great sympathetic, and the intimate union that exists between the stomach and other organs, cause non-sentient nerves to become highly sensitive. The abdominal plexuses of sympathetic nerves always play an important part in the production of indigestion.

Treatment.—In all its forms, there should be an avoidance of all care, worry, and anxiety, study, or any mental strain. A vigorous brain is of essential importance, and an easy sympathetic soul of great moment. Every drain upon the nervous system must be blocked off; no over-work, nor care, nor sexual excesses. Pure blood is also important; and active, but not fatiguing exercise in the open air; daily bathing; if the cold douche or shower-bath can be borne, it is best, to be followed by friction and flannel clothing; a diet highly nutritious but light, should be laid down, consisting of broiled tenderloin steak, or chicken, soft-boiled eggs, boiled fish, toast buttered, oatmeal mush, roasted potatoes, ripe fruit, mocha coffee.

Veal, pork, salt or corned meats or fish, fried or boiled meat, all slop, as soups, pastry, pies, nuts, sweets, cabbage, tea, tobacco, alcohol, or all fermented liquors, should be carefully avoided.

Another important point is slow eating, thorough mastication; no fluids, warm diet, perfect regularity in eating, sleeping, and in a daily movement of the bowels, and in perfect rest to stomach between meals; no nibbling, or odd snaps, or lunches. Not more than three meals per day, with proper intervals between. Bowels to be opened with enemata daily every morning after breakfast.

Special symptoms must be relieved or palliated, in order to give relief, until a cure is effected.

The most valuable remedy in dyspepsia is a healthy condition of the mouth and teeth, and thorough mastication of the food. We all eat too hurriedly. There is too little mastication, not a

proper admixture of the salivary secretion; so that there is crammed into most stomachs a mass of inadequately crushed or undivided solid matter, which acts as a mechanical irritant, sets up disease. Eating quickly, filling the stomach with indigestible material, unprepared food, renders it incapable of recovering its tone. All animals intended to feed hurriedly have the powers of rumination, or are provided with gizzards. Man is not so furnished, and it is fair to assume he was made to eat slowly. Hurried meals are highly mischievous. Then there should be rest, for a considerable time after meals, of mind and body, but, on no consideration, sleep. To sleep after meals is the worst aggravation a weak stomach can receive. During sleep, digestion in the stomach is, to a certain extent, suspended.

For the Relief of Eructations and Vomiting.—One of our best remedies to effectually relieve this condition is either pepsin or papoid. It should be administered with or at the meal. Its use causes little demand to be made upon the stomach for its digestive secretion, and artificial digestion, promptly carried out, precludes the possibility of either eructation or vomiting. There is no drug to equal it, as it gives vitality to a weak organ by giving rest. The digestive powers are assisted, and the food which, in other cases, ferments and irritates, because undigested, readily becomes assimilated, because it is now digested. Some think it best to give the pepsin or papoid a little while before meals, so as to afford it some time to combine with the existing condition of the stomach, and produce a more natural effect upon the food when swallowed, after being acted on by the salivary secretion.

The idea is to give the stomach rest, and promote the formation of peptone; and as soon as normal vigor is acquired, the organ will soon respond to the production of its natural fluids.

The use of alkalies in the treatment of dyspepsia, should as far as possible, be discouraged, as they tend to weaken the mucous coat of the stomach, and give rise to catarrh. Perhaps the most innocent alkali would be one teaspoonful of lime-water to half a tumblerful of milk, or five grains of bicarbonate of potassa to the same quantity of milk, once, twice, or even thrice daily.

For the Relief of Gastrodynia or Stomach Cramp.—As a rule this form of pain comes on following a meal. It is of the same character as neuralgia; it is the gastric nerves crying for more nutrition—something to vitalize them.

The various preparations of bismuth and cerium will relieve this pain, but their efficacy in other respects is not good. We witness their baneful effects in ladies who use it as a face powder or in cosmetics, and to introduce this deadening, benumbing drug

directly into the stomach is reprehensible if any other remedy can be procured.

Capsicum, or white mustard seeds, especially the former, is an excellent remedy, a good stimulant, does not irritate like black pepper, and its use affords almost instant relief. A good form is the compound tincture of myrrh, from half to one teaspoonful after meals in warm coffee. Half or drop doses of dilute hydrocyanic acid act well, and being an ingredient of normal gastric juice, it could be added to the pepsin. A solution of quinine in aromatic sulphuric acid is also of utility; mineral acids, carbolic acid and tincture iodine; warm plasters, as hemlock or belladonna plaster, over stomach.

For the Relief of Pyrosis or Water-Brash.—To mention acidity is equivalent to rushing for an alkali, but a bitter will answer better. Still, patients will persist in their use on account of the immediate relief they afford.

Glycerine added to milk; one tablespoonful to half tumblerful, and taken after meals, relieves flatulence, acidity, pyrosis, or water-brash. Usually it is speedily and completely successful, as it prevents fermentation and putrefaction. Although glycerine prevents putrefaction of nitrogenous substances, it does not prevent the digestive action of pepsin and hydrochloric acid; hence, while it prevents the formation of acids, checks fermentation, it in no way hinders digestion.

For the Relief of Gastralgia or Heartburn.—Reject alkalies and try nitric acid in compound tincture of cinchona, or dilute nitromuriatic acid. If these fail, use hydrocyanic acid dilute. If that does not afford relief, steep gentian and horse-radish in good whiskey enough to cover, and use in tablespoonful doses; or nux vomica in fluid extract of columbo or cascarilla.

If, however, the dyspepsia has been in existence for some time, the stomach needs such a stimulant as the following: Peppermint water, eight ounces; tincture nux vomica, three drachms; tincture belladonna, two drachms; carbonate ammonia, sulphate of magnesia, of each three drachms; tincture of ginger, half an ounce. Mix. One tablespoonful after meals.

All microbes in their ingress into the skin excite irritation, erythema and effusion of lymph, thickening nodules, pustules. Very common on the face of both sexes about or subsequent to puberty. In older subjects they are found on the feet and hands. Ecthyma is common as a result of any ordinary inflammation of the skin, provided the system be somewhat debilitated.

In the *treatment* the general powers of life should be well sustained by the best of food. Germicides should be administered: as glycerite of ozone, avena, compound oxygen; locally, to the affected parts, solutions of boroglyceride, peroxide of hydrogen, creolin, ichthyol should be used.

An inflammatory disease of the skin, which is not contagious, is polymorphous in character, and may be acute or chronic. Its polymorphous or multiform character is one of its most marked features. Formerly described as a vesicular affection, but it is erroneous to regard it solely as such. Vesicles, though frequently present, are not the sole elementary lesions met with; in many cases, indeed, none are discoverable. Any one of the following primary lesions may occur: Simple redness (erythema), papules, vesicles, pustules. According to the lesion present the observer might thus be inclined to term the eruption erythematous, papular, vesicular, or pustular. It will have been noted that, in the classification adopted, eczema appears in several classes, but it will be convenient to refer to its various forms in the present place. A typical case is described as commencing as a patch of erythema, passing on to the formation of papules; the latter then develop into vesicles, some becoming pustules. The bursting of the vesicles and pustules (either spontaneously or as the result of scratching) is succeeded by a serous or sero-purulent discharge; this is often very copious and thus justifies dermatologists in regarding eczema as a cutaneous catarrh. The drying up of the discharge is succeeded by the formation of scabs. Many cases, however, are far from presenting this regular course. The lesions are often more or less commingled, thus producing extremely varied appearances. The eruption may be also more or less entirely confined to one form of lesion. Thus, it may be mainly erythematous, or vesicular, and so on. These different forms have been named correspondingly. Thus we get *E. erythematosum*, *E. vesiculosum*, *E. pustulosum*, etc. The red and moist condition of skin often seen in infants in the groin or between the nates, and beneath the breasts in stout women, is termed *E. intertrigo*; in the official nomenclature it is classed as a separate disorder under the heading *Intertrigo*. In *E. rubrum* or *E. madidans* there is intense redness of the skin, which is excoriated, largely denuded of epidermis, and exudes a copious watery discharge; it is generally seen on the lower limbs. *E. papulosum* is a form of eczema closely resembling lichen, which latter eruption is, indeed, described by some authorities as merely

a form of eczema. Similarly, some writers include impetigo under eczema, regard it as merely a variety of *E. pustulosum*. When the surface of the skin is red and inflamed, discharge scanty, but scabs formed in abundance, the resulting condition is termed *E. squamosum*; the latter term was also employed by dermatologists to describe some varieties of psoriasis. The eruption may also be named according to the part affected, *e. g.*, *E. capitis*, *E. facialis*, etc.

Eczema is an exceedingly common affection. Statistics show that from one-third to one-fourth of the cases of skin diseases seen in practice come under this heading. It may occur at any age, but is more common in young children—especially at or about the period of teething; often (generally erroneously) attributed to vaccination. More common in males. May be of local or constitutional origin. Inflammation of the skin set up by external irritants differentiated by some dermatologists as dermatitis. In most cases, external irritation is an important factor as, when not actually causing, it often materially aggravates the disorder. Eczema is often hereditary. Gout, scrofula, alimentary disorders, and circulatory derangements are said to predispose to it. Pregnancy, lactation and uterine complaints are enumerated as causes of eczema, and it may also occur as a “trophic lesion” in various nervous disorders.

As there are no specifics in medicine, none in cutaneous disease, each case must be managed on its own merits and general principles; so in treatment, we can only draw brief attention to the main indications for treatment.

The general condition of the patient demands careful attention; every effort should be made to discover the cause of this troublesome and frequent skin disease. The diet should be carefully regulated, plain and nutritious, easy of digestion. Shell fish, alcohol, tea and coffee forbidden.

Constipation is almost invariably present, and calls for immediate attention, as the ptomaines from microbes are always present and greater too if the peristaltic wave is slowed. Kola nut lozenge, better still the cascara sagrada lozenge, which stimulates the liver and aids elimination of excess of uric acid which invariably co-exists with eczema. General alteratives and tonics.

Tincture of sulphur, alternated with nux vomica, or lycopo-dium do well, better by far than the indiscriminate use of arsenical solutions.

An excellent formula for general use is: Comp. tincture cinchona, four ounces; acetate of potass, half an ounce; tincture of nux vomica, two drachms. One teaspoonful in a glass of water after every meal. Another good formula is: Ozonized sulphur

water and comp. tincture of gentian, equal parts of each, a tea-spoonful in a little water after meals, alternated with nux vomica.

Locally washing to be avoided, but as this must be done, white castile soap should be used and a few drops of the peroxide of hydrogen added to the water.

In cases with little secretion, we often meet with great success with a dry dressing, as simply dusting on the anti-microbe powder.

To allay itching, a solution of boroglyceride; or an ointment of ozone ointment and resorcin are excellent.

Ichthyol, as an external remedy in the form of a solution or ointment, in strength varying from five to fifty per cent. It acts in three ways: (1) *As a Protective*.—When a solution of it is painted over the skin surface it quickly dries, forming a thin layer somewhat resembling friar's balsam or collodion, and so protects the skin from the air, dust, etc. (2) *As a Reliever of Congestion*.—When applied to healthy skin its effects seem *nil*, but where there is an active congestion of the part it acts promptly by causing contraction of the arterioles, and so diminishes the vascularity of the part. (3) *As a Desiccant*.—As it reduces the vascularity of congested skin, the outward flow of serum is also reduced, and consequently the part becomes drier. In these three actions are the essentials of the treatment of many skin diseases.

Resorcin in glycerine or as a jelly; ointment of iodoform, iodol, oleate of zinc; oil of boroglyceride; nitrate of mercury; caustic potassa ten grains to the ounce of vaseline; salicylic acid five to ten to the ounce of vaseline; siegesbeckie cerate most efficacious; all internal and local remedies to be of utility should be changed weekly.

The tubercular bacilli appears in a great variety of forms in the cuticle, true skin and subcutaneous tissue. In certain cases in which the nerve forces are decidedly bankrupt, and the external surroundings of the worse possible kind, the bacillus excites irritation, effusion of lymph, which form germ nests, great hypertrophy, and induration. Associated with the hardness, there is considerable pain. Sometimes the parts are dry and mealy, in other cases serum exudes.

It usually attacks the lower extremities, scrotum and depending parts, and progressively extends upwards.

Before the introduction of so many bactericides, it was deemed incurable, now a cure in the earlier stages is looked upon with more hope.

Physicians of undoubted veracity say that the boroglyceride paste during the day, and the resorcin paste during night, are effective in getting rid of the infiltration.

The usual internal remedies for the cure of tuberculosis certainly deserve a fair and impartial trial.

The presence of the bacillus pyogenes in the **Empyema.** cavity of the chest—usually the result of pleurisy in debilitated subjects. It is liable to follow scarlet fever in children; pneumonia and tubercular disease of the lung in adults; the bursting of a hydatid cyst into the pleura, or the bursting of a tubercular cavity of the lung into the thorax. Often it supervenes without any assignable cause.

Symptoms.—There is at first pain of a sharp and shooting character in the affected side, and this is generally confined to one spot; the patient cannot cough or take a deep breath without increasing this pain. In a few days, when the fluid is poured out into the pleura, the pain may diminish considerably; but there is more or less distress of breathing, because, from the pressure of the fluid, air cannot enter the lungs on the affected side, and the other lung is called upon to do all the work; hence the patient lies on his back or diagonally towards the diseased side, so as to give the healthy side of the chest all the room he can to expand. From the first there are the usual signs of fever—a furred tongue, quick pulse, loss of appetite, and much thirst. The temperature, too, of the body rises considerably, and is liable to much daily variation, being high at night and perhaps two or three degrees lower in the morning. When the disease is well established, the diseased side of the chest is larger in circumference than the other, and there is bulging of the intercostal spaces; the veins also are obstructed over the part, and appear as blue lines running over the chest. The dyspnoea is great, and increased on exertion; each respiration is hurried and shallow; the countenance is anxious, and sometimes pale or livid. Generally the patient is worse at night, and becomes hotter and more oppressed; at times a hectic flush appears on the cheeks, at others there is much perspiration over the head and body; rigors or shivering are very usual in the early stages of the disease, but become less frequent afterwards.

In the treatment, the patient must be kept in bed, in a warm, well ventilated room, the air kept moist, and at a temperature of 65° to 75° F. Food of a highly nutritious character administered, as malted sterilized milk, beef tea, broth; and a moderate amount of stimulants administered.

A course of internal bactericides, as the exhibition of the dioxide of hydrogen, comp. oxygen, ozonized sulphur water.

Jackets of bactericides have been tried, prepared of iodoform, and kindred germicides, occasionally a case seems to yield to them, but their uncertainty of action renders them practically useless.

The living microbial mass should be removed either by aspiration or tapping the chest, The latter procedure is the best.

For this purpose an incision, about an inch long, or rather less, is made through the skin, about the sixth or seventh intercostal space, and in the line of the axilla or arm-pit. A trocar and canula, about one-fourth or one-fifth of an inch in diameter, is then introduced, and when the trocar is withdrawn the pus will run through the tube most readily. The wound should not be allowed to close, but a piece of tubing of gutta percha should be kept in, so that any more pus that forms may escape at once, and not accumulate again. Even in very favorable cases pus continues to be secreted and to flow through the tube for days and even weeks after the original puncture. The quantity produced daily gradually diminishes until at length it ceases. All this while the patient will be easier; he can breathe more comfortably; there is less fever and hectic; he will recover his appetite, and rest better at night; but in all cases that recover, convalescence is a very slow process, and tonics, generous diet, cod-liver oil, a visit to the sea-side or country are indispensable aids for regaining health. If the lung cannot expand after the matter has escaped, the chest-wall of the affected side will be pressed in by the external atmosphere, and so be smaller than the other, and in this way such patients often have lateral curvature of the spine afterwards. In time the healthy lung becomes much increased in size, and does in a great measure the work of both. The mortality from this disease is considerable, and it is nearly always fatal when arising from pyæmia, or when the patient's health has been worn down by previous disease. In a few cases the pus has made its way through the skin of the chest, and burst externally of its own accord; but it is best to tap the chest before such a process has taken place.

A morbid state of the blood, in which it has a

Embolism. tendency to clot or form fibrinous concretions, which either adhere to the walls of vessels or are carried onward by the current of the circulation, and plug up or impede its normal course.

The causes are varied: in-door life, insufficient aeration of blood by skin or lungs; its imperfect decarbonism by the liver in drunkards; the pressure of the gravid uterus on the liver, and

non-oxygenization by pressure on the diaphragm. It is present in ague, typhus and other fevers; also in croup, diphtheria, pneumonia, scarlatina, erysipelas, caused by the ptomaines of the germ of each, respectively. It is also caused by diseased vegetables, fruit, meat, and cereals, such as ergot of rye, *ustilago maidis*, so that ergot during parturition produces it in mother and child, and is one of the most common causes of death to both.

In an examination of the blood after death there is usually a large coagulum found in the heart; fibrinous specks, patches, plugs can be seen in brain, lungs, heart, liver, and arteries. On an examination of these clots or plugs by the microscope, they seem, in nearly all cases, to be a mass of bacteria interspersed with cadaveric alkaloids.

It is often difficult to recognize the disease during life as the symptoms are quite variable, but if any of the above causes exist, it is positively present to a greater or less degree, and particularly so if the patient complains of strange sensations about the heart, and has a tendency to fainting.

In all diseases in which this is present, or where it is suspected, the patient should be kept as quiet as possible in the recumbent posture, never being permitted to sit up, and nothing allowed to disturb him in any way, and have an abundance of fresh air. The diet should consist of milk, eggs, soups; the secretions attended to.

In order to meet the pathological condition of blood, tincture of belladonna, alkalies, and peroxide of hydrogen should be administered.

All acro-narcotic remedies have a wonderful effect in causing and maintaining a fluid state of the blood. Belladonna has this property in a high degree. A teaspoonful of the tincture in half a tumbler of water, of which a teaspoonful should be given every one or two hours, never administering it so frequently as to cause dryness of throat.

In the sesquicarbonate of ammonia we have an excellent alkali. This either alone or combined with a few grains of bicarbonate potassa soon relieves the condition; besides, the ammonia is destructive to living germs in the blood. Bromide of ammonia answers well if a deposit of fibrin has taken place. Salicylate soda in acetate of ammonia. Sulphate of soda is also valuable, so is the permanganate or chlorate of potassa. In diseases associated with embolism, iron and mineral acids should be avoided in treatment.

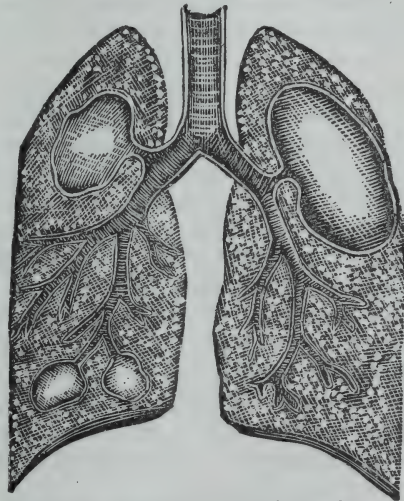
The term *thrombosis* is applied to a clot of fibrinous blood causing a partial or complete closure of a vessel.

A pouch or air-sac in the lungs. Two varieties. Vesicular and inter-lobular emphysema.

Vesicular Emphysema.—Consists of a debilitation, enlargement and coalescence of air-cells, atrophy of their walls and obliteration of their vessels, may affect one or both lungs, or a part of each, especially anterior edges and apices.

Its causes are degeneration, a sort of interstitial death, destroying elasticity and contractility of affected tissues, the air-cells and their surroundings, which conditions may be caused or intensified by running, jumping, hoisting, playing base-ball or wind-instruments, singing, shouting, lifting, digging, rowing, running up stairs, or by anything that would cause the patient to take prolonged deep inspirations, or sudden check to an expiration; a sequel of hooping-cough, asthma, chronic bronchitis.

Inter-Lobular.—Consists of an infiltration of air into the interlobular areolar tissue, or into sub-pleural areolar tissue. This form is generally caused by rupture of the air-cells by violent strain, or fractured ribs, and is generally met at the corners or abrupt angles of the lungs. The distinction is important, as the lobular form is very hopeless, and can only be relieved by antispasmodics.



A beautiful illustration of vesicular emphysema, showing a well-developed air sac in each lung, with two small ones fully formed.

Emphysema is often latent, dates back to early years; an isolated spot of the lung weak, which affords an anatomical substratum for its occurrence; a substantive inherent unhealthiness of lung tissue, which gradually increases with years. This is the true pathological process, which is easily microscopically demonstrated, and is at the bottom of all cases; gives rise to a predisposition, in an incomplete respiration and retention of air, and in time gives rise to microbiosis of patches in the lung, and latterly in the formation of large rarefied air spaces.

Symptoms.—The symptoms are the same in both forms. General debility, with shortness of breath and difficulty of breathing, increased by slightest exertion, and general distress, that the suf-

ferer is unfit for any active occupation; feeble cough, expectoration of frothy sputa, dusky appearance of countenance, weakness of voice, stooping gait; loss of flesh and strength, lowered temperature, 85° Fahr.; very weak and slow pulse, fifty to sixty; respiration twelve per minute; constipation, occasional paroxysms of asthma; chest barrel-shaped, scarcely any movement of the intercostal muscles in breathing; on percussion, an unnatural clearness tympanitis can be mapped out, and to be found there at all times. Auscultation reveals indication of vesicular murmurs as must rule us in bronchitis. Heart sounds are very feeble, and that organ is frequently displaced. Disease of the right cavities of the heart, with venous congestion and dropsy. Diseased side bulging, round or prominent in bad cases.

Treatment.—Emphysema is generally regarded as an incurable affection, and that is correct in a large proportion of cases; still there are few cases that do not admit of much amelioration, and very many of the vesicular form curable.

All conditions that would be likely to cause sudden inspiration or expiration should be avoided, as mental and physical excitement, no shouting nor attempts at running, lifting, rowing, etc. Warm flannel clothing, very generous and strengthening diet, and tonics to stimulate the appetite. Some remedies have a remarkable power over the interstitial tissue and stroma of the lungs in atrophy or in sclerosis, such as lobelia, quinine and hyoscyamus; one grain of each thrice daily operates well, and effects some good cures put up in pill form; liquor ammonia, sambul, phosphate of iron and quinine, also, are of great efficacy. The lobelia, quinine and hyoscyamus pill is our best combination; next, bromohydric acid; warm, moist atmosphere.

Quebracho is also a good drug to relieve the difficulty of breathing.

It is difficult to define this disease, but it can be described as a weakness or irritation of a patch of the brain, with an impaired cerebro-spinal centre which leads on the slightest disturbance to an explosion between the positive and negative forces of that organ, which produces the characteristics of sudden loss of consciousness and sensibility, power of voluntary motion, with tonic convulsions lasting a few seconds, and followed by clonic spasm of voluntary muscles; cessation succeeded by exhaustion and coma. Attacks recurring at intervals. Without a weakened bulb and neighborhood epilepsy could not exist.

The causes may be embraced under three general heads:

(1.) Centric causes. (2.) Reflex. (3.) Blood diseases.

1. Hereditary conformation, consanguinity; peculiar shape of skull, depression or excrescence from its walls, tumor, worms; weakened patches by falls and blows in infantile life.

2. Reflex: caries and overcrowding of teeth, vaulting of the roof of mouth, giving rise to irritation of the trigeminus, the most reflex nerve in the entire body. Irritation anywhere, especially in the abdomen, for of all the regions of the body none reflect more strongly on the brain than the visceral organs; so we must look well to the stomach and bowels for worms; if there is great mental depression, melancholia, for a loaded or sacculated colon, the kidneys, bladder and irritation of the generative organs in both sexes, etc.

3. The blood, the living germs of tubercle, cancer, syphilis, rabies, and even the ovum of parasites will nestle and form colonies in patches of the brain weakened by falls and blows, and thus increase the condition of molecular death.

Epilepsy is characterized by general languor, debility, lassitude; patient soon acquires a nervous temperament, sharp features, white skin, with an excess of brain-waste in urine in the shape of phosphates and chlorides. If the fits are about to appear, there are in about two-thirds of all cases what is termed warnings or premonitory symptoms, which consist usually of some nervous sensations, different in duration and character, such as spectral illusion, hallucination of smell, taste, headache, giddiness, vertigo, twitching, confusion of thought, sense of fear, etc. But the *aura epileptica* occurs in the large proportion of cases; some compare this to a current of hot or cold air passing by; others to a stream of cold water running on the skin, a fulness in head, a sense of burning or tingling or a pricking sensation, drawing inwards of the thumbs, a feeling as if insects were creeping, the sensation beginning in some remote part and extending to the head. Usually when *aura* ceases fit commences.

The real symptoms: white or cadaverous appearance or pallor of features, with utterance of a shriek or scream; and that may not take place, but the patient falls to the ground insensible, with loss of voluntary motion and violently convulsed; convulsive movements continue violent, usually more marked on one side than the other; distortion of face, gnashing of teeth, foaming at the mouth; protrusion of the tongue, which is often bitten; eyes partly open and suffused; eyeballs rolling and insensible to light; skin cold and clammy; perhaps involuntary micturition and defecation; vomiting; breathing laborious, seems about to be suspended; when the limbs are stretched out a deep sigh is drawn and the fit passes off. Patient left insensible and as in a

sound sleep, with stertorous breathing, from which he recovers with a feeling of stupor and exhaustion and headache, but without any knowledge of what he has gone through. Some hours subsequently small ecchymosis often detected on face, neck and chest.

The fit may be very light or very severe; its duration may be a few minutes or extend to many hours. Fits, when slight, often only consist of giddiness, confusion of mind, loss of consciousness, little or no convulsion and stupor, and all over in less than a minute. Seizures occur at variable intervals; often occur at night without being suspected by patient or friends. Repetition of attack impairs memory, may cause cerebral hemorrhage, temporary or permanent paralysis, or dementia, idiocy.

In all obscure cases, it is well to look for germs and parasites or their spores or eggs.

The most hopeless cases are those due to centric causes in the brain or skull, defective nervous organizations, lesions of the meninges. Those due to irritation, reflected or propagated, or to a morbid state of the blood, if not of very old standing, are amenable to treatment.

The great increase of epilepsy is due to the vices or defects of civilization, the brain being more susceptible to irritation; abnormal conditions of alimentary canal, uterine irritation, masturbation, venereal excesses, alcoholism, tobacco, syphilis, mercury, etc.

Treatment.—The symptoms are those of a sudden explosion of accumulated nervous energy. From the periodical character of the fits, it is inferred that the accumulation of nervous energy goes on for a definite time in the brain and spinal cord until an explosion ensues, which spends itself upon the muscles of voluntary motion, which are thrown into violent action, and by these means the accumulation is exhausted—the explosion being followed by coma or deep sleep.

Many measures have been proposed for preventing the gradual accumulation and sudden explosion of the nervous energy constituting epilepsy, as improving nutrition, restoring mental and bodily vigor by any possible means, abundance of exercise in open air, daily bathing.

Treatment during a fit should be directed chiefly to protecting the patient from violence, and getting him out of the fit. All clothing should be loosened, so that the blood may have free circulation to and from the head and all parts of the body. A piece of pine wood should be placed within the teeth to save the lips and tongue from being wounded by the spasmodic movements of the jaws. The patient should be placed on right side

on bed or floor, head well elevated, and restrained or guarded, so that no personal injury is inflicted. Cloths wrung out of warm water should be applied to the head; mustard to the feet. Enemas of some broth, or mucilaginous tea, with half a teaspoonful of spirits of turpentine, operate very favorably. Tying a ligature around the limb in which the aura is experienced prior to the fit, to ward it off, of doubtful utility.

If fit lasts long, a hypodermic injection of one-quarter of a grain of sulphate of morphia in the cellular tissue of nape of neck or over deltoid instantly rouses the patient up. Snuff, inhaling nitrite of amyl, etc., rather to be avoided.

During the interval, while the fit is off, there must be a vigorous effort to prevent a recurrence or suspend the explosive tendency of the positive and negative forces of the brain with sufficient doses of bromide of potassa and other remedies to diminish or allay the reflex excitability and force of the cerebro-spinal centres. Such a formula as one of the following is efficient:

Fluid extract of sambul, four ounces; tincture of calabar bean, one ounce; bromide of potassa, one ounce; bromide of ammonia, two drachms; bicarbonate potassa, two drachms; tincture of belladonna, thirty drops. Mix. One teaspoonful or more—sufficient to ward off the fits; or the following:

Camphor water, four ounces; bromide of potassa, one ounce; iodide of potassa, two drachms; carbonate of ammonia, half an ounce. Mix. Dose, from one to more teaspoonfuls, sufficiently often to ward off attacks.

The numerous causes of epilepsy have given rise to a variety of treatment, among which that of the bromides deservedly takes the first rank. For many years, bromide of potassium, sodium, ammonium, lithium, calcium, zinc, arsenic, nickel, camphor, ethyl, have variously been employed, but their action appears less reliable than the bromide of potassium, or a combination of three—potassium, sodium, and ammonium. Lately the author first used bromide of gold, and encouraged by the results, has established a treatment of remarkable activity. The form preferred is the solution, which is of a dark orange color. The least dose for an adult is eight milligrammes in twenty-four hours; for a child, from three to six milligrammes will suffice. When wishing to obtain a rapid effect in an adult this dose is gradually increased until the effect is obtained. If the dose is increased a persistent headache may occur, which ceases when the dose is lessened. The author has never exceeded a dose of twelve milligrammes. The advantages are the small quantity required, compared to the bromide of sodium or potassium necessary to obtain a good result; and the absence of digestive disturbance renders it pos-

sible to continue the treatment for a long time without intermission. No phenomena of bromidism have been noticed; no cutaneous accidents, nor loss of memory, or diminution in sexual functions. Every one is familiar with the grave result of the bromide treatment upon the general health of epileptics. Bromide of gold is more rapid in its effects, and gives rise to none of these very disagreeable phenomena. Another point worthy of attention is that the effect is lasting, and remains sometimes for many years without other treatment and with no return of the epileptic attacks.

Bromide of potassa is a salt of high diffusive power, readily entering and quickly leaving the blood. It should be given freely diluted with water on an empty stomach, otherwise, part of it escapes from the system without being absorbed. Besides, its well-known power in producing anesthesia of the medulla oblongata, thus diminishing central irritation, it has a similar effect on the motor and sensory nerves. Bromide of lithium is a more powerful salt than the potassium, containing more bromine, but is not efficient in epilepsy. The dose of the bromide of potassa should be from forty to sixty grains per day; not one grain more should be given than the quantity required. The addition of the bicarbonate of potassa in the one prescription and carbonate of ammonia in the other, increases the action of the bromine materially; besides, they are antacid and protect the stomach against *brominism*. The rule is, bromine enough to act successfully on the bulb, but not to produce a catarrhal condition of mucous membrane with a train of miserable symptoms in which the remedy must be stopped. Bromide operates best on the heavy fits; it has less effect on the light.

What is really the value of the bromides in chorea and epilepsy due to the germs of tubercle, syphilis, or starved brain areas? We cannot correctly appreciate.

A weakened patch in the brain or bulb, with either of those two disease germs in the blood, will give rise to epilepsy. An imperfect nutrition or weakened patch in brain and cord, with impaired nutrition of the nervous ganglia, or group of nerve cells, with the same or other germs present, will give rise to chorea. Besides, there are the ordinary reflex causes. The two affections demand an alterative and tonic course of remedies,—all the time—with repeated small blisters of about the size of a silver dollar, to nape of neck, for six hours daily, twice a week, as there is always a co-existence of spinal tenderness, greater spinal impressibility and other hybrid ailments. In addition nothing should militate against the use of *avena sativa* day by day, as the tissues are starved. It increases the motor power of

the heart, tones the nerves, increases the number of nerve cells, overcomes the want of equilibrium between the grey and white matter of the cord; relieves insomnia, overcomes mental weakness, and incoordination of muscles. If, however, the motor phenomena are peculiarly violent, the patient must have rest—rest from excitement, from noise, from harsh words, from taking an active part in the struggle of life.

We do not endorse the use of the bromides in either; it is true they suspend the reflex impressibility of the medulla oblongata—the seat of reflex action—but it is also *too* true that they diminish nervous energy; *true* vital stamina is lowered; motor and sentient power diminish under their use. They soothe, dispose to sleep, but they blunt the intellectual faculties, impair the memory, confuse the ideas, render the individual dull, stupid, apathetic, with a tendency to somnolence. They impede speech, weaken special senses, make the body infirm, feeble, unsteady. Its effects on the ovaries and testes are to destroy, or obliterate the secreting cells; being analogous to castration, so that sexual power is abolished. The bromides devitalize the mucous membrane of the stomach, give rise to gastric catarrh (*sarcina ventriculi*) nausea, flatulence, etc. It also slows the heart, covers the skin with acne (the bromine rash).

Now none of these symptoms are produced by the ozonized fluid extract sambul. It has precisely the same action upon suspending the fits or the choreaic twitching, but never impairs, nor damages, nor atrophies the sexual apparatus. The bromide craze has had its day. Many brilliant minds have been wrecked, by its indiscriminate use; it has caused impotency to be very general, and sterility exists from its use to a very alarming degree.

Simulo, for epilepsy, nervous and hysterical cases, has not realized the anticipations formed of it. Its properties are identical with the fl. ext. or essence of hyssop. It is a germicide of some power, but not efficient in epilepsy, and cannot cure it. True, if suitable cases are selected, those due to disease germs, it will do work, but never can make the inroad on the weakened bulb which is effected by the sambul.

Enanthe Crocata, or cowbane, is conspicuous as a remedy in epilepsy, it succeeds in warding off fits by arresting the molecular activity of the brain; it is worthy of a trial.

The tincture of *cocculus indicus* in ten-drop doses, morning and night, and gradually increased until it produces cerebral congestion. The drug keeps the cephalic vessels in a state of relaxation and thus prevents the vascular spasm which produces cerebral anæmia, the fundamental condition of the initial stage of an epileptic attack. It is most useful in old chronic cases, in which

bromine and sambul have failed. The remedy must be carefully guarded.

Exalgine possesses some remarkable properties in epilepsy in certain cases; its action resembles the bromides—that to obtain its effects, it must be given in large doses and persevered with.

Osmic acid, alternated with nitro-glycerine, has met with success.

Other remedies often of utility are the mono-bromide of camphor, valerianate of zinc, cannabis indica, conium, Fowler's solution, sclerotinic acid, Chian turpentine, Calabar beans, lobelia.

The elucidation of the germ theory of disease with its bactericide remedies has clearly shown that many obscure brain lesions are due to disease germs and uric acid in the blood. Many epileptiform seizures are preceded by hemicrania, and are readily kept in check by peroxide of hydrogen, uric acid solvent, etc. The use of these remedies in epilepsy bids fair to bring this hitherto stubborn affection within the class of diseases amenable to treatment. It is therefore a good plan in all cases, after warding off the fits either with ozonized extract of sambul or some other remedy, to place the patient upon some efficient bactericide; such a course is attended with most marvellous results.

If it is a boy or young man with short hair, an ointment of equal parts of chloral hydrate and camphor dissolved in vaseline should be rubbed into the entire scalp at bedtime; in case of a lady, well up in nape of neck. It is a valuable help, whether it acts by continuity of tissue or by causing some molecular alteration in the periphery of the nerves and occasioning the same alteration in the nerve trunks, or in their nuclei, or by reflex action, it is impossible to say.

The liver and colon should be roused into action by compound licorice powder and colocynth. There is a large number of cases where the central irritation is kept up by eccentric causes, as a worm, fistula, tight or elongated prepuce, or clitoris, which latter being removed, the central irritation is easily combated by the application of ice to the sympathetic nerve which issues from the last cervical and upper dorsal vertebræ, and by small doses of the bromine. The value of ice is effective in proportion to the youth of the patient and acuteness of the case. It is rarely beneficial in the chronic epilepsy of adults. *

Young children, from one to six years, sleeping in closed rooms, are subject to frequent attacks at night of screaming, with insensibility and semi-convulsions, due to the protracted inhalation of air deficient in oxygen and laden with carbonic acid gas. For this the chlorate of potassa is a sovereign remedy, and for the true convulsion and epileptic attacks in children it often proves curative. It is of no utility in the adult, unless combined with bromide.

While warding off attacks, remove the cause if it is admissible.

In distinguishing the true epilepsy from the feigned, the following are good landmarks for a guide. In the feigned, the patient does not fall violently but deliberately, to avoid injury; eyes are closed but pupils contract to the stimulus of the light; tongue and lips never bitten; face red, congested instead of being pale; skin healthy; blow snuff into the nostrils and patient sneezes. A proposition to apply the actual cautery to the spine effects an instant and permanent cure.

In infantile epilepsy, we must look for falls, blows, teething, irritation of the stomach and bowels, worms, and remove by lancing gums, emetics, cathartics and vermifuge remedies.

If caused by fright or mental emotion, aconite, belladonna, hyoscyamus, citrate of caffeine, etc.

If caused by indigestible substances, emetics, compound antibilious pills, etc.

If by worms, the active principle of pomegranate root, valdivine.

If by suppressed menstruation, compound betin pills, warm teas, etc.

If by masturbation, large doses of tincture of green root gelsemium, with circumcision and shortening clitoris.

If caused by blood disease-germs, as tubercle, syphilis, etc., iodine, glycerite of ozone and water, nitric acid in compound tincture of cinchona, iodide of potassa, phytolacca, general alteratives and tonics, as laid down under each; and in all cases, either repeated blisters or irritating plasters, or the antimonial plasters below nape of neck, an open sore, so as to attract the germs of disease to another pasture-field, away from the vital organ—the brain.

The bioplasm of normal nutrition, changed, **Erysipelatas.** altered, degraded by adverse conditions prejudicial to vitality into a disease germ. The micrococcus erysipelatosus is very small, consisting of minute cocci in chains, found in the mouth, breath, blood, kidneys and in the erysipelatosus blush. They occupy the lymphatics of the skin and spread along them as the disease advances or progresses. At the margin of the erysipelatosus zone, where the microbes are multiplying by millions, marked by the characteristic redness and swelling, the lymph glands are filled with zooglœa of micrococci, and the injection of these vessels keeps pace with microbe growth.

Artificial culture of the germ succeeds well in almost any nutrient fluid; such cultures or even successive cultures inoculated into animals, produce erysipelas.

The presence of this germ in the blood of an individual gives rise to languor, lassitude, debility, pain in the head, back, calves of the legs, tongue coated with a heavy brown bacterial coat, usually constipation, albuminuria, rigors on the sprouting of the germ, and a high grade of fever, either prior or subsequent to the chill an inflammatory blush upon some part of the skin



Streptococcus erysipelas.

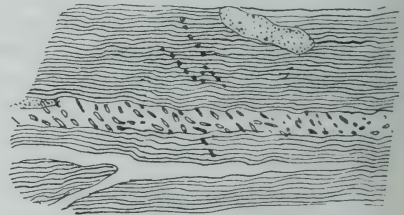
which was accidentally weakened. This inflammation of the skin is thus accounted for by micrographers, the streptococcus erysipelatous, having used up in their own growth, nutrition and multiplication all the oxidizable properties in the blood, and are in danger of starvation, becoming weak and attenuated, seek the cutaneous surface to have free access to oxygen. Here they received an infusion of new life and vigor, and have an unprecedented growth, spreading widely, but invariably selecting weak or devitalized parts, where the vessels are weak and patulous.

The most successful treatment consists in annihilating the germ, overcoming malnutrition, arresting germ evolution.

To sterilize and annihilate the microbe :

Internally try either brewers' yeast or ozone water ; or resorcin or compound tincture kurchicine, or lactic acid ; sulphide of lime.

Locally, try either saturated solution of boroglyceride or ichthyol, one drachm of the latter to the ounce of distilled water ; painting it on every four hours, forms a complete protection, under which microbes die.



Section of the skin in erysipelas. The microbe breeding in the lymphatics in chains ; multiplied 1000 diameters.

Literally speaking, ichthyol is no antiseptic, in itself it cannot destroy the erysipelatous cocci, but it starves the nutrient soil, so that the skin is no suitable location for their multiplication. But the solution of boroglyceride is the remedy which annihilates, and that speedily ; a remedy one can depend on to wipe out every microbe.

This invariably depends on the presence of a **Erythema.** germ, and is the name given to an eruption of the skin which is attended by a diffuse redness over a larger or smaller tract of skin. This disease is something like

a mild attack of erysipelas, and in some cases may shade into it, but it is much less severe in character, and although troublesome, is not dangerous. Unlike erysipelas, it is not confined to the face and head particularly; it is not attended with inflammation of the true skin, nor with any marked pain or fever. When the skin is dry, as in old people, and when it has somewhat lost its elasticity, it is very apt to become erythematous; the face and neck may become in this condition from walking out in a cold northeast wind. These simple cases may be treated by resting the affected part, keeping it covered up from the air, and bathing it with tepid water several times a day. Another kind, which is more important, but still very curable, has been styled *erythema nodosum*. It is generally seen in children, and is found in the form of dirty purplish patches in front of the ankles. These are raised above the surface, and are painful on pressure; they are worse after walking about. This state is due to blood and serum being effused under the skin, and it is thus different from the other variety. With rest in bed, plenty of nourishing diet, such as milk, meat, strong beef tea or broth, and a little medicine of a tonic character, such as fluid extract of yellow dock, four ounces; acetate potass, half an ounce; tincture nux vomica, two drachms. Mix. Dose, a teaspoonful every three hours. Dusting the eruption with the anti-microbe powder, a cure soon takes place. This form is sometimes met with in cases of rheumatic fever. It more frequently affects young women and girls than the male sex; yet it is met with in feeble boys. There is slight fever with it, and a feeling of languor and discomfort. Red, elevated spots, oval in form, then come out in a few days, and they are generally situated along the length of the limb or in a vertical direction. The lumps in a short time become purple, as if they were cold, and this in time dies away, leaving no mark behind. The disease, when it occurs, is met with in debilitated persons, and therefore measures should be taken to improve the general health.

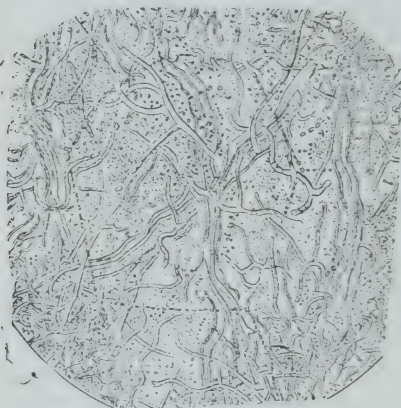
A cutaneous disorder, affecting chiefly those

Erythrasma. regions of the body where exposed surfaces of the skin are in contact, characterized by erythema, rose-shaped maculations, and due to the presence of *microsporion missitissimum*.

The growth is in the superficial layers of the epidermis. The fungus to which this disease is attributed is remarkable for the extraordinary delicacy and fineness of its threads and spores. They are cylindrical bodies of variable size, inextricably inter-

woven. Bacteria and heaps of zooglœa are visible among the scales.

It is easily recognized by being encountered only when opposed surfaces of the skin come in contact, as in the axillæ, groin, cleft of the anus; by the definitely circumscribed maculations. Color varies, vivid red all over or only the borders; when old, yellowish or brownish tinge. It does not feel as if there was any elevation, but throws off a fine flour-like furfuraceous desquamation.



Microsporon missitissimum.

Vesiculation and papulation do not occur. Color changes frequent, as red, reddish brown, pale reddish yellow and light or dark orange. The most successful remedies are either the boroglyceride paste or lotion, anti-microbe powder, with improvement of the general health.

The elements of nutrition, under adverse conditions to vitality, can be altered, changed modified or degraded into other living matter, which constitutes a diseased germ, such as cancer, syphilis, tubercula.

Fatty Degeneration.

Independent of this, living matter can be degenerated, the influence of the formative force which builds, maintains existence, and then dies, leaving behind a tissue or structure of an organ, worn out, effete, useless, adds to the general state of general dissolution. Degeneration is an indicator of advancing age, a necrobrosis, as we begin to live, we begin to die.

Another special form of degeneration is the result of disease, slow, certain; a slight, but continuous failure of nutrition, in which we recognize fibroid, fatty, pigmentary, calcareous, atheromatous degenerations of arteries, glands, nerves, which aggravate all maladies.

Fatty Degeneration of the Heart

is usually met with in one or other of two forms; that is, fatty tissue may usurp its muscular structure, or there may be an accumulation of fat upon its surface so great as to interfere with its systolic and diastolic action.

The causes of fatty degeneration of the heart are evidently those things which interfere with the nutrition of the heart.

It is essentially a disease of middle life, associated or blended with senile decay, predisposed to by the use of tobacco, fast living, chronic alcoholism, systemic syphilis, gout, rheumatism; states or conditions which directly enervate the heart, give it a tendency to degenerative changes. In addition a want of nutrition may be the result of atheroma, or calcification of the coronary arteries; embolism, obstruction, or to the use or absorption of phosphorus; to the action of the yellow fever fungus on the liver.

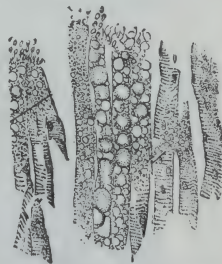
Fatty infiltration of the heart is directly caused by beer drinking and various other vices of modern society.

In its occurrence, the changes noticed are a want of nutrition; muscular structure becomes pale, loses its contractility, because its nuclei and muscular tissue begin to disappear, become completely granular, anæmic, filled with albuminoid matter; oil globules obliterate normal fibres. As the muscular structure degenerates it assumes a dirty buff brown or yellow color; loses its elasticity, power of resistance. Breathing is difficult; heart liable to be hypertrophied. The coronary arteries either atheromatous, calcified or obliterated.

When the fat accumulates upon the surface of the heart, it is liable to cause atrophy with rupture.

Fatty degeneration of the heart may go on unrecognized for quite a number of years, a pressing debility, a gradual inability to endure exertion for any length of time; sudden fits of suffocation, with violent palpitation not infrequent; skin is pale, pasty, yellow color, extremities cold; œdema not uncommon, especially in old age; digestion feeble; perspiration profuse on the slightest exertion; invariably suffering from difficult breathing after exercise; occasional pain about the heart; liver and kidneys become affected, and as this takes place, respiration becomes irregular and feeble.

Cardiac insufficiency is progressive; and simultaneously all the tissues of the body become soft, flabby, affording strong evidence of arterial degeneration; the arcus often present; temper irritable, depression of spirits; disturbance of vision; failure of memory, giddiness, vertigo; sudden cerebral anæmia during excitement; syncope, epileptic fits; pulse variable in force, but feeble, yet accelerated. Later on angina pectoris; the apex heart-beat is indistinct; no impulse can be detected.



Teased fibres from the heart in fatty degeneration.

The prognosis is unfavorable, as the usurpation of the muscular structure of the heart by fat has either a fatal termination by rupture or cerebral anæmia.

No plan of treatment can be laid down which is positively curative. No drug or combination of drugs can restore degenerated muscular fibre, but much good can be accomplished in ameliorating and retarding the disease by improving the tissue-making power of the blood, which is best effected by very gentle physical exercise in the open air, by bathing and persistent massage, by good nutritious food.

Our best remedies to increase fibrine are comp. tincture cinchona and mineral acids; comp. tincture marticaria; cardiac stimulants, like digitalis, strophanthus, should be administered with great care.

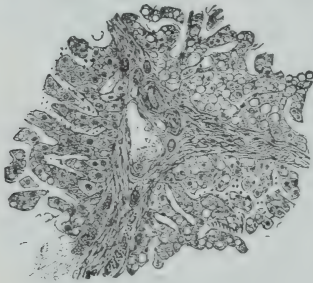
Tobacco, beer, alcohol, worry, care, should be avoided.

Fatty Degeneration of the Liver

occurs either as a general or partial infiltration of the liver with fat, or as a general metamorphosis of the structure of the gland into adipose tissue.

Associated with this in all cases is a gradual, painless, enlargement of the liver.

The victims of this disease are generally in the middle period of life; men who have been large consumers of fat or other hydrocarbons, as beer, alcohol, wine, with little physical exertion.



Fatty liver.

The presence of certain disease germs in the blood give rise to fatty degeneration, such as the tubercular bacilli; the fungus of yellow fever, the microbe of typhoid, puerperal, scarlet fever, variola, malaria, pyæmia. The use of certain drugs, as arsenic, antimony, phosphorus, ether, chloroform, tobacco; old age, etc., produce certain changes in the

blood, which give rise to fatty liver.

Once a liver is infiltrated with fat, it increases in size, steadily and persistently, and commences to have a peculiar flattened appearance, a smooth surface; a pale brown or light color; a doughy, flabby feel, pits on pressure. Its capsule is tense, shining, transparent; vessels become enlarged and tortuous. Cutting the liver with a warm knife, the blade is coated with oil globules,

very little blood flows from the cut surface. If the patient died in a very early stage, the liver would be reticulated, dotted or mottled, of a dull yellow color. The central veins are intensely congested and pigmented with fat, or the whole substance may present a yellow appearance.

It is not uncommon to meet with both fatty and amyloid deposits in the same liver.

An aggregation of fat in the liver varies considerably; small deposits the size of a pea, interspersed through the gland, large nodules or patches in the liver of beer drinkers; seventy-five per cent. of the entire organ is usurped by fat.

There is always present in fatty liver, dyspepsia, flatulence, loss of appetite, want of nutrition, splenic enlargement, some pain over the liver, pain in the shoulders, dulness in the apex of right lung. The slightest indiscretion in eating or drinking causes attacks of gastric irritation and diarrhea. Gradually the patient becomes anæmic, moody, suffers a loss of muscular power with a disposition to sleep. The skin is pasty, and smooth, soft, and flabby. Difficult breathing results from loxæma, enlarged liver, ascites.

If acholia be present, with pale, clay-colored stools, the hepatic degeneration speedily proceeds to a rapid termination.

Fatty and waxy degeneration are often mistaken for each other, the history of the case when in doubt has an important bearing in diagnosis; in the waxy form, a history of syphilis, disease of bone, suppuration, etc., are, or have been present; whereas in the fatty form, chronic alcoholism, high living, malaria. The blood is watery in fatty liver; an increase of the white corpuscles in the waxy, a fatty liver is soft, flabby; a waxy liver is hard. In waxy liver, fæces are pale, deficient in bile; in fatty liver, fæces are often normal till disease has become well advanced; with a waxy liver, spleen invariably in same condition; with fatty liver, spleen often normal.

Fatty liver is a disease invariably attended with great danger to life; death may take place at any moment from epileptic fits, apoplexy, or other grave lesion.

Treatment can effect much in warding off, even if it cannot cure the disease; a restricted diet with no fat, sugar or starch; regular daily open air exercise, with baths and massage. Residence if possible in a temperate region, free from malaria; stop all alcoholic drinks gradually.

A general alterative and tonic course inculcated, as comp. saxifraga, alternate with comp. tincture of matricaria, chionanthus.

Fatty Degenerated Kidneys.

Usually the result of desquamative nephritis, or Bright's disease. If it occurs without the precursory disease, intemperance and bad living may bring it about. Kidneys are usually large, pale, soft, doughy, and fatty.

Symptoms.—A recapitulation of all the symptoms enumerated in Bright's disease, but greatly aggravated; debility increases rapidly; the uriniferous aspect, pallor, and anæmia much intensified; the pulse is now irritable and frequent; there is general œdema; puffiness of face and hands; frequent micturition; dyspepsia, with attacks of vomiting; a tendency to inflammation of the membranes of brain, pleura, peritonæum, pericardium, and amaurosis, due to albuminuria, retinitis, and degeneration; anasarca of the limbs and dropsy of the cavities. Indications of uræmic poisoning show themselves often in convulsions, coma, etc. The urine in fatty degeneration from the very commencement exhibits oil-globules, is very scanty, low specific gravity, and highly albuminous. There are also cast-cells filled with oil, presenting the appearance of dark, opaque masses, besides the oil-globules.

When the urine is highly albuminous and presents a large number of oil-casts and cells, the case is to be regarded as a serious one, as they indicate an intractable form of the malady.

Fæcal Accumulations.

In aged persons, especially females, confined to bed or leading very inactive lives, and in whom nervous sensibility is more or less dulled, fæcal matter is now and then found to accumulate, and in time to become so hard and large as to resist the natural expulsive action of the bowel. Most liable to occur in the aged or infirm; still examples of it are often found in young subjects.

Enemata of warm glycerine, which is so valuable in constipation, have a most excellent effect in relieving fæcal accumulations, a warm thrill is experienced, penetrating through the intestines, followed by vermicular movement which precedes peristalsis, followed by an urgent call.

Enemata form, without doubt, the most efficient means known for dealing with fæcal accumulations. The injection should be copious, and should be given, when possible, in the knee-and-head, knee-and-elbow, or lateral abdominal position. The best material is water at a temperature of about 100°, although some prefer mixtures of soap and water, or of turpentine and water, or of oil. No anesthetic should be used, so that the patient's sensa-

tion may afford some test of the amount of pressure employed. If any symptoms are present that raise a suspicion of stercoral ulcers, it is needless to say that the injection should be conducted with the greatest caution. The fluid should be very slowly introduced, and should be forcibly retained for ten or fifteen minutes; and while the colon is well occupied therewith the fæcal mass should be gently kneaded.

Massage is of great utility, a most potent mechanical tonic and vitalizer. In its application the patient lies upon his back; the hands of the operator are oiled, and, with the fingers widely opened, both palms are laid upon the abdomen; the hands are made to pass systematically in various directions; the pressure exercised is steady and deep, and the movements are slow; the manipulation on each occasion should extend over fifteen or twenty minutes, and should be repeated at such intervals as may be considered advisable.

It is a mechanical agent, influencing the stercoral mass and modifying its position; it is a stimulant, an exciter of the peristaltic wave through the abdominal nerves which contain both excitatory and inhibitory fibres—a therapeutic measure of great value.

A condition in which the vital forces have received

Fever. a shock and are struggling to regain their supremacy—
—an effort of impaired vital forces at restoration.

The common causes of all fevers are disease germs and their ptomaines.

The mode or manner of ingress of microbes into the body is still an unsettled question. The action of heat and cold, mechanical injuries of all kinds, poisons, may so degrade, alter, change elementary molecules into other living matter, or simply depress the vital forces and pave the way for the ready ingress of disease germs from without, such as the germs of malaria.

The ordinary symptoms of fever are languor, lassitude, debility, pain in the head, back, and calves of the legs, rigors, high heat, frequent pulse and respirations, with derangement of the secretions.

The poison or living germinal matter that produces these symptoms may have gained access to the patient's body through the air, or water, or food, or it may be the degraded or changed living matter of his own body. The salivary glands of the mouth are the most eligible channels of a poison gaining access to our bodies. This is apparent by the disturbance of the stomach. Once the poison has gained admission and found its way into the blood, it grows with great rapidity, and is diffused throughout

the entire body, disturbing the vitality of organic living matter with which it comes in contact. The destruction caused by fever or germ-disease involves every constituent of the body.

General nervous depression is the characteristic of all fevers. The prostration, rigors, headache, with pain in the back and calves of the legs, denote a partial death of the nervous system. Pain exists in every sentient nerve in the body, but is experienced most keenly by the patient in the large superficial sentient nerves of the back and calves of the leg. In fever we have a diminution of evaporation, the dormant skin does not act as a refrigerator, destructive metamorphosis is great, the semi-vital chemical changes raise the temperature,—there is rapid oxidation, the passage of organic into inorganic matter, the blood loaded with germinal matter; and its growth together with the irritation of brain and the eighth pair of nerves that supply the liver, causing an excessive secretion of glucose, all of which go to explain the heat of fever.

The controlling action of the brain being impaired, the heart and lungs are irritable, and their action accelerated. The brain needs more vital force to hold them in check. All the secretions and excretions are depraved.

The termination of fever is either recovery or death; the former may in some cases be imperfect, terminating in other forms of disease, as anæmia, paralysis, etc.

Some fevers, due to disease germs, a specific contagion, have a definite period of existence in the body, which limits their duration. Nearly all contagious diseases are of this class.

Fevers are easily recognized by their symptoms: languor, pain in the head, back, calves of legs, rigors, with high heat, frequent pulse and respirations, with perverted secretions.

If the heat of fever does not exceed 103° Fahr., with favorable surroundings, hygiene, nursing, and no irreparable lesion, good hopes may be entertained of rapid recovery.

The treatment of all fevers is based upon certain, well defined rules, viz.: Either sterilize, kill, or annihilate the microbe, the factor of the fever, and to maintain the vitality of the patient.

To arrest in all cases, the destructive metamorphosis of the disease germ, bactericides must be administered; these are the true remedies to lower temperature, reduce the action of the heart, diminish the respirations.

In the incipient stage of all fevers, very great benefit is derived from an emetic to unload the stomach, an active or gentle cathartic to relieve the bowels, and an alcoholic vapor bath or some form of bathing to start the function of the skin.

The utility of an emetic is apparent; the living poison that

probably caused the fever has been taken in by the salivary glands, swallowed, and lowers the vitality of the stomach. It loathes food, fails to digest, and the symptoms are much ameliorated by an emetic. Before administering this, the patient should drink freely of tepid water with a small amount of bicarbonate of soda, so as to neutralize the acid secretion from the walls of the stomach. Following the emetic, the alcoholic vapor bath, then the cathartic. Typhoid fever is the solitary exception among all fevers to the use of purgatives; in that fever they are not admissible, except in some rare instances.

If the patient is unable to sit up or very young, or pregnant, instead of the alcoholic vapor bath, sponging the entire body should be resorted to with tepid alkaline water. In some cases vinegar is a good addition.

Then the regular treatment for the case should be laid down.

The room selected for the patient during his illness should, if possible, be isolated, well ventilated, no draught, abundance of light, free from carpets, curtains, and paper on the walls, as they retain the seeds of disease. If possible, an open fire-place, and if the season permits, a fire, so as to destroy the disease-germs as they escape from the patient. If convenient, two beds should be placed in the apartment, so that the patient's clothing and bed-clothing can be changed daily, and he lifted from one bed to the other. In all cases the head of the bed should be placed to the north, feet to the south, and insulated from the floor with glass castors or pieces of glass, so that the patient may be in unison with the magnetic law of the earth. The greatest cleanliness should be observed. When clothing and bed-clothing are removed, they should at once be immersed in water with an antiseptic. No unused food should be permitted to remain in the room. Antiseptics, such as chloride of lime or carbolic acid, buckets of water with bromine, or iodine, or permanganate of potassa, should be exposed in different corners of the apartment. If a nurse is to be selected, let her be young, strong, vigorous; few attendants except the nurse, so that the contagion be limited as far as possible. All superfluous matter should be kept away from the patient, even books. Magazines and papers should never be permitted to get out; after perusal they should be destroyed. In all cases the hair should be cut short and the cut portion destroyed or deodorized. The recumbent posture is the true one, it retains the nervo-vital fluid in the spinal cavity and not in the cranium, and gives a diminution of pulse of at least ten or twelve beats per minute, with a corresponding lowering of heat and respirations. The entire body should be sponged three times daily with an alkaline wash, such as castile soap and warm water, or

bicarbonate of potash and tepid water, well dried, and then rubbed with the dry hand. It is sometimes beneficial to follow this with vinegar and water, which is cooling and grateful to the patient and excites the normal alkaline secretion from the skin. The alkaline bathing removes the disease-germs, opens up the emunctories of the skin; the rubbing with the dry hand dislodges the disease-germs from the capillaries, removes the stagnation in the microscopical circulation, and the reflex effect of it is highly vitalizing to the medulla oblongata, the seat of reflex action and life. Besides, the inherent vitality of the nurse is in this manner communicated to the patient, so that instead of elderly ladies being selected for nurses, we demand the young and healthy. The law of reflex emanation is definite: we assimilate the vital condition of those with whom we are brought in contact.

In exhausting fevers, like typhoid, good results are derived from the inunction of warm olive oil after the sponging and drying off. This aids nutrition, supplies the place of arrested sebaceous follicles, and softens the skin, for exhalation attracts the germs to the surface and smothers it. Oil is perfectly compatible in the living tissues.

Physiological chemistry explains the imperative necessity of drink in fevers. Water requires to be in excess of the demand; acidulated drinks of water, with a few drops of acetic or hydrochloric acid, enable the albumen to be acted on by the gastric juice. All acid substances have the power of increasing the normal alkaline secretions of the body.

Apply heat to the feet in all cases of fever, for though the action of the heart is violent, yet it lacks the stamina or power to send the blood to the capillaries; besides, the nervous system, upon which the circulation depends, is incapable of performing its function in aiding the circulation, and artificial heat aids in a renewal of life. As to the clothing of the patient, cotton and linen should be avoided, and woolen or silk preferred as conservators of vital force and being impervious to atmospheric changes.

In fever the nitrogenous tissues are devitalized, drained away, and it is important that they should be replaced, so that small doses of nitrogenous aliment should be given frequently. These pass over the irritated stomach unconsciously, and are taken up by the lacteals in the intestines, requiring very little to make them fit for absorption. The most suitable food is milk. It forms the most appropriate nourishment for fever patients. Two to three ounces should be given every two hours with half a teaspoonful of lime-water. If it disagrees, substitute beef tea for the milk. If the patient is properly nourished, it renders the

danger much less. Albumen, such as we possess in eggs and oysters, is highly nutritious if quickly absorbed, but if delayed, as they are likely to be by the impaired condition of the stomach, their decomposition is highly injurious—the sulphuretted hydrogen and other gases evolved are so poisonous that an aggravation of symptoms is the result. A good condition of gastric power is necessary for the digestion of eggs and oysters.

Alcohol is a poor stimulant; it has no food or blood-forming faculty; its only property in fever is an arrester of destructive metamorphosis or change, so with reference to its use in fevers we must be guided by the amount of disintegration going on. If there is great prostration, low muttering, delirium, excessive phosphatic elimination by the kidneys, it should be given. It acts well if there is tremor of the muscles, a sharp, weak, unequal pulse, or rapid respiration.

Sleep is most essential in fever. It is only during sleep that the brain picks up its nutrition or pabulum from the blood. There is no nutrition without sleep.

In our pathology of fever, we recognized the microbe as its factor, depressed vital force, as the condition or sphere of existence of microbial life. Bactericides must be administered every hour; just as they kill the germ, temperature is lowered, respirations and pulse become normal; if indications exist administer either aconite or antipyrine, or veratrum or antifebrine, or gelsemium or exalgine. Careful nutrition and nursing.

The division of fevers, now that the germ origin of disease is thoroughly established, must be as follows:

Simple Fever,	Dengue,
Gastric Fever,	Cerebro-spinal Meningitis,
Bilious Types of Fever,	Puerperal Fever,
Malarial Fever,	Surgical Fever,
Relapsing Fever,	Measles,
Typhoid Fever,	Scarlet Fever,
Yellow Fever,	Small-Pox.

Fever, One-day fever, the simplest type of fever, resulting from a slight shock to the nervous system, rigor and a fever, in which the vital forces, aided or otherwise, react in twenty-four hours, or a few days at most.

Ephemeral. The cause is usually cold, wet, exposure, overwork, mental depression.

The usual symptoms are: the patient is seized with lassitude, debility, nausea, want of appetite, chilliness, pain in head, back,

limbs. After a few hours rigors and fever, high heat, frequent pulse and respirations, headache, thirst, constipation, dry skin, scanty urine, perhaps slight delirium; symptoms aggravated at night. After a few days a remission; critical sweating or diarrhea. Convalescence often somewhat slow.

It usually terminates in recovery.

It is easily recognized by its cause, mildness, short duration, by its common occurrence in children, persons of feeble vital force, and nursing women.

In the *treatment* general principles are to be followed out; if there be much nausea or disposition to vomit, a very mild emetic may be useful, and open the bowels with some saline.

A warm or a Turkish bath, or alcoholic vapor bath, or one or two doses of fluid extract jaborandi should be resorted to to excite the action of the skin and stimulate the periphery of nerves.

Patient must remain in bed, recumbent posture, then one or other of the following remedies should be administered: aconite, antipyrine or exalgine, in doses sufficient to lower temperature, pulse, respirations. Whichever one is selected, it should be alternated with a bactericide, as a few drops of peroxide of hydrogen or compound oxygen. This latter is essential, as the breath, saliva, tongue, are loaded with a conglomerated mass of micro-organisms.

Just as soon as fever abates a good tonic should be administered, as compound tincture of cinchona or matricaria.

As recovery progresses, diet should be more liberal; complications guarded, every symptom promptly relieved.

So called, because induced by some agent
Gastric Fever, which irritates and weakens the stomach, and causes a perversion of normal nutrition, and the appearance in the mouth, saliva, breath and coating of the tongue, the bacteria as seen in this illustration.

It is almost exclusively peculiar to children, and its origin can be traced to eating pastry, cabbage, nuts, candies; alcohol.

There is a period of prostration, during which the child suffers from languor, lassitude, debility, nausea, vomiting, followed by rigors and a fever, in which the predominating symptoms are nausea, vomiting, pain over the region of the stomach; acid or fetid breath, white-coated tongue are always present.

Its duration is from seven to fourteen days, and if properly treated terminates in recovery.

It is easily recognized by its history, derangement of stomach,

nausea, vomiting, white coat on tongue, irritation of brain, and the entire absence of any other type of fever, and that it is peculiar to children.

Treatment.—As soon as recognized, give the little sufferer an emetic. The peculiar shape of a child's stomach enables it to vomit easily and effectively. To very young children the wine of ipecac, to those more advanced in years an infusion of lobelia. In all cases precede the emetic with drinks of tepid water with bicarbonate of soda, so as to neutralize the acid secretions of the stomach and permit of an easy absorption of the emetic, and a thorough washing out of the stomach; follow this with a warm alkaline bath, then give a teaspoonful of the neutralizing mixture with one grain of leptandrin, every hour, until a free movement of the bowels is obtained. While pursuing the above treatment, aconite, veratrum, and sweet spirits of nitre should be given as in the preceding fever.

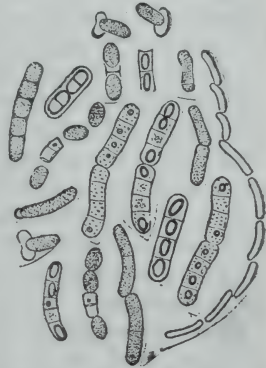
Another excellent plan of treatment even better than the above, would be to start in and persevere with one or other of the following germicides.

Ten grains of resorcin could be administered in water every three hours, or a few drops of the peroxide of hydrogen or salicylate soda in the liquor ammonia acetatis; or com. oxygen; or ozonized sulphur water, etc.

If there is still a disposition to nausea or vomiting, apply a plaster made of pulverized cloves, allspice and capsicum, moistened with vinegar, over the region of the stomach, and give milk and lime-water in very small quantities every two hours, for diet. Give the stomach all the rest possible; as a drink, boiled water on toast or crackers, or barley-water.

Several days after the fever has entirely disappeared is the proper time for tonics, as the wine bitters, elixir cinchona, sulphate cinchonine.

Otherwise, the treatment should be the same as for fevers generally, especially insisting upon rest in the recumbent posture, and sponging the body thrice daily.



The bacteria—the degraded bioplasm of nutrition—the prevailing microbe of mal-nutrition—gastric fever.

A fever induced by some shock to the liver.

Simple Bilious Fever. The common causes are blows, articles of dress irritating the liver, microbes in the blood, as syphilis, and mercury, eating and drinking excessively of carbonaceous articles.

The ordinary symptoms are prostration, in which we have languor, lassitude, debility, nausea, vomiting, brown-coated tongue, yellow skin, pain perhaps over the region of the liver or in the shoulder, constipation or diarrhea, with rigors and fever, the yellowness of the skin increasing and heavily tinging the white of the eye, with dulness, stupor, coma, and itching of the skin.

This simple form of bilious fever should be managed with great care, and a most active treatment in all cases resorted to. Exalgine should be administered in proper doses to lower temperature and equalize the circulation, the surface should be bathed thrice daily; stimulants should be applied over the region of the liver. The bowels should be opened by some remedy calculated to stimulate the liver, as either phosphate of soda and chloride of ammonia; or euonymine and caffeine. Those remedies act well as liver stimulants. As a rule the case progresses well under these mild remedies.

Just as febrile action is effectually controlled, the following acts most efficiently: Comp. tincture cinchona and simple syrup, of each two ounces; nitro-muriatic acid, two drachms; water, half pint. Dose, a tablespoonful every three hours.

Other cases again can be managed by the administration of exalgine, and small doses of either the kola-nut paste or cascara sagrada lozenges. This latter remedy is of great utility in all states in which the liver has suffered damage.

Diet, malted sterilized milk, arrow-root, and other simple articles.

Malarial Fever. Intermittent fever or ague, whose chief characteristics are that it has febrile paroxysms, coming on at a definite specific time, usually, but not always, ushered in with a chill, followed by a fever, ending in a critical sweat, and during the intermissions or remissions, there is an interval of apparent good health, and at the end of a certain interval, the phenomena of rigor, fever and sweat are repeated again and again, until a cure is effected.

The cause of this peculiar type of fever is the spore or germ of decaying vegetable matter, acted on by solar heat exceeding 75° or 80° F., becomes active. The germ or spores may come from any decaying matter whether it be on the ground, in a marsh, in the soil or ground, stagnant pool, or water we drink.

In all countries whose temperature exceeds 80° F., and decaying vegetable matter present, there is a bacillus evolved which, under favorable circumstances, enters the body either by air breathed, or water drank, or by endosmosis through the skin. Once the germ enters the blood, if vital force is normal, it will be repelled, ousted out; but let vitality be depreciated, the bacillus will grow, sprout, seed, evolve spores, cause grave changes in the blood and vital organs.

The bacillus is found in the blood of the patient during the rigor, as in the annexed cut, while during the sweat or decline only spores are found. The same microscopic organism is found in malarial sections in a strata of air which floats above the ground. The microbe is pathogenic, capable of cultivation, the cultures injected into animals produce the disease, the microbe being found in the spleen, lymphatics and pink marrow of the bones.

The fact that the bacillus and its spores are successively found in the blood explains the intermittent type of the fever.

Vegetable decomposition is the source of the germ. From the ponderable character of the spores, they lie close to the ground, so that those who sleep in the first floor lower rooms of dwellings are easily contaminated with it. Fires destroy them,

hence the denizens of large cities, as a rule, are exempt from their attack. Certain trees which evolve ozone, as the willow, magnolia, eucalyptus, pine, are, by the pungent, grateful odor emitted, inimical to germ and spore, causing their destruction.

The germ of malarial fevers is an organic germ floating in the air we breathe, and capable of introduction into our bodies through the food we eat or the water we drink. The pathological effects of the germ upon the human organism are protean in their forms, varying from the intense saturation of the system to the slightest degree. No organ in the body escapes the influence of the germ.

The characteristics of the bacillus are its periodicity, the complete evolution may demand twenty-four, forty-eight or seventy-two hours; the access, the rigor corresponds with the greatest activity of the bacillus, and which precedes the emission of spores. When the paroxysms occur at the same hour every day, the fever is called *quotidian*; when every other day, *tertian*; and when absent for two whole days and then recur, *quartan*. In the *quotidian*, the interval is twenty-four hours; in the *tertian*, forty-eight hours, and in the *quartan*, seventy-two hours. The period between the termination of one paroxysm and the commencement



The bacillus of malaria.

of the next is the intermission. In the quotidian form, the paroxysms occur for the most part in the morning; in the tertian, at noon; in the quartan, in the afternoon. Besides these forms, we meet with cases occurring once a week, once a month, once a year. Any type may be double, that is, occurring twice during its specified time.

Once the sprouting is effected the newly-formed or full-fledged bacilli imbed themselves in the red corpuscles and cause crescentic pigmentation of the blood, with segmentation of the germ; if vital force be high, even normal, they will be repelled.



A beautiful microscopic illustration of the microbe of malaria. It is seen as a pigmented protoplasmic body boring into the red corpuscles of the blood and destroying them in their process of growth. Invariably present in all forms or stages of the disease. Truly diagnostic.

The blood of man and domestic animals in whom the micro-organisms of malaria have entered, have the disease germ enter the interior of the red discs, in which they undergo changes, sprout, develop, grow. In their first attack upon the red corpuscles, they are of an amœboid form, cause crescentic pigmentation, as seen in the annexed wood-cut.

As they grow older they assume the flagellated form, which is the adult condition of the germ. Any one can readily verify the fact by drawing a drop of blood from any part of the body; place it in the field of a microscope of 2500 diameters; take a drop in the cold stage, and the amœboid pigmentation will be seen; take a drop in stage of decline, and the flagellate protozoa are present in millions in a case of ordinary quotidian.



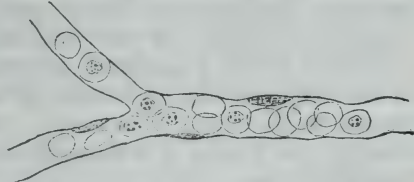
This illustration exhibits the amœba pigmented bodies in the red corpuscles, numerous free circular forms, a few crescents and several flagellate organisms. The adult form of the germ.

The germs crowd the capillary vessels of the brain and the blood-forming glands, as the spleen, suprarenal capsules, pink marrow of bones, lymphatics. These, in chronic cases, are filled with dark granules, flagellate

organisms, with an undulating fin-like membrane, highly polymorphic.

In the tertian, quartan type, and in the comatose pernicious forms, the germs are most numerous and most destructive to the red corpuscles.

An interesting practical point is still unsolved, which is, whether the micro-organism from decaying vegetable matter, when it enters the blood, coalesces with and destroys the red discs, or whether the microbe produces a special degradation of living matter, changes it into the microbe, causing destructive metamorphosis of the red corpuscles. One thing is certain, that the micro-organism is pathogenic of the disease, capable of culture; cultures injected into animals produce the disease.



Typical example of the germ in the blood-forming glands, as the spleen, pink marrow, lymph canals. In the pernicious form the capillaries are literally stuffed with micrococci and microbes.

Symptoms.—This fever may set in suddenly, or it may come on gradually with a feeling of general indisposition, which at the end of a few days may culminate in a regular paroxysm. An ague fit is composed of three stages, the *cold*, *hot*, and *sweating*. The cold stage is ushered in with feelings of languor, lassitude, debility, headache, pain in the back and limbs, chilliness. There are sensations as of cold water running down the back; shivering; the skin is shrivelled and the papillæ rendered prominent, the skin assuming the appearance of a plucked goose (*cutis anserina*), resulting from irritation of the nerves that supply the microscopical muscles of that gland, which are called *arrectores pilorum*. The teeth chatter, the nails turn blue, and the whole body is shaken; there is exhaustion, often urgent thirst; the countenance is anxious; the features contracted; eyes dull and sunken; pulse feeble; respiration hurried or oppressed; mental irritability. The duration of this stage varies from a few minutes to several hours, and is succeeded by the hot or febrile stage.

Then all the symptoms of fever are well defined: increased respiration; more frequent pulse; elevated temperature; parched mouth; excessive thirst; painful sense of fulness in the head; great restlessness; irritability; delirium.

This stage may last a short time or for some hours. Then follows the sweating stage, beginning with a slight moisture on the forehead, then over the entire body. After its decline, all the symptoms become ameliorated, and the patient to all intents and purposes seems to be in perfect health until another paroxysm takes place.

Sometimes one or two of the three stages are absent.

The general effects of this microbe are :

1. More or less irritation of the brain, according to the amount of germs present and power of vital resistance.

2. A blood-disease is engendered ; that fluid is loaded with bacteria and malarial germs, and as they increase in number it becomes fibrinous or clotty, and dark colored. Such blood coagulates readily in the fine, delicate interstitial structure of the brain, in the granulated structure of the liver and kidneys, in the very vascular structure of the spleen, and even adheres in masses to the walls of arteries. When this condition has lasted months or years, a white-cell condition or leucocythemia is brought about.

3. This white-cell disease of the blood is properly the third stage, and is brought about by the malarial germ using up in



Destruction of the red corpuscles of the blood in the spleen by the microbe of malaria.

its own nutrition the elements of the red corpuscles, aided by the morbid condition of an enlarged, indurated, or caked, or hypertrophied state of the spleen or an amyloid degeneration of other glands. This fever is easily recognized by the paroxysms occurring with periodicity, being ushered in with rigors, followed with fever and a sweat. During the remissions an interval of apparent good health, but at the end of a certain interval the phenomena are repeated.

The morbid conditions are irritation of brain, liver, kidneys, spleen, with blood loaded with living disease-germs, creating an embolism of the blood. In all forms of shock there is a determination of the capillary circulation to the internal viscera ; the spleen, the safety-valve of the heart, suffers most, as the blood is driven inward. True, the congestion subsides during the intermission, but repeated attacks with the peculiar bacterial blood give rise to hypertrophy, induration, thrombosis.

In the treatment of all forms of malarial fever, the great object in view is to maintain the vital forces by nourishment, bathing, comfortable clothing, and rest in the recumbent posture in bed.

During the different stages of the fever, the patient should be nursed and tided over as gently as possible—cold stage, diffusible stimulants; febrile stage, aconite; during the sweat or decline, cooling drinks.

During the interval, the bacillus, if possible, must be completely annihilated.

There are several preparations of great value, in use for this purpose, they are either Warburg's tincture; or the concentrated tinct. of kurchicine; or eucalyptol. Each of the three remedies is equally good. One is to be selected, and administered according to the following directions:

In any given case of malarial fever, of either the *quotidian*, *tertian* or *quartan* type, first open the bowels with an antibilious purge; *then*, three or four hours before the chill or paroxysm, administer either half an ounce or one large tablespoonful of the tincture, without any water; then follow just a little before the chill with another dose. It should be given undiluted, and no drink allowed between the doses. If the profuse perspiration and disintegration of dead germs prove exhausting, beef essence should be freely given. For ordinary fevers, much smaller doses are admissible.

The remedy selected administered in smaller doses for seven consecutive days. (For additional formulæ see Cinchona.)

This occurs in the form of continued fever characterized by remissions. There is no cessation of the fever, simply an abatement or diminution. The period of remission varies from twelve to twenty-four hours, at the end of which time the feverish excitement increases, the exacerbation being often preceded by a chill.

**Remittent
Fever.**

tion of the fever, simply an abatement or diminution. The period of remission varies from twelve to twenty-four hours, at the end of which time the feverish excitement increases, the exacerbation being often preceded by a chill.

The cause is the malarial germ, acting upon vital forces already exhausted. It varies greatly in its severity, according to the number of microbes present in the blood the peculiarities or type of the patient.

Symptoms.—Usually commences with languor, lassitude, debility, mental depression, headache, shivering followed by high fever, vomiting, sometimes jaundice, often accompanied with delirium; pulse frequent and full; tongue dry and furred; nausea, vomiting, generally of bilious matter; sense of pain at the epigastrium, and tenderness on pressure, with signs of pulmonary congestion, great difficulty of breathing, a feeling of oppression at the chest, cough, and a livid color of the countenance. The urine is usually scanty, high-colored, and loaded with lithates,

but passed in increased quantities during the remission. Length of remission varies from six to twelve hours and from twelve to twenty-four hours; at the end of which time the feverish excitement increases and the exacerbation is usually preceded by chilliness and a rigor. Remission usually occurs in the morning; the principal exacerbation is generally towards the evening. The disease may run on for some fourteen or fifteen days and end in an attack of sweating, or merge into typhoid or cerebro-spinal meningitis. The period of convalescence is usually short, except some organic mischief has occurred, in which case considerable time may elapse before a restoration to health is effected, the debility being kept up by night-sweats, sleeplessness, dyspepsia, neuralgia, jaundice, and dropsy.

Complications.—The extreme severity of some cases, the depressed condition of the nervous and vascular systems, with defective secretions, the great exhaustion at the termination of a paroxysm, collapse, convulsions, or delirium, passing into drowsiness and coma, cerebro-spinal irritation, with gastric irritability, or with bronchitis, pneumonia, or with hepatitis, jaundice, diarrhea, or typhoid symptoms. The chief causes of the complications are great depression of vital power, with epidemic influence and improper treatment.

As a rule the fever terminates in two weeks in recovery or some of its numerous complications.

The diagnosis is important; a continued fever with remissions, when complications arise, other morbid states taking place, the points of recognition may be varied.

In the *treatment* of remittent fever, general principles must guide us; the state of the stomach, bowels and skin merit immediate attention. It must be borne in mind that the febrile exacerbation is of longer duration and of greater intensity than in intermittent, so there is more danger of structural lesion of brain, liver, spleen, stomach and kidneys, and our first great object should be to effectually equalize the circulation and moderate the excitement with a mixture composed of four ounces of water, to which is added one teaspoonful of tinctures of veratrum viride, aconite, green root tincture of gelsemium and sweet spirits of nitre, one teaspoonful every half-hour until all febrile excitement has become ameliorated and the pulse down to seventy. Then begin with remedies to destroy the germ. For this purpose it is best to resort to a combined treatment of the two classes of remedies, so as to break it up. So that it is well to give quinine, either with prussiate of iron, or in the form of a bisulphate, that is, dissolving it with aromatic sulphuric acid in from one grain to several, every four hours. Give the two reme-

dies alternately; if the above does not meet the indications. Then try either Warburg tincture or concentrated tincture of kurchichine, in half or one-teaspoonful doses every three hours. Bathing the entire body has a magical effect in procuring sleep.

The diet should consist of beef tea or farinaceous food. Complications looked for and carefully guarded. If there seems to be much cerebral disturbance, active purgation, mustard to feet, head shaved and evaporating lotions of camphor-water and ammonia applied. If there is low delirium or exhaustion, or cerebro-spinal irritation, dry cups followed by mustard poultices to nape of neck.

Hæmaturia or a hemorrhage of blood from the kidneys is often present in both intermittent and remittent fevers.

The general *treatment* of the fever must not be interfered with, but the patient promptly placed upon as large doses of the green root tincture of gelsemium as he can bear, with dry heat over the loins, and a few drops of peroxide of hydrogen given.

The bilious type of intermittent and remittent requires very nearly the same treatment. In these the force of the malarial and bacterial germs seems to be spent upon the liver, so that in those cases the tongue is heavily coated brown, there is nausea, vomiting, jaundice, diarrhea and other bilious symptoms; a state that will require special attention in addition to the treatment being carried out for the fever, such as the following: five drops of nitro-muriatic acid every four hours in water, or an infusion of leptandra, drunk freely, or phosphate of soda.

Some remedy to act efficiently upon the germs that block up the liver, managing the fever in the manner already indicated.

Remittent
Bilious Fever,
Malignant.

A peculiar type of fever, intermediate between malignant intermittent and dengue, occurring in individuals whose vital force is low. The temperature runs high, action of the heart violent, skin jaundiced, stomach very irritable, tongue very heavily coated with a brown coat and black at the root; there is often delirium from the brain suffering from the ingress of microbes.

Treatment here must be most energetic, large doses of bactericides must be administered, such as resorcin or creolin; the circulation controlled with exalgine, and either Warburg's tincture or concentrated tincture of kurchichine administered freely.

The case must be carefully guarded, and general principles will guide the selection of drugs.

Sometimes termed enteric or nervous fever, is **Typhoid Fever.** essentially contagious and infectious, owing to its origin in a disease germ.

Various theories are set forth by nearly all authors, as to the origin of the microbe of typhoid fever. A certain class advocate the idea that its pristine condition is in sewage, that the contamination of our drinking water by sewers is one of the chief means of propagation; others believe in the theory of the origin being in a low degree, as a spirillum placatile, and that by certain series of progression, passing through various stages of growth and development, it reaches the perfection of a full fledged microbe; others believe that under adverse states, the bioplasm of the nervous system is degraded into other living matter, a disease germ, that in even very slight nervous depression, or shock, the change in the nutrition of the nervous system into a disease germ can be detected. But when there is great depression of the sympathetic and ganglionic nervous system, typhoid fever by this class of observers is regarded as the climax of all nervous depression. They assert that the microbe, the factor of the fever, is simply the degraded bioplasm or living matter concerned in the nutrition of the nerve cell; that any condition of nerve-depression may cause the change from normal nerve bioplasm into a disease germ, which, when once evolved, is capable of prodigious powers of growth and development; that the germ is so light (aerobic) that it will float in the atmosphere long distances, penetrate our wells, springs and brooks; that the excretions of individuals so affected, passing into the earth either by cesspools or sewage pipes, contaminate everything within its reach. Milk, raw or even cooked meat of animals or fowls, coming in contact with the germs in the air, may communicate the disease. The microbe of typhoid fever has a power, a potency which is incomprehensible. Whence this microbe originates, it is undecided.

The predisposing causes are nervous prostration, mental strain, worry, exhaustion, overwork, depressing climatic states, solar heat, chills, damp exposure.

The exciting cause is the microbe in the blood, which gives rise to those mysterious headaches, lassitude, goneness; which are unclassified, unnamed, often unpitied, which distress the patient, puzzle the physician; for the microbe only finds its abode in the weak, the feeble, the shattered.

Symptoms.—Usually a period of incubation or germ-growth varying from ten to fourteen or even twenty-one days, in which languor, lassitude, debility, insidiously make their appearance, with headache, white face, sharp features, pain in back and calves

of the legs, nausea, diarrhea, and chilliness. The rigors recur from time to time at uncertain intervals, with an aching all over. The rigors increase, and the patient is much prostrated. There may be vertigo, deafness, or epistaxis; great headache; intolerance of light; thirst; loss of appetite; great nervous irritability; restlessness; nostrils pinched; often a marked, circumscribed flush on each cheek; tongue at first white, with red edges and tip, later red and glazed, buff dry or brown; sordes on gums, pulse small, wiry, frequent, 100 to 120 or higher; temperature from 101° to 104° Fahr., higher in the evening; breath offensive and ammoniacal. These symptoms slowly become aggravated; emaciation is great from the destructive action of the germ and imperfect renewal of tissue; continuous destruction; defective supply. The solid constituents of the urine increase; the tendency to diarrhea becomes greater; great interstitial death; rapid metamorphosis of the entire body.

At the commencement of the second week, or a day or two earlier, the typhoid rash appears; rose-colored spots on the chest and abdomen, few in number, circular, disappearing on pressure, and fading away to be replaced by a fresh crop. In ten or twelve per cent. of cases, no rash. It is a true petechia. After the middle of the second week, tympanitis, gurgling in the right iliac fossa on pressure, diarrhea, stools alkaline, of a pea-soup appearance. If there is extreme debility with profuse sweating there may be sudamina, or small watery blebs on neck, chest, or abdomen. There may be other symptoms present, as violent delirium, spasmodic contractions of the muscles, picking at the bedclothes, subsultus, hiccough, tinnitus aurium or deafness, muscular pains, prostration, bed-sores, and attacks of hemorrhage from the ulcerated patches in the ileum and perforation of the bowel, with fatal hemorrhage and peritonitis. Congestion of the kidney, cerebral or pulmonary complications; the latter is the most common and most to be dreaded, and is easily recognized by the flush on right cheek; cough, rusty sputa, dulness on percussion at the base of the right lung. During convalescence a venous murmur can be detected in the neck, and an inorganic systolic bruit in the heart, same as in anæmia, which quickly disappears on giving nourishment.

Duration should be from two to three weeks; still, some cases are prolonged to the fifth or sixth week.

It may terminate in recovery, paralysis, or death. Death is usually due to exhaustion from the protracted fever, or from diarrhea; sometimes to pulmonary and cerebral complications, or to perforation of the bowel and peritonitis, or to hemorrhage; occasionally to uræmia. In some cases the patient seems to be

overwhelmed by the poison-germ and dies easily with cerebral symptoms, delirium, and coma. When recovery takes place with paralysis, it is generally due to anæmia, which, in nearly all cases, can be overcome with good diet.

A persistent rise in temperature over 105° Fah. is very unfavorable, and several degrees above, an almost fatal result.

Typhoid fever is easily recognized by its insidious mode of attack, by the nervous prostration, by the ringing in the ears or deafness, bleeding at the nose, rapid emaciation, white, sharp-pointed features, sunken eyes, and pinched nostrils; dry, buff-leather tongue, red tip or edges, or smooth and glassy; sordes on

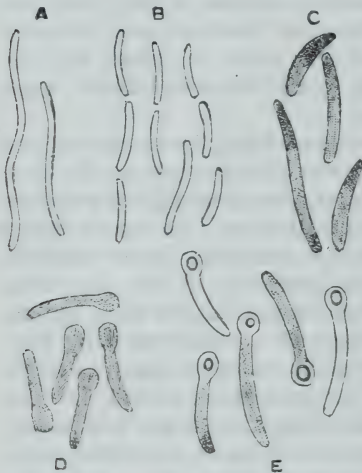
teeth and gums; small wiry frequent pulse, irritation, inflammation, and ulceration of the glands of Brunner and Peyer of the small intestine; with tympanitis, gurgling in right iliac; diarrhea, petechia, sudamina.

It bears no analogy or resemblance to typhus—in no single point. Pathologists are agreed upon one point, that there is nothing in common. In typhus fever the poison or fever germ is bacteria; in typhoid, the disease-germ vibrios—a specific disease-germ, a true contagium vivum, having properties as distinct and powers of reproduction as perfect as any germ or species known to botanists and zoologists.

The most recent observations and experiments show that, owing to adverse conditions in-

imical to nerve nutrition and development, such as worry, grief, struggle, disease, insanitary states, the bioplasm of nerve nutrition is altered or degraded into other living matter, which is a disease germ—capable in or out of the body of independent existence with prodigious powers of growth and reproduction.

The disease germ thus evolved is pathogenic of all nervous diseases, as headache, neuralgia, chorea, epilepsy, brain lesions, insanity and typhoid fever; all contagious and infectious diseases owing to the presence of the microbe. The above diagram represents the vibrios in different stages of growth or evolution.



Microscopical diagram of the vibrios, the microbe of typhoid fever, magnified 1000 diameters; magnified 2500, they look like feathers. The diagram from the stools, *A*, bowel threads stage of incubation (germination) prior to chill; *B*, at the period of rigor; *C*, the seventh day, now curved; *D*, the fourteenth day, germ swollen at the spore-forming end; *E*, various stages of the developing germ from the twenty-first to the twenty-eighth day.

Feathers, rods, threads bowed or bent. They bear a flagellum at each end; as they grow from the bowed feather rods, or

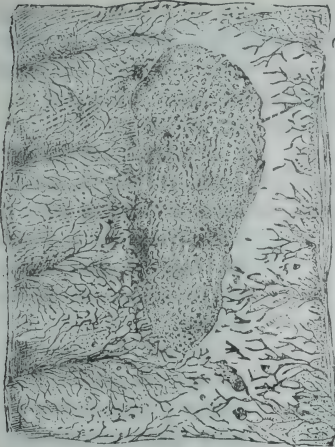


Diagram of the vibrio on the mucous coat of the ileum, first week of typhoid; hyperæmia attending the germ, planting itself in a Peyer's patch.



The vibrios at work, second week of germ evolution, same location, clumps of micrococci are seen very extensively on the ulceration of the bowels, and in the mucous membrane surrounding the ulceration, and may even be traced into the mesenteric gland and spleen.

threads, they cease to move, become swollen at their extremity and sprout out into spores; immense spore formation.

Provided vital force be low, when this germ is evolved in the blood or received by contagion and infection, it will go through regular stages of sprouting, growth and development, limited by days and weeks. These stages of microbe growth correspond to *seven, fourteen, twenty-one and twenty-eight* days or four weeks in all.

Although the tears, breath, tongue, gums, urine, stool and blood are germ-laden, the natural abode of the germ is beneath the ganglia or little brains of the great sympathetic in the glands of the bowels. Corresponding with the rigor, the germ in localizing excites irritation, inflammation,



The germ at work three weeks, shows Peyer's patch deeply ulcerated, loaded with germ; at *D*, eats through, causing perforation of the bowel.

the rigor, the germ in localizing excites irritation, inflammation,

a catarrhal state of Peyer's patches; these become soft, spongy, later on hard and smooth. Germ growth is greatest at the ileo-cæcal valve.

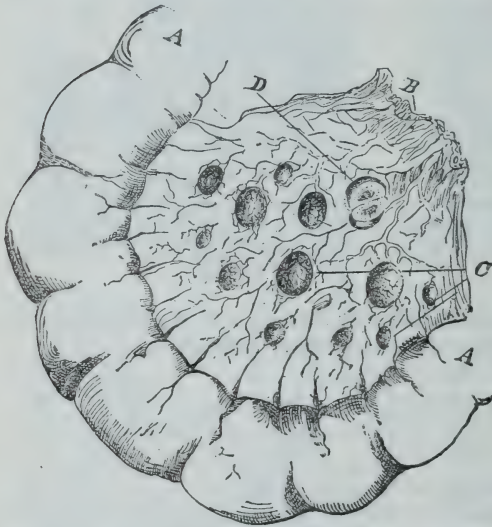
This state of hyperæmia, due to the germ burrowing in the gland follicles, causes the agminated and solitary glands to become more elevated; rapid growth takes place. The various coats of the bowel become infiltrated with germs, necrotic changes are established and ulceration definitely commenced.

The third week exhibits the peeling off of the dead germs from each colony, leaving the characteristic typhoid ulcer, which sloughs some in order to remove the necrotic tissue; a loss of

tissue which extends to the deeper layer of the mucous membrane.

In or during the fourth week inflammatory action ceases, and the process of cicatrization commences, which usually with care progresses on until they are entirely healed up.

The mesentery, one of that class of blood-forming glands like the pink marrow and spleen, often becomes invaded by the microbe, and a process of analogous germ colonizing and



Sketch showing enlargement of the mesenteric lymphatic glands in typhoid fever; A, A, portion of small intestine; B, mesentery; C, glands enlarged; at D a gland is shown in section.

growth takes place same as in the intestine. The enlarged glands vary in size, from a hazel nut to that of an egg, most numerous over the ileo-cæcal valve. The habits of the microbe teach us best its mode of annihilation.

The evidence as to the poison of typhoid fever being a micro-organism is: all observers have found it in enteric fever, in the mouth, gums, blood, urine, fæces, and after death in the brain, Peyer's patches, mesentery, spleen, suprarenal capsules. It is constantly and exclusively present; it is never found only in bankrupt states of the nervous system; capable of culture in a nutrient fluid.

Independent of the bacillus in typhoid fever and grave nervous

affections, there are in fifty per cent. of all cases other germs, peculiar short bacilli, rounded at their ends, constricted in their middle, some of them containing spores. They stain freely with methyl-violet. It is very doubtful whether these bacilli have any significance, as they are only present in one-half the cases, and do not bear cultivation in any nutrient fluid outside of the body.

The following conclusions have been formulated relating to typhoid fever :

1. Typhoid fever is caused by the introduction of a specific germ into the alimentary canal.

2. This specific germ multiplies in the alimentary canal, and in turn is thrown off in the stools of the patient.

3. Its vitality is much greater than at first supposed, resisting a variation of temperature ranging from even below the freezing point to 133° F.

4. The germ may be communicated from one person to another, by water, milk, food and air.

5. To prevent its spread, all the dejecta should either be burned at once (which is preferable), or thoroughly disinfected, by throwing them into a pot of boiling water and thoroughly cooking them, or using some effective germicide, such as a strong solution of the bichloride of mercury in sufficient quantities to insure their destruction before they are buried, which should be at a sufficient distance from any neighboring water-supplies to insure their freedom from contamination.

6. If the water-supply is of a suspicious character, thoroughly boil it before using, and then place it where there is no possibility of its becoming infected. If ice is used, pack it around the water-vessel, not allowing the melted ice in any way to enter your drinking-water.

The appearances after death are most significant; the blood and all the tissues and glands are loaded with the microbe in all stages of evolution, congestion of the brain or its membranes, ulceration of œsophagus and stomach, enlarged or friable condition of the spleen. The two lesions that are invariably present are inflammation and ulceration of the glands of Brunner and Peyer. The alterations in the agminated glands or Peyer's patches are the most marked in the group of glands which are nearest to the ileo-cæcal valve and in the corresponding glands



Microbe of typhoid fever as found in the mesenteric gland during the two weeks of fever.

of the mesentery. Frequently the patches have undergone ulceration. If the case has terminated at an early stage through prostration, we may simply find congestion, or a swollen condition of the mucous membrane over the patch or gland. Death, as a general rule, occurs at a later period, toward the ninth, tenth or eleventh day, or at the end of the third week, and then we find the true condition of ulceration, in ulcers or sloughs varying in size. These ulcers are often the cause of death, either by hemorrhage or perforation. Mesenteric glands in the neighborhood are generally enlarged and softened. The enlargement of spleen and left kidney is decided.

The following are good rules to observe in the diagnosis of a case: Peyer's patches and the solitary glands of the lower part of the small intestine are always affected in typhoid fever, and the solitary glands in the large intestine in about one-third of the cases; that ulceration is perfect on the seventh, eighth or ninth day of fever; that cicatrization begins in from two to three weeks, but may be delayed indefinitely or prolonged by disturbance, as movement and diarrhea.

To prevent typhoid, our population must guard against overwork, privation, sorrow, and maintain a high grade of vital force. All insanitary conditions avoided, good drainage, the excreta in cesspools destroyed, and above all good water supplied; no sewage to enter drinking water, or any cesspool deep in the earth nearer than a mile to a well, and care exercised during convalescence. The patient should not for three months be permitted to go among his fellows, as he is liable to disseminate the disease.

Treatment.—The very instant this fever is recognized, the affected individual should be put to bed, and caused to maintain the recumbent position, and treatment commenced at once.

The apartment in which he is placed should be well ventilated, and, if possible, not connected with others; there ought to be an open fireplace, and if the weather permits, a fire; there should be no bed or window-curtains, no carpets, no superfluous furniture in the sick-room; a disinfectant of some kind should be freely used and exposed in the apartment. Two beds are of great utility, so that the patient can be lifted from the one to the other, and the bedclothes, as well as the body-linen, changed daily, and strict quarantine maintained, few but the nurse and physician admitted. No food left uncovered.

Patient should be sponged off thrice daily with tepid water and castile soap, well dried and rubbed with the dry hand of a young vigorous nurse. After the midday sponging, the patient should be rubbed over with warm vinegar, to which some peroxide of hydrogen is added; this form of germicide bathing excites the

normal alkaline secretion from the skin and destroys all microbes on the surface. Heat to feet, hot poultices every three hours over the entire abdomen; these poultices should as far as possible be medicated with resorcin, or naphthaline, or creolin, used all through the fever. The diet should be attended to with great care. In typhoid, and other fevers due to the presence of a disease germ, the abnormal salivary and pancreatic secretion interferes with digestion and assimilation of all starchy matters, and if given, irritate the intestinal tract, so that the best diet is sterilized milk, alternated with beef tea. Stools when passed should at once be disinfected or destroyed with a solution of bichloride of mercury or sulphate of iron.

Febrile action should be controlled either with antifebrine, exalgine or aconite; suitable doses administered at stated intervals to lower heat, pulse, respirations; in other words, to retard germ evolution. Small doses of quinine in aromatic sulphuric acid should be given all through the fever. Diarrhea in all cases must be controlled by drinking freely of a tea of kaki; or a pill of opium and tannic acid, or boiling milk with cinnamon sticks, subsequently adding lime water. Sleep is of vast importance. All through the fever the patient must have sleep, because there is no nutrition without it—no vital force gained to fight the onward growth of the microbe. For this purpose various remedies should be tried. Sulphonal might be tried first, in thirty or forty grain doses; if it fails, try urethan in fifteen-grain doses; bromide of potassa and chloral hydrate in camphor water; all failing, sulphate of morphia.

Thirst in typhoid must be appeased by a decoction of kaki, or wild indigo, or peppermint, or a few drops of glycerite of kephaline in water.

If emaciation is great, there can be no doubt of arresting the rapid metamorphosis of tissue by the administration of suitable doses of brandy in milk, otherwise it is of no utility as a stimulant. Nitro-glycerite is incomparable as a stimulant in all cases of typhoid.

After guarding all points carefully, the legitimate treatment of the fever should begin. This consists in the administration of bactericides to kill or sterilize the bacillus, the factor of the fever, as fast as it is evolved. The febrile action in typhoid is in proportion to germ growth; the coma, delirium, diarrhea, correspond to the ptomaines excreted. Completely annihilate the microbe with the proper germicide and all goes well.

Some twenty years ago, we published the following germicidal formula for sterilizing and killing the bacillus of typhoid, which has been in very general use throughout this country:

Tincture of iodine and carbolic acid; one drachm of the carbolic acid to one of tincture of iodine, added to fifteen ounces of distilled water, in which oil of lemon and a little muriatic acid has been dissolved. The addition of the acid and oil of lemon disguises the smell and taste, and obviates any gastric or sensorial disturbance. A tablespoonful should be given every hour until heat, pulse, and respirations are normal; then three times a day, and continue for three or four weeks after recovery. Since that time numerous, most efficient bactericides have been introduced into the materia medica, and most extensively prescribed, such as salicylic acid and acetate of ammonia; benzoate of sodium; peroxide of hydrogen; resorcin; salol; creolin, naphthaline and many others. Turpentine, five to fifteen drops, in mucilage of gum acacia flavored with peppermint, when diarrhea persists and convalescence is retarded. *Serpentaria* relieves the delirium; nitro-glycerine an invaluable stimulant.

All through the fever the infusion of kaki merits the attention of the physician; it keeps up a healthy state of the alimentary canal, keeps the tongue clean, controls the diarrhea, helps the patient to resist the adynamic effects of the microbe.

Baptisia, yeast, and other vegetable antiseptics are much inferior to the above.

The treatment of typhoid with bactericides is the correct one, the sure method of mitigating the febrile symptoms and neutralizing the action of the ptomaines in the intestines.

Every point must be carefully guarded; for prostration, muttering delirium, and irregular pulse, brandy should be given.

Antiseptics act best on the ulcerated glands of the bowels. At least three times a day the mouth should be washed out with a little wine and water. The bladder must be seen to, lest any suppression of urine take place. Complications should be watched and met vigorously. Guard carefully against pneumonia, which is the common sequel.

Great care should be taken during the period of convalescence, lest the cicatrizing ulcers be irritated; tonics, and a return to general diet to be very gradual. No solid food allowed until all symptoms have disappeared. A tonic course of treatment, aromatic sulphuric acid and quinine, port wine and Peruvian bark, or glycerite of kaphaline administered for some months, and the recumbent posture rigidly maintained.

Before the introduction of anesthetics, the shock incidental to the operation invariably gave rise to imperfect reaction, fever. As a rule this form of fever is met with under five different types, a *simple type* of surgical fever, *irritative*, *intermittent*, *hectic*, *typhoid*.

General symptoms of fever are present.

The *treatment* of those different types of surgical fever must be carried on on general principles.

In the *simple form*, rest, bathing, nourishment, exalgine.

In the *irritative type*, anodynes, sulphonal.

In the *intermittent form*, Warburg's tincture, kurchicine.

In the *hectic type*, stimulants, tonics, aromatic sulphuric acid and quinine.

If *typhoid symptoms* appear treat same as in typhoid fever.

The most constructive form of treatment should be resorted to in all cases.

This fever has a spontaneous origin in the damaged bioplasm of our own or others' bodies; the **Typhus Fever.** result of crowding a large number of human beings together; hence it is described as putrid fever, jail fever, plague, pestilence, malignant, ship or hospital fever. Like all microbial maladies, contagious and infectious, often prevails epidemically.

Very rarely do we see this fever in the United States, the slightest precursor of it consists in the occasional appearance of purulent ophthalmia among the children of our public schools, which is due to the same micro-organism as the fever.

The usual symptoms are a period of incubation or shock, or sprouting of the germ in the blood from a few days to ten or twelve, during which time there is often bleeding from the nose or deafness, with great languor, lassitude, debility, headache, pain in the back or limbs. Then rigors, headache more intense, dry, heated skin, flushed face, suffused eyes, dull, heavy aspect, stupor, thirst, constipation and prostration.

Towards evening, irritability and restlessness, with sleepless nights. A measly-looking rash makes its appearance about the fifth day, consisting of irregular spots of a dusky or mulberry hue, at first disappearing on pressure, later forming stains, which are not obliterated on pressure, generally very copious; seen best on abdomen, chest and back, but especially over the breasts; spots are often seen on back of wrists. When the rash is very dark colored, the blood has become the prey of the typhus germ, and is disorganized by the abstraction of its oxygen. Skin generally dusky, and besides the rash, subcuticular mottling rash often remains permanent to the end of the fever, and may be accompanied by or become converted into petechia, sometimes mild, in other cases altogether absent.

During the first week, bleeding at the nose, or deafness, or noises in the ears, conjunctiva injected, often constipation, never

diarrhea. Pulse from 80 to 100 to 160. Temperature 100° to 105° Fahr., steady, not variable like typhoid; tongue coated, brown and dry; dulness or stupor, looks like sleep but not refreshing. Urine very scanty in quantity, retention common; often albuminuria; occasionally total suppression of urine, and uræmia.

In the second week, great prostration, muscular twitchings, delirium, coma and convulsions. The danger is greatly increased by an attack or supervention of acute bronchitis, pleurisy and pneumonia. Often a critical sleep, or sweat, or an attack of diarrhea, or greatly increased flow of urine. Convalescence is very rapid when it takes place, beginning generally on the fourteenth day. The fatal period is from the ninth to the twelfth day.

Duration is from fourteen to twenty-one days.

This fever is easily recognized by its history; the bleeding from the nose and deafness, the stupor or dulness, constipation, dry brown tongue, congestion of eyes and face, measly eruption when present. The blood is loaded with bacteria, thick, black and clotty, and when thoroughly disintegrated becomes fluid, and is effused into the brain, heart, lungs; besides, the liver and spleen are alive with bacteria.

In order to prevent this fever, the people should be supplied with wholesome food and properly ventilated dwellings; overcrowding in ships, sleeping-rooms, lodging or tenement houses prevented; smaller school-houses and fewer children congregated together. All houses, or ships, or almshouses, to be kept thoroughly cleansed and whitewashed every three months. The clothes and bedding of any one tainted or affected should be disinfected. The patient kept scrupulously clean; if just convalescing he should not enter a street car or public conveyance. No room or house, or public place in which an affected person has been, should be reinhabited or occupied until purified with fumes of burning sulphur and whitewash, and its walls and floors thoroughly deodorized. The diet of the class of individuals, victims of overcrowding, should be improved in every possible manner.

In the treatment of typhus fever, the patient should be kept in bed, in the recumbent posture, disinfectants kept in saucers in each corner of the apartment. The most rigid quarantine maintained, none but nurse and physician permitted to enter the apartment.

The body should be bathed morning and night with a warm alkaline wash. An effort should be made to lower temperature by retarding germ evolution, for that purpose a dose of exalgine should be administered morning and night, and during the day the peroxide of hydrogen should be given every hour.

The primary action of the microbe of typhus is on the red corpuscles of the blood, they abstract the oxygen from them, and render the blood unfit to stimulate the nervous system; the secondary action of the germ is to throw off spores, excrete ptomaines, and thus thoroughly overcome the vital forces. The destruction of the microbe is the great aim of the scientific physician. For this purpose, in addition to the two remedies already mentioned, there should be an effort made to crowd in all the bactericides possible to completely sterilize the blood.

A selection from some of the following: Carbolic acid and tincture of iodine, creolin, resorcin, naphthaline.

Malignant remittent or recurrent fever is highly contagious and infectious. At all times a fever, but the remission and relapse take place every five or seven days, at which period there is a great aggravation of all the symptoms. Epidemics of this fever have appeared at different times, which have led authors to describe it under various names.

**Relapsing
Fever.**

The real cause of the fever is a dual organism, derived from malarial and decomposing animal matter.

Symptoms.—There is generally a latent period of three or four days, during which the patient suffers from prostration, headache, languor, lassitude, debility, followed by rigors and a high grade of fever. The frontal headache and muscular pains, with pains in the back and bones, are so excruciating as to cause great restlessness and irritability. Temperature often 107° Fahr., with a pulse over 160, urgent thirst, often nausea, vomiting, pain in the stomach, jaundice often present. A very great aggravation of symptoms at night, giving rise to much irritability and sleeplessness. As the disorder advances there is constipation, scanty, high-colored urine and increasing prostration; but just as the fever seems to be assuming a threatening aspect, about the fourth or fifth day, a profuse perspiration breaks out over the whole body, a complete subsidence of fever takes place, the patient appearing quite well, but weak or suffering from rheumatic pains. The patient, and often inexperienced physicians, imagine the trouble is over, when all of a sudden, about the fifth or seventh day, there is a relapse, a repetition of all the symptoms in an aggravated form. Graver, more alarming, week by week this goes on, each attack leaving the patient weaker and weaker, till on the sixth or seventh week he either succumbs to the poison or the case terminates in recovery. Troublesome complications often arise which delay recovery, such as petechia and purpuric

spots, muscular weakness, œdema of the legs and feet, prostration. When it occurs in pregnant women, it has a greater tendency than any other disorder to cause premature labor. It is a very fatal form of fever, death taking place at any period from sudden prostration. No special lesion can be detected upon making a post-mortem examination. The liver seems to suffer most from enlargement and congestion; in other cases the spleen is found considerably increased in size.

The treatment is in all respects similar to that laid down for typhoid and malarial fever.

Large doses of either Warburg's tincture, or comp. tincture of kurchicine, or eucalyptol have been successful in breaking up this type of fever.

An endemic, and often an epidemic fever, highly contagious and infectious, due to the presence of a micrococcus in the solids and fluids of the body. **Dengue.** During the stage of incubation or hatching up to the rigor, the micrococcus has the appearance as shown in Fig. 1. After the

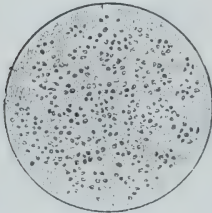


Fig. 1.

The appearance of the microbe of Dengue at the time of rigor.

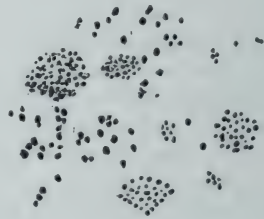


Fig. 2.

The germ as found in the blood seventy-two hours after rigor.

rigor which precedes the fever, the micrococci grows very rapidly, both in number and size, and have the appearance as shown in Fig. 2.

The germ is pathogenic of the fever, is easily cultivated in any nutrient liquid; cultures injected into animals produce the disease in all its intensity and malignancy.

This fever prevails in the East and West Indies, in all tropical and semi-tropical countries on the coast.

It receives quite a variety of names, such as break-bone fever, eruptive rheumatic fever, dandy fever, etc.

Its cause is undoubtedly the same as yellow fever, to wit, malarial and paludal poison, probably modified by acting upon persons of a strong rheumatic diathesis. It is fully as contagious as yellow fever and requires the same attention to quarantine

and sanitary surroundings to prevent its spread. If due care is not exercised, a most extraordinary epidemic may be developed.

The symptoms as seen in the rice-fields are an eruption resembling scarlatina, with rigors and a fever combined, with the most intense rheumatic pains in the limbs and joints.

There is also a strong biliary train of symptoms: nausea, brown-coated tongue, glands of the throat often implicated; lymphatic glands of neck, axilla, and groin swell, and the testicles become enlarged. The pains in the joints of shoulders, arms, legs, and in the muscles, and, indeed, in all the bones of the body, are very great. The duration of the disease is about eight days.

The treatment to be successful must be highly germicidal; to prepare the way for that class of drugs it is an excellent plan to cleanse out the stomach with a copious emetic, followed by a saline cathartic and an alcoholic vapor bath.

These preliminary proceedings should be followed with one or other of the following remedies: Either concentrated tincture of kurchicine, or Warburg's tincture, or eucalyptol; at least a teaspoonful to the dose every three hours; whichever is selected should be alternated with peroxide of hydrogen.

If the case does not yield, try salicylic acid in liquor ammonia acetatis and tincture of the green root of gelsemium, and then fall back on the eucalyptol. The case must be carefully nursed, and an abundance of beef tea used as a drink.

Bilious remittent yellow fever, accompanied with acute inflammation of the stomach, liver, spleen, kidneys, with severe headache, vomiting of black matter, and jaundice, is a fever caused by a fungus, produced by the malarial germ, acted on by the miasmata from the sides or beds of rivers. The evolution of this germ is limited to tropical countries and not of infrequent occurrence in our Southern harbors. The fungus may be carried on ships, clothing, merchandise, etc., but when a temperature of 75° Fahr. is reached, the microbe becomes dormant, incapable of growth. This fever prevails in tropical countries endemically, epidemically, or sporadically, and when it occurs is highly contagious and infectious. Much more common in males than in females; very prevalent among the unacclimatized. One attack affords no protection.

The cause is the malarial germ, mingling with paludal emanations, giving rise to a dual germ, or fungus; so far the most eminent bacteriologists have failed to isolate it.

Some have isolated a microbe very similar to that of dengue, but all attempts at culture have so far been attended with failure.

Insanitary surroundings, imperfect drainage, uncleanness add to its malignancy.

The true victims of the microbe are those addicted to intemperance, excesses, overwork, out at night.

Preventive measures consist in the removal of all nuisances or insanitary states; every fence, court, alley, cellar, liberally white-washed with lime and bichloride of mercury; thorough ventilation of all passage-ways, warehouses, holds of ships; the greatest possible cleanliness, removal of all garbage; no one, non-acclimatized, should expose himself; diet of all should be plain, nourishing, avoiding alcoholic drinks, sexual excesses, and should have abundance of sleep; a healthy action of the liver, skin, kidneys, bowels; flannel clothing.

Symptoms.—Often ushered in quite suddenly with languor, lassitude, debility, loss of appetite, giddiness, headache and mental depression. At other times begins with coldness of the surface and distinct rigors, followed by fever which continues a few hours, then remits. In another class of cases there is prostration from the first, without any febrile reaction; stupor, coma, convulsions, soon following. When there is decided fever, we have an aggravation towards night; pulse becomes quite wiry and frequent, skin hot and dry, eyes congested and painful, face flushed. Distressing headache, often confined to one temple, intense pains in large joints and limbs. Nausea, great irritability of stomach, vomiting, first slimy, then greenish, then black; constant vomiting and retching. Tenderness on pressure over the stomach, liver, spleen, kidneys; a sense of tightness or constriction across the chest. Thirst is intolerable; great desire for cold drinks, only to be taken to be rejected. Urine diminished in quantity, highly albuminous, of a dark red color. Constipation, owing to an entire absence of bile in the stools. The restlessness is incessant; extreme mental anxiety; sleeplessness, prostration, active delirium. At the end of a few days severity of symptoms gradually diminishes, patient feels relieved; face becomes slightly jaundiced; skin becomes moist and there are copious biliary stools. In favorable cases convalescence is firmly established. More frequently the improvement is of short duration. After a respite of twenty-four hours, epigastric tenderness is aggravated; jaundice increases and spreads over the entire body; tendency to stupor; pulse becomes feeble, irregular, slow, often as low as thirty beats per minute; tongue becomes very foul and dry; respirations embarrassed; hiccough, thirst, nausea, vomiting, are constant. Unless symptoms remit, grumous blood is vomited; black vomit;

urine is suppressed or simply retained; skin becomes of a dark brown hue; dark-colored blood is effused in patches under the skin, or exudes from the nose, mouth, gums, ears, anus, vagina. Most offensive, tarry-looking stools.

There are now all the symptoms of a malignant fever; almost imperceptible pulse, slow or stertorous breathing, involuntary evacuations, difficulty of deglutition and articulation, suppressed or bloody urine, with formation of buboes or patches of gangrene. Death takes place preceded by coma or convulsions, or in some cases the patient retains his consciousness to the last.

Its ordinary duration is from three to nine days.

Death may occur from the overpowering effect of the poison on the system, exhaustion, uræmia, or apoplexy of brain, liver, spleen.

From the beginning to the end of an attack the general indications for the treatment of a malignant type of fever should be carried out and rigorously enforced: recumbent position; thorough ventilation, greatest possible attention paid to cleanliness; bathing and disinfectants. Diet very plain; arrow-root, barley water, broth, iced lemonade, Seltzer water. Watch case closely, guard the patient in every particular. Mustard to nape of neck and feet; cloths wrung out of hot water, often relieve that terrible headache. General bathing as frequent as possible; occasionally the application of turpentine over spleen and liver is good.

The factor in yellow fever is the germ or fungus; with a high temperature it breeds by millions per hour; lower the temperature in any way, active microbe evolution ceases. The high temperature produces dreadful complications; reduce heat by cold packs, by an active refrigeration of the body, the germ dies or becomes inactive.

To lower temperature, exalgine is a drug of rare value. It is indicated here; a dose morning and night works wonders, lowers temperature, cuts off germ growth, changes the entire aspect of the fever, prevents complications. Its use should never be overlooked, as it holds the patient in the best possible condition for treatment.

No direct line of treatment can be laid down, no doses given, the physician in attendance must be the judge in all cases. We shall enumerate a few of the leading remedies in use.

Sulphate of quinine is the great stand-by. There is no doubt about the propriety of using it at proper intervals and in suitable doses.

Warburg tincture, or eucalyptol is worthy of consideration.

Puerperal Fever,
 or
Metria.

Metria is a term which includes a number of affections, which are classed together under the name of puerperal fever.

The pathology of metria is still far from being perfectly understood. Two facts alone are admitted by all who have studied the subject carefully: namely, first, that puerperal women are liable, under certain circumstances, to be inoculated with septic matter conveyed to, and deposited in, the vagina by the hands of the attendants, as well as by other agencies, when, either through carelessness or ignorance, proper precautions have not been adopted to prevent such an occurrence; and that the disease produced by such inoculation is not an unfrequent source of one of the forms of metria; secondly, that puerperal women may be self-inoculated by poisonous matter originating within their own bodies, from the decomposition of blood-clots formed within the uterus after parturition, or of portions of the membranes or placenta which have been retained *in utero*.

That this state is predisposed to by a depression of the great sympathetic, as struggle for existence, grief, worry, blighted affections, shocks of all kinds.

The exciting causes are numerous (contagion and infection), the former carried on the clothes, hair, person of the physician from one person to another, etc.; the latter, hurried labors, relaxed uterus, which is liable to follow a too rapid evacuation of the contents of the uterus; imperfect uterine contractions dependent upon nervous bankruptcy which interferes with recuperative powers.

Auto-infection, self-inoculation, in their own bodies from the decomposition of blood clots found within the uterus after parturition, or of a portion of the membranes, or placenta retained in the uterus, owing to imperfect uterine contractions.

These are the main factors in its production. The mouths of the vessels at the denuded site of the placental attachment, keep up a slight oozing, which becomes fetid by lying in the uterus and along the genital tract.

Imperfect uterine contractions are due to hard work, struggle for existence; sexual congress during pregnancy; and anything which would be likely to exhaust the uterine plexus of nerves.

Symptoms.—The general symptoms are rigors, succeeded by fever; a full, hard, rapid pulse; occasional vomiting; distress of countenance; great debility; suppression of the secretion of milk; usually, not always, pain and tenderness in some part of the abdomen, most frequently about the umbilicus, which is increased by pressure.

Some patients complain of great pain, great tenderness, with great constitutional disturbance.

These coming a few days after delivery, in some high fever, in others a peritoneal inflammation preceding the fever. The acute stage continues for a few days; during this time the rigors are severe; the skin hot, at some periods clammy; abdomen becomes tumid, and susceptible of great pain from the slightest pressure; the tongue is white; the respirations short and quick; countenance anxious; signs of abdominal inflammation.

The progress of the disease is rapid, often fatal inside of forty-eight hours.

Prophylactic measures are various. The mortality from this fever is specially great among unfortunate women, the depressed sympathetic, mental distress, despondency, seriously interfere with the recuperative powers which should be active after parturition. With a blighted sympathetic, the muscular fibres of the uterus do not contract well, the lochia lies long in the genital organs, germs are evolved which enter the blood, either slowly through the open mouths of the vessels, or are absorbed through some crack or fissure. Patient should be re-animated with a new life, new hopes, new aspirations; uterus stimulated to contract and at the same time disinfected by injecting it with solutions of boroglyceride, or resorcin.

The rigid enforcement of all antiseptic precautions, the avoidance of sewer gases; all physicians and nurses should be forbidden attending such cases who perform post-mortems, or have been for six months previously in attendance upon a similar case, or one of boils, or erysipelas.

Morbid anatomy.—On examination after death, the vessels of the omentum and peritonæum are found to be turgid with blood; there are usually adhesions in many parts of the abdomen, which is distended with gases, and effused serum, with flakes of lymph floating in it; and sometimes there is seen on the intestines, the puerperal micrococci in the form of zooglæa; also in the lungs, spleen, kidneys, brain, chains of micrococci. The uterus in particular is literally covered with a thick coating of the germinal matter. The essential and most obvious fact is that the entire body has been the victim of the most deadly of all microbes, the most tenacious, as it is six months before it disappears from the hair of the physician or nurse; the most deadly, as it often destroys life in forty-eight hours. In its origin, it usually declares itself within ten days after delivery.

In *metria*, or so-called puerperal fever, micrococci have been found in the blood in the form of zooglæa in all irritated organs, as the mouth, lungs, spleen, endocardium, liver, uriniferous tubules

of the kidneys, and in emboli of the blood-vessels and brain. Precisely the same state of microbe evolution exists in all cases of



Chains of micrococci found in a necrotic patch of the lochia. Precisely the same state of evolution exists in brain and heart clot.

puerperal mania; zooglœa and chains of micrococci are met with in the brain, associated with clot.

The present illustration is taken from a necrotic patch of the lochia, which affords most energetic cultivation in beef tea.

Indications of treatment are: if we possibly can without injury to the organism, introduce into it a sufficient quantity of a drug antagonistic to the life and reproduction of the micrococci or microbe (pathogenic) that may either prevent the development of the disease;

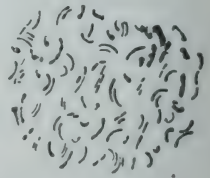
destroy or sterilize the microbe; or change it, we may possibly limit its growth, and thus retard the pathological process to such an extent that the germ may be incapable of destroying life.

Treatment.—The treatment of metria must to some extent be governed by the predominant symptoms of each case, and depend largely on the prevailing type of the fever.

Under all circumstances must the temperature, pulse, respirations, be kept normal, whatever the type of the fever, for if the germ is not sterilized or destroyed in a week, it will kill the patient. It must be treated boldly; no time must be lost. Select one of the following remedies, either anti-pyrine, thallin, opium, Dover's powder or pulverized asclepias.

Administer in such doses and so frequent as to maintain an equalized circulation.

To the abdomen either concentrated ozone or ozonized turpentine, or a mixture of the two. Kept applied until erythema of the skin is produced, then follow with fomentation of poppies and resorcin, and repeat the applications persistently for several days. The entire surface to be bathed with hot water to which some peroxide of hydrogen is added; this should be done thrice daily.



The pathogenic microbes of puerperal fever.

The next important step is to administer half a drachm of leptandra with one grain of opium, pulverized, and five of quinine, this is to be followed in two hours by drinking an infusion of senna, and if it does not operate freely, repeat inside of three hours, so as to produce five or six evacuations from the bowels daily, until the germs are annihilated. Chionanthine, leptandra and opium must be repeated every six hours, both have a powerful germicidal influence on this microbe; a directly destructive remedy to the germ. Should violent purging come on, the dose of the leptandra can be reduced. As soon as the symptoms of germ evolution subside, and the recovery of the patient is secured, withdraw the drug.

Chlorine or ozone water to be given as a drink.

In addition to these remedies a germicide is to be selected sufficient to destroy the microbe and administered every hour; resorcin is excellent, carbolic acid and tincture of iodine (as in typhoid fever).

Whatever treatment is carried out, another thing is essential, and that is three times daily a copious, warm, intra-uterine injection of a solution of boroglyceride or resorcin, or chlorinated soda, creolin; some one is essential. The use of these for washing out the germinal matter from the cavity of the uterus is self-evident. They are of great utility and should be used with great caution.

One of the most eminent physicians in our country says of Metria:

"The most decided results are obtained by a rigid germicidal treatment, under which the microbe disappears from the blood and tissues. Thus, the most careful antiseptic precautions, anti-pyrine in sufficient doses to keep the pulse at 70; wash out the cavity of the uterus thrice daily with warm solutions of boroglyceride; concentrated ozone with chloroform over the entire abdomen, or ozonized turpentine till erythema appears. Resorcin jelly one-eighth of an inch thick over the redness; when it disappears, a re-application of the germicide. Bowels in all cases freely opened with large doses of leptandra and jalap; then teaspoonful doses of concentrated tincture of kurchicine every three hours. In a very few hours no microbe can be detected either in the breath, saliva, blood, or lochial discharge."

Country physicians may say, we cannot procure such remedies, appropriate in such cases. Turpentine is always at hand; in all states and conditions it is a good ozone generator and stimulant in metria, one which from its action on the microbe, on the skin and kidneys, materially aids in the annihilation and elimination of the germ; it is a valuable germicide in puerperal septicæmic fever.

**Hay Fever,
Bacillus Subtilis.**

A peculiar form of coryza, to which a certain class of individuals are liable each year, at a particular season; the disease is of frequent occurrence among highly civilized Caucasians, as the American and English.

It occurs much more frequently among those who have their nervous systems very highly developed, the highly educated, or those who perform much mental work. People who live in cities are much more obnoxious to the disease than those who live in the country. The nervous temperament, or neurasthenia has an undoubted influence in predisposing to the complaint.

The *predisposition* is often the result of a neurotic inheritance, can be traced back for generations in the same family, but more commonly acquired under great mental toil, care, worry, struggle. The liability to the disease is at any period of life, but most commonly between twenty and thirty-five years of age.

The exciting causes are numerous, micro-organisms and irritating agents in the atmosphere which are much more commonly in the summer and autumn months, as the pollen of flowering grasses and cereals coming in contact with the periphery of nerves in the delicate mucous membrane; that the rise and fluctuation of the malady during the summer months corresponds with the varying amount of pollen in the atmosphere. Grasses most productive of hay fever are clover, timothy; of flowers, roses and violets; of cereals, rye and buckwheat; ragweed and grapes being most productive of the autumn form. No doubt pollen or aroma in the air, annually recurring, acts as an exciting cause, but hay fever properly includes a much larger group of cases, in which vaso-motor and secretory disturbances in the nasal passage, or along the whole naso-bronchial tract are excited by a variety of causes.

The symptoms usually present are those of languor, lassitude, debility, with pain in the back, calves of the legs, rigors, fever with coryza; sneezing; nasal obstruction; watery discharge from both eyes and nose; the lachrymation is accompanied with smarting. There may be irritation of the throat, tightness and soreness of the chest, cough, and definite attacks of bronchial asthma.

In persons with the typical nervous conformation, a train of symptoms identical with those of hay fever are extremely common, and may be excited by dust of any kind, as the powder of ipecac, linseed; or the exhalation from animals, as cats, dogs, horses, rabbits, pigs; or the odor of violets and perfumes; violent exercise; sudden exposure to great extremes of heat and cold, impressing the sensory nerves of the skin, together with

other psychical causes. Some persons with the peculiar nervous idiosyncrasy are liable to attacks of sneezing coryza at all seasons of the year.

The factors at work are a hyperæsthesia of the terminal nerve filaments in the nasal mucous membrane, and an undue activity of certain nerve centres. Both conditions combined give rise to a degradation of bioplasm, the evolution being the bacillus subtilis. This micro-organism, combined with prolonged irritation, the result of pathological states, leads to hypertrophy of the nasal mucous membrane.

This bacillus is very common, and widely distributed, as it occurs in all nitrogenous compounds which are left to the atmosphere to decompose. The best of all material is hay, ragweed, roses, grapes.

Hay is the best. Infusion of hay, filtered and covered, and left to stand in a warm place, speedily swarms with this bacillus.

This microbe consists of cylindrical rods of variable length and breadth. Single rods grow to double their length and then undergo division. They at first form threads, which become developed into rods and cocci. They are mobile and are provided with a flagellum at each end. Their multiplication in any nourishing fluid speedily impoverishes it, and their growth by division soon ceases. Spore formation, however, will again become active if exposed to the air, as they are aerobic; the deprivation of oxygen causes the growth of the bacilli to cease.

The bacilli from the other nitrogenized bodies mentioned are identical in all respects with those from hay, consisting of elementary rods of various lengths, with a flagellum at each end. After division the individual bacillus remains, as then the germ divides and separates, spore formation being independent of nourishing material. The hay bacillus bears a strong resemblance to the giant bacteria of anthrax, a zooglœa, a swarm, being a special characteristic.

The microbe is pathogenic of hay fever, bears culture admirably and will grow in almost any nourishing medium, and when inoculated into any animal will give us hay fever or asthma.

Hay fever and allied forms of coryza are in a large number of



Hay Bacillus (*Bacillus Subtilis*), The microbe of hay, grape, ragweed, rose and other fevers.

cases associated with abnormal states of the intra-nasal structure, and an improvement or complete cure of the coryza may be looked for from treatment directed to the destruction of the micro-organism in the nose. Irrespective of the microbe, or often associated with them, outgrowths from the nasal septum, hypertrophic rhinitis; enlargement of the inferior or middle turbinated bodies, mucous polypi.

Remedying these pathological conditions, and the removal of the microbe, invariably affords substantial and durable results, the removal of redundant erectile tissue or otherwise, removing or excising nerve filaments.

In the management of all cases, the neurotic element must ever be kept in mind, and remedies like kephaline, *avena sativa*, should be pushed.

The principal indications are to strengthen the general nervous system, soothe local irritation, and remove the microbe.

The most hopeful remedies are those which give tone to the nervous system, kephaline combined with quinine and *nuxvomica*; the bromide of potassium or ammonia and hydrobromic acid, glycerite of ozone.

To allay the irritability of the mucous membrane, various drugs have been tried with varying success, as atropine, morphia, aconite, cocaine, peroxide of hydrogen, etc., by spraying in the nose, and over the eyes. Of these remedies, cocaine is of the greatest value, it may also be administered internally. Locally a solution, four per cent. is sufficient. While thus meeting the more urgent symptoms, we should select some germicidal remedy with which we should literally saturate the system, sterilize the blood, so that no microbe can live in it.

Peroxide of hydrogen, sulphide of lime, comp. oxygen, Chian turpentine, one or other administered, will so sterilize the blood that no microbe will grow, the patient becomes invulnerable to either contagion or infection. Even inoculation is futile. Bichloride of mercury produces the same effect, thus: Bichloride mercury, gr. i or ii; bicarb. soda, half an ounce; distilled water, eight ounces. Mix. Dose, one teaspoonful every four hours.

Boroglyceride both locally and internally; begin early before the expected attack.

The ozonized witch hazel charged with ten volumes of peroxide of hydrogen, administered internally and locally, diluted, does good work in sterilizing the micro-organism and lessens the hyper-excitability of the nasal and respiratory mucous membrane.

The distillation of the pine, of the eucalyptus, are exceedingly useful for internal use and also for inhalation; the pine prepara-

tions are superior to creosote; the pinol preparations, rich in natural and artificial ozone, are always of the greatest efficacy.

Syrup of tolu, to which is added con. ozone and resorcin, has a magical action.

The effervescing citrate of caffeine is not to be despised, as it will often ward off an attack; and a warm douche of sulphate of quinine will kill the entire brood of germs.

Euphorbia pilulifera, when taken internally, has the effect of sterilizing the germ. It has a slight narcotic action, but relieves the nasal, laryngeal, bronchial symptoms, and invariably affords a good night's rest. As this plant is toxic, great care should be taken in its administration. As it yields its properties readily to boiling water, a decoction of the dried plant in the proportion of a half an ounce to a pint of water, and when cold a teaspoonful of chloroform added. This may be administered in doses of a wine-glassful three times a day.

If case does not improve rapidly, medicated bougies should be tried, composed of cocaine, resorcin, naphthaline, and butter of coca.

Local cauterization to the special sense of sensation, the supposed seat of the microbe entrance, is being practiced.

In all cases of hay fever the diet should be liberal, as the disease is of a depressing and exhausting character. Daily exercise, early hours, very moderate indulgence in alcoholic liquors should be advised. A certain amount of moral courage on the patient's part is also a desideratum, for the more the affection is resisted the less trying does it become. Moreover, as a previous unhealthy condition of the mucous membrane is necessary for the development of hay fever, it is very advisable, during periods of rest, and when the disease lies as it were dormant, that the mucous membrane should be maintained or restored to a healthy condition. I therefore, as far as possible, treat patients before the annual attack shows itself. By this means, in many cases, it has been warded off. Careful syringing with alkaline lotions and sprays, the use of inhalants and of interrupted currents of electricity, with, of course, attention to diet and general medicine, will often enable patients to tide over the trying months of spring, without any manifestations of the malady. As to electricity, I am not aware that it has been tried in the treatment of hay fever on any extensive scale. In many cases I certainly have seen much benefit derived from mild interrupted currents, administered daily or every second day—act beneficially by exhausting the irritability of the part.

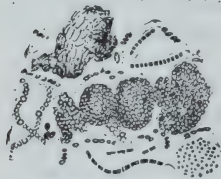
**Spotted Fever,
Epidemic
Cerebro-Spinal
Meningitis.**

An irritation of the brain and cerebro-spinal axis, by the presence of a disease germ, resembling the streptococcus in diphtheria, and having also its pathogenic characteristics.

In all conditions of the human body in which the vital force is at a very low ebb, shattered almost irreparably, and this is aggravated by diminished electrical or perverted meteorological states, a degradation of normal bioplasm takes place.

It attacks persons of all ages, with broken-down or devitalized constitutions. It is prevalent all over the world, and corresponds precisely to the blight in the vegetable kingdom; contagious and infectious.

It comes on slowly and insidiously, preceded by an undetermined period of incubation or germination, followed by rigors and a fever which last from five to seven days. The prostration and coma are extreme; head and heels thrown back; often livid or purple spots on the body, sometimes absent; otherwise the skin is remarkable for its pallor; flush on cheeks. Often convulsions.



Streptococcus in cerebro-spinal meningitis.

Its duration is five days; recovery in all cases very doubtful.

There is a tendency for the different types of remittent to terminate in cerebro-spinal meningitis.

Its recognition is easy; its insidious mode of attack, the coma, high fever, head and heels thrown back, livid spots on the skin, violent and short duration of fever.

If the case is seen early, the general indications of treatment of fever should be observed, as bathing, beef-essence for diet, exalgine in doses sufficient to equalize the circulation. Active stimulants over the cervical portion of spinal cord, with galvanic cautery or ice, followed by hot poultices or a liniment of tincture of belladonna, chloroform, and aqua ammonia, equal parts. Secretions kept active.

An effort should be made to destroy the streptococcus in the blood.

Internally, the microbe is annihilated by the presence of the ozonized glycerite of sulphur. This remedy is administered in teaspoonful doses every three hours, and the results obtained are rapid diminution in the pulse rate and temperature; a speedy alleviation of all the symptoms; its duration is shortened; the dangers are overcome. It is one of the most remarkable germi-

cides, greedily taken by any child, and can be utilized in every case, and effectually roots the brood of germs from the body.

Dose after dose can be administered, and so long as there are microbes to kill it will not disturb the bowels, but when all are exterminated, then it will excite peristalsis, and the frequency of administration as well as the size of the dose must be lessened.

Hydrogen peroxide should be administered internally in alternation with the sulphur to sterilize the blood, kill the spores; neutralizes the ptomaines, and thus anticipate the sequelæ of that dreadful microbial disease.

In the absence of these two remedies, it should be borne in mind that the microbe can be killed by the administration of sodium salicylate in acetate of ammonia, by zozodine, chlorinate soda, pyridin, etc.

A class of continued fevers characterized by a
Eruptive rash. The principal diseases of this class have
Fevers. certain features in common. They are each due to
 the presence of disease germ in the blood, and
 each of the respective microbes have a definite period of germination, of fever, rash and decline.

The germination of the microbe corresponds to the old stage of incubation, which terminates in each case respectively with a rigor; then the microbe is fully developed, actively at work, sprouting, breeding in the blood; using up in its own nutrition all the oxidizable properties, which, when completed, the germ seeks the skin for the purpose of obtaining free oxygen; here, it produces various pathological changes, according to its peculiarities and protoplasmic wants. Microbes on the cutaneous surface appear in scales, in peeled-off colonies; in vesicles, pocks or scales. The microbes, wrapped up in the dead or effete tissue of the body, if not burned up, have an independent property of life, unless destroyed by some bactericide.

The special microbe of each type of eruptive fever, once in the body, appropriates to its own use, nutrition and growth, certain elements in the blood and nervous system which never, except in some rare instances, appear there again, hence the patient is subject through life to but one attack; his blood being sterilized to that special microbe; and this rule holds good, even if the germ is killed on the first day of its entrance.

So that each species of germ can be killed by germicides, and all the uncertainties of fever, rash, etc., wiped out, the child's life

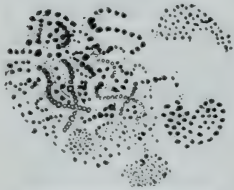
saved, yet impregnable ever afterwards to the ingress of the same microbe :

Disease.	Germination.	Eruption appears.	Eruption fades.
Measles	10 to 14 days.	4th day of fever.	7th day of fever.
Scarlet Fever .	4 to 8 days.	2d day of fever.	5th day of fever.
Small Pox . .	12 days.	3d day of fever.	{ Scabs form on 9th day. fall off 14th to 22d day.

This continued, highly infectious and often fatal fever is due to a micrococci and diplococci in the blood, brain and fluids of the body, found most abundant in the watery discharges from the eyes and nose; not quite so abundant on the tongue, sweat.

The germ is pathogenic, bears culture well; cultivations fed to animals reproduces the disease perfectly, even to its different stages, in the most perfect manner.

Symptoms.—After a period of germination, varying from ten to fourteen days, there is pain in head, back, calves of the legs; lassitude, shivering, fever and catarrh, the eyes are suffused, lining membrane of the nose congested; mucous membrane of the fauces, larynx, trachea and bronchi become much affected; eyelids swollen, keep watering, intolerance of light; sneezing, nose running water; dry cough, hoarseness; difficulty of breathing; drowsiness; great heat of skin; tendency to delirium; frequent, hard, rapid pulse; tongue white-coated.



Micrococci of measles.

The eruption comes out on the fourth day of fever, usually first on the face, then the body, and lastly the limbs, fading on seventh day; it consists of patches, rough, irregular, elevated above sound skin, often of a round or crescentic or horse-shoe shape. Between the crescentic blotches the skin is of the usual color. Fever does not abate on the appearance of the eruption. There is no peeling or desquamation of the cuticle, which is a characteristic in scarlatina. Diarrhea often sets in on the declining of the rash. It is usually salutary. The contagion of measles is strong, being powerful through both its latent and active form; often pulmonary complications, especially in winter and spring months.

If the patient is tubercular, or the disease comes from another race, there may be laryngitis, cancrum oris, severe otitis, epistaxis, acute tuberculosis, or acute desquamatic nephritis. In a malignant form, when powers of life are low, the disease is remarkable for its fatality.

In the *treatment* of a case of measles, without any complications, the patient should be confined to bed, in a warm, airy apartment either darkened or with buff curtains; patient must, nay, it is imperative that he should be confined to be bed; he should be sponged off thrice daily with a warm alkaline wash, and well and carefully dried off. Put half a teaspoonful of the tincture of aconite leaves into four ounces of water, and give one teaspoonful every hour. Half teaspoonful doses of the compound tincture of serpentaria should be administered occasionally to maintain some slight degree of moisture on the skin. No cold drinks to be given.

In all cases a bactericide should be given, as there is considerable lung, bronchial and nasal irritation from the microbe. The following is most beneficial, and greedily taken by the child: Syrup of tolu, four ounces; resorcin, three drachms. Mix. Administer frequently, so that one teaspoonful will be given every two hours. If this is not deemed essential, a few drops of glucozone could be given, or the old formula of two drachms each of chlorate of potassa and muriatic acid, added to four ounces of water. Mix. One teaspoonful, added to a glass of sweetened water, taken at repeated intervals, so one is used every four hours.

Diet should be liquid, but very generous, consisting of beef tea, sterilized malted milk, chicken broth. If debility is great, brandy and cream, or brandy and egg; cough troublesome, increase the tolu and resorcin; any convulsions, delirium, must be carefully managed by the application of mustard to the feet, and rubbed over the entire body, with the internal use of the bromide potassa.

Complications may arise from carelessness on the part of the mother, or a want of recognition of the fever being due to the presence of a microbe. Those are usually congestion of the lungs, bronchi and eustachian tube.

In such cases there is danger; treatment should be on general principles and active.

Catarrhal states of the eustachian are often troublesome, and are apt to give rise to impairment of hearing. The coryza and nasal catarrh, with the large mass of germs, swelling of the nasopharyngeal membrane. A little care and watching are sufficient to prevent any permanent injury.

German or French measles has been supposed to be due to a hybrid germ, the union of the micrococci of measles and the bacilli of scarlatina. Bacteriologists assert the existence of a distinct germ, which is pathogenic of the fever, which is essentially contagious and infectious.

Symptoms.—There are the ordinary symptoms of languor, lassitude, debility, rigors, and a fever, which often runs high; tongue is furred; slight sore throat; redness of the fauces; little, if any, coryza; loss of appetite; drowsiness; looks heavy; eyes may be red, but do not water. The skin is full, tense and raised, and a papular rash makes its appearance, which gradually intensifies in color and becomes of a bright, rosy hue. These patches become blotches, and gradually spread over the entire body. The rash that comes out first soon fades and other patches make their appearance. The rash is followed by dryness of the skin.

In mild cases there is simply the rash without the least constitutional disturbance; appetite good, tongue clean, no languor, rigor or fever—nothing but a few tiny spots; larger spots or blotches of a rosy hue in one part, at the elbows and knees, and spots and blotches on the hands, arms and legs; the redness and soreness of the throat scarcely appreciable; the rash may be gone in a day. Sometimes the cuticle peels, but as the constitutional vigor is good, he eats and sleeps well. Between a severe and mild case, rotheln varies much in character and severity. Most frequently it presents no symptoms but the rash, or the patient may be quite sick, and the rash varies much, appearing like measles; in other cases diffused, or but a few sparsely scattered rosy-red minute dots; in others a perfect aggregation.

It is highly contagious and infectious, but its stage of incubation, fever and eruption has not been defined. The worst case seldom lasts longer than three days. One attack protects the patient from all subsequent ones. It is followed by no sequelæ, and most invariably terminates in recovery.

The *treatment* consists in the warm bath, rest in bed between blankets, warm drinks, sweet marjoram.

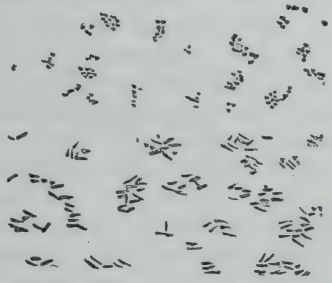
Aconite and compound tincture of serpentaria; aromatic sulphuric acid and quinine, destroys the germ promptly, and should be given as soon as the skin is moist from the action of the aconite.

The child should be kept at home a few days, as the affection is even more contagious than measles or scarlatina. No after treatment is necessary.

This continued, highly infectious fever is due **Scarlatina**. to the micrococci scarlatina swarming in the blood, mouth, throat glands. The micrococcus can be found everywhere throughout the body, in the blood, breath. The germ is pathogenic of the fever, bears cultivation well in beef tea; cultures injected into animals causes a re-appearance of the disease, even to the efflorescence of the skin. Three grades of activity of the microbe are described, which depend solely upon the status of vital force and sanitary surroundings of the child in which the germ exists. If the micrococci enter the blood of a thoroughly healthy child, with good vital force, all the symptoms of fever and rash will be mild (simplex), but let there be depreciated vitality, with insanitary surroundings, the germs in the blood will be very active; propagation by millions; rash heavy; throat badly germ-smitten (anginosa); if vital forces still more shattered, germ evolution still greater; cerebral or malignant symptoms of an adynamic type; rash dusky; purple, with a tendency to general gangrene, manifested by a suppuration from eyes and ears (malignant).

In *Scarlatina Simplex* the symptoms are a latent period of from four to six days, with languor, lassitude, debility, pain in head, back, calves of legs, and also rigors and a fever. On the second day the eruption appears in the form of innumerable minute dots of a bright scarlet color, which rapidly diffuses itself over the entire body. This eruption terminates by desquamation of the cuticle, which takes place on the fifth day. It is merely a scurf on the face and trunk, while on the hands and feet large flakes of denuded cuticle peel off. While, or even before the efflorescence is spreading over the entire body, the mucous membranes of the mouth, fauces, and tonsils become affected; the tongue at first covered with a thick white fur, through which red, elongated papillæ project; as the fur cleans off, the organ presents a strawberry appearance.

In *Scarlatina Anginosa* the symptoms are more violent, very much aggravated, and the languor, rigors, and headache very great; fever high, vomiting, delirium, and prostration. The fauces, palate, and tonsils become greatly swollen and covered with coagulable lymph, the nasal mucous membrane, parotid and other glands severely implicated, swollen, and often suppurating. Sometimes there is a diffuse inflammation of cellular tissue of



The Bacilli Scarlatina as found in the blood before the germ migrates to the skin.

the neck, which is swollen and of a brawny hardness. The eruption may be delayed to the third or fourth day, and may then come out in scattered patches. With its fading, on the fifth or sixth day, the fever as well as the inflammation of the throat begins to abate. Severe inflammation of the serous and mucous membrane is to be dreaded. In strumous subjects it often assumes quite an aggravated form. Cases sometimes occur in which there is no eruption on the skin at all, and still it peels off after recovery.

In Malignant Scarlet Fever it assumes a malignant or typhoid form. Great cerebral disturbance, convulsions, urgent prostration, muttering delirium, sordes on teeth, fetid breath, incrustations of coagulable lymph on tongue, uvula, tonsils, fauces, gangrene often takes place, and there is suppuration of throat, nose, ears, and eyes. The rash, if any, is purple or livid; if it comes out it is late; more generally it never appears. A fatal termination almost invariably takes place on the third or fourth day; few indeed weather the storm.

The various forms are liable to terminate in ulceration of the tonsils; inflammation of the eyes and ears, glands of the throat with suppuration. The ear, next to the kidneys, suffers greatly from the bacillus of scarlatina. The microbe penetrates the eustachian tube to the inner ear, germs and spores by the million; their escape is prevented by the drum head; the bacillus rapidly causes destruction of the ossicles, mastoid cells and perforation of the membrana tympani itself. A large percentage of post-scarlatinal deafness, with perforation, is no doubt the result of carelessness.

The scarlatinal germ excites synovitis, carditis, vaginitis, irritation of all serous membrane, which terminate in dropsy, and acute desquamative nephritis, with persistent albuminuria; uræmia is to be feared in some cases.

The bacillus scarlatina is one of the most vigorous of all disease germs, a potent spore evolver and ptomaine excretor, most destructive to the red discs of the blood, and deteriorates the general vital elements of the nervous system. The fact, that a patient afflicted with scarlatina is a perfect pest-house of disease germs should be strongly impressed upon parents, and also the fact that in his skin and hair are millions of spores, capable of propagating the disease for three months to come.

There is no doubt that this contagious and infectious fever can, with care, be greatly modified, rendered so mild that none of the usual complications can take place. When the disease is suspected in any locality, all the children not previously affected should be placed at once upon better diet, daily bathing, cleanli-

ness, a removal of all insanitary states, and all deemed susceptible should be placed upon a germicidal course of treatment, so as to utterly sterilize the blood, to render it unfit for any disease germ to grow. Select some active bactericide, such as dioxide of hydrogen; or sulphide of calcium; or glycerite of sulphur.

By resorting to such a procedure, there are few germs, and what there is are usually greatly attenuated.

The discovery of the bacillus scarlatina has been the result of much study, accurate observation.

The discovery of this bacillus revolutionizes the treatment completely.

In the general treatment of a case, the general indications for the correct management of a case of fever must be inculcated. The patient must be confined to bed, in a warm, comfortable room; the entire body should be sponged off thrice daily with a warm alkaline wash until the eruption appears. The diet should consist of beef tea, sterilized milk; disinfectants should be exposed in the apartment. The clothing or covering of the patient should be the finest possible; bowels and kidneys looked after.

The very moment the case is recognized, place the patient at once on a germicide, either glucozone, sulphide of lime or glycerite of sulphur; one of these remedies should be persistently administered, and if so, the case will run very mild. There is no use in waiting for symptoms, apply resorcin jelly to the throat at once. Put it on every three hours.

If too late in beginning with bactericides, and fever sets in, keep on with germicides, but at the same time fall back on the old remedies, tinctures of aconite, belladonna and digitalis, with comp. tincture of serpentaria; suitable doses to equalize the circulation and lower temperature. Ears carefully covered with laps.

Mineral or vegetable sulphur is the natural antidote to kill the germ and sterilize the blood. Glycerite of sulphur, ozonized sulphur water, sulphide of lime are probably the three best forms for internal use, whereas lycopodium can be dusted over the entire skin, and if this is not handy, the anti-microbe powder can be used.

Everything in and around the patient must be given and performed to kill a most tenacious microbe, even his drink and food should be germicidal. Tartrate of soda and a little lemon juice sweetened is an excellent drink; malted sterilized milk a superb food.

In addition to germicides, most cases are benefited with a tonic of aromatic sulphuric acid and quinine, small doses added to water.

Convulsions, an evidence of ptomaine evolution in the intestines, are best treated with resorcin in the syrup of tolu, and administering salicylate soda in the liquor ammonia acetatis.

For the mouth and fauces: Water, four ounces; chlorate potassa and hydrochloric acid, of each two drachms. Mix. Dose, one teaspoonful added to sweetened water; boroglyceride solution; zoziodol and chlorinated soda.

If the microbe scarlatina is not either sterilized or annihilated in the blood by the glycerite of sulphur, peroxide of hydrogen, or other germicides, in the ordinary course of its evolution, it will seek the cutaneous surface to secure free oxygen. In this process it imbeds itself in the skin and causes desquamation or peeling of the cuticle. In this process of shedding, the old microbes die, but leave their spores. These spores represent the seeds, are capable of retaining life and germinating into bacilli, even after the most damaging influences are brought to bear against them, even time, drying, heat, cold and chemical agents. The spores of scarlatina retain their power to germinate after long intervals; even the temperature of boiling water, while it kills micrococci, bacteria and the bacilli themselves, does not affect the vitality of the spores.



A colony of the *Bacillus Scarlatina* in the peeling of the cutis; showing the spores.

The determination of the thermal death-point of the spores of the microbe of scarlatina has a very important bearing upon humanity at large, and possibly of curative therapeutics.

Clinical experience has established this, that if the entire cutaneous surface is rubbed over with resorcin jelly morning and night, that there are neither microbe nor spores left on the cuticle to cause desquamation. This jelly is easily prepared, thus: add to one pound glycerine heated to a temperature of 350° Fahr., one ounce of resorcin, three ounces of pulverized starch, and while cooling off, four ounces of peroxide of hydrogen. This makes an excellent bactericide. As soon as the case is diagnosed, begin inunctions morning and night with warm olive oil, then rub in a portion of this jelly.

This procedure is effective. It is almost needless to recapitulate that all internal treatment should be germicidal; sterilize the blood (kill the microbe), so that no disease germ can live there; resorcin in syrup of tolu, ozonized glycerite of sulphur, ozone water, dioxide of hydrogen are the medicaments of the future.

The general principles of *treatment* all through the case is to

push bactericides under all and every condition, by doing so, life is saved, complications prevented.

Ear complications are about equally as common as dropsical effusions from all the serous membranes.

Serous infiltration of the cellular tissue, effusion from the membranes of the brain, pleura, peritonæum, and sometimes the labia and scrotum.

These dropsical conditions are due to the destruction of the red discs of the blood by the action of the germ; *poverty or anæmia*; to heart failure, that organ being imperfectly nourished by the poor blood; to a blocking of the kidneys with the microbe.

Very nearly the same treatment should be resorted to as interstitial nephritis.

Patient should be well nourished and kept warm.

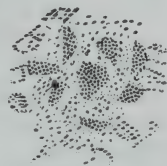
Remedies like digitalis and strophanthus to stiffen up action of heart; mild diuretics, as parsley root, hair-cup moss, asparagus tops, with cream of tartar, to flush the tubules of the kidneys; aided with warm baths and dry heat over the loins.

These, with the strictest attention to the weakened heart, are soon effective in promoting a cure.

Variola, The microbial origin of small-pox is now thoroughly elucidated, and the micrococci variola
 or isolated. The microbe is most abundant in the
Small-Pox. blood, mucous membrane and pustules.

The microbe is pathogenic of the disease, bears cultivation well, and cultures injected, or eaten by animals produce the disease in all its malignancy.

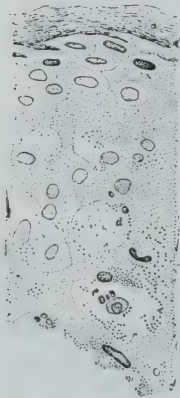
That eminent bacteriologist, Prof. James M. Bunn, M. D., of Altoona, Pa., says that the streptococcus of variola appears under the microscope in the form of cocci, singly, in pairs, and in long or short chains or colonies. They are found in the fresh lymph of human and cow-pox and in the pustules of true small-pox. They are found most numerous in and around the pustules. Successful vaccinations result from artificial cultivations. The micrococci of varicella, variola and confluent small-pox are identical, thus establishing most conclusively that these are but one morbid state, that the microbe is pathogenic of the disease.



The micrococci of small-pox.

Living as we do among distinct races of men, in which every microbial disease is intensified, variola is the great pathogenic and therapeutic question of the day.

The microbe variola can be detected in the atmosphere for fifty feet around an infected person. All within that radius are exposed to it, and it enters their bodies; but in order to take hold and multiply, there must be particular conditions of temperature and chemical media, constituting what is termed receptivity. Just as some seeds will germinate only in presence of certain meteorological conditions and in certain soils, so organic receptivity is requisite, that disease germs be followed by their effects. Once the microbe of variola enters our bodies and produces small-pox, the solids and fluids of our bodies are so altered or modified, that all the essential elements for their further nutrition are used up and never appear again.



Section of skin in small-pox, showing the micrococci seeking the surface for free oxygen.

If the germ of variola enters the human body and finds a medium suitable for its existence, it quickly multiplies, with the celerity peculiar to minute bodies, their marvellous facility of reproduction compensating for their microscopic size. During the twelve days of incubation millions of ova or spores are evolved, so that when the rigors come with the three days of fever, the microphytes, having used up all the oxygenizable material in the body, eager, greedy for more, with air and light, accumulate near the surface; scattered in groups in the skin and mucous membrane, the microbe excites suppurative inflammation, which constitutes "pustulation."

The cause of the fever is the streptococcus variola.

Symptoms.—The period of germination in the blood, or latency or incubation, lasts twelve days, during which time there is languor, lassitude, debility, pain in the head, in the loins, and calves of the legs, with persistent nausea and vomiting, tongue not much coated and white of eye clear, and as early as the ninth day a gritty feel can be detected in the skin. Following these symptoms a rigor and fever for three days, during which time pains in the head, loins, and muscles continue, but nausea and vomiting usually cease. When vomiting is severe, pains in the loins intense, they may be regarded as precursors of a bad attack. Peculiar eruptions of pimples or papulæ appear at the end of the third day of fever, appearing in the following order: first on the face, then on the neck and wrists; secondly, on the trunk, and lastly, on the lower extremities. The papulæ have first a hard, shotty feel, then present vesicles on the summit, which gradually expand laterally to about the diameter of a split pea, are flat or

depressed in the centre. On the eighth day of the eruption an inflammatory areola or circle forms around the vesicles, and their contents become cloudy and then purulent, the vesicles gradually ripen into pustules, suppuration being complete on the ninth day, at which time finer pustules break and crusts or scabs form. In from five to nine days more, longer or shorter, these scabs fall off.

In many instances the rash on the skin is accompanied with a similar one on the mucous membrane of the nose, mouth, throat, eyes, and ears; in others by a swelling and inflammation of the subjacent areolar tissue; occasionally by marked irritation of the nervous system, delirium, and convulsions.

The severity of the disease usually bears a direct relation to quantity of eruption. When pustules are few, and they remain distinct and separate from each other, the disease is not severe; when very numerous, they run together, coalesce, and lose their regularly circumscribed circular form, it is highly dangerous. This has caused a division of small-pox into *variola discreta* and *variola confluent*. Former not near so dangerous as the latter. Eruption on the face may be confluent, while scanty over the body; still if so, the disease is regarded of the confluent kind. Sometimes the pustules are so numerous that they touch each other, but do not coalesce; it is then said to be the *semi-confluent* form. Sometimes they are grouped in circles or clusters, and the name *corymbose* applied. If in either case symptoms of malignancy or putrescence are added, the disease is termed malignant small-pox, a most formidable affection. Occasionally after the early symptoms, as pain in the loins, nausea, vomiting, a rubeoloid or measly eruption, and later minute petechia, which increase in number and size, hemorrhage takes place into the conjunctiva and from the bladder, bowels, etc., and death occurs on the fourth or sixth day; no characteristic rash, only a few scattered papules or vesicles having appeared, it is called hemorrhagic small-pox, which is almost invariably fatal.

The greatest difference between the distinct and confluent form exists from the beginning. All the symptoms in the confluent form are very aggravated, intense, often proving fatal from the blood being surcharged with a living destructive poison. During its course, troublesome complications are likely to arise, as erysipelas, swelling of the glands in the groin and axillæ, phlebitis, ichoræmia, glossitis, pleurisy, pneumonia, ulceration through the cornea, and suppuration of eyes and ears. No contagion so potent as the living germ of small-pox; infection lasts all through the case, from the earliest symptom to a little after the last crust has fallen off. One attack exhausts the suscepti-

bility of the system to future attacks, as a rule. The practice of inoculation with the variolous matter is illegal.

Small-pox is easily recognized by the history of the case, the period of incubation, fever, and rash; in the earliest stage by pain in loins, nausea, vomiting, and a white or clear conjunctiva.

The success of treatment in small-pox depends upon the early recognition of the disease. With our present bactericides, we are not able to break it up, but it can be rendered very mild.

During the twelve days of incubation of the germ, every possible means to allay the irritability of the stomach should be resorted to, as the recumbent posture, stimulants over stomach, peppermint water, and tincture opii, etc. Then select a germicide that will take kindly to the stomach, as either thuja or sulphide of lime, or the bichloride of mercury as follows:

Ry	Aqua distilled,	ʒviii.
	Bicarbonate of soda,	ʒiv.
	Bichloride of hydrargyrum,	grs. ii.

Mix. One teaspoonful every two or three hours. Either of these three agents—thuja, calcium or bichloride—freely given, and elaborated in the blood, renders the soil unfit for the growth of this microbe.

The glycerite of sulphur, with the hydrogen peroxide, has excellent germicidal properties, diffuses itself well through the blood, sterilizes that fluid, combats the invasion of the bacterium of variola.

Push germicides as far as possible all through the stage of germination, and when the rigor comes and the three days of fever preceding the eruption, do not suspend their use, but perseveringly administer them.

When the rigor takes place and fever sets in, it is likely to be very mild if the antiseptic plan has been carried out. After the rigor the patient must be kept in bed, in a well-ventilated room, free from carpets and curtains, and disinfectants freely distributed around the apartment. After his long fast the patient often has a keen appetite, and the diet should be generous—arrow-root, beef essence, milk and lime-water, ripe fruits, warm drinks. Sponging the entire body during the three days of fever with warm mustard water and soda must not be neglected. After rash appears it must be discontinued. *All through an attack of small-pox, from its incipiency to its termination, no cold article of food or drink, such as iced drinks, cream, or ice, should be given or applied to the patient.*

Arterial sedatives, as tincture of aconite, veratrum, and bella-

·donna, one teaspoonful of each to half a tumbler of water, of which a teaspoonful should be given every hour or two.

During the febrile stage it is often advantageous to change the germicide to either lycopodium, ozonized tincture, or to glucozone or salicylate soda in the acetate of ammonia. The physician in attendance will be the best judge. Warm drinks are always indicated; nourishment and stimulants are always of great utility. Tincture of *cimicifuga racemosa* has an excellent effect in all cases. Aromatic sulphuric acid and quinine is a good tonic in all cases.

Much has been written of the bactericide properties of pitcher plant, wild indigo, siegesbeckie, and other vegetable germicides. We might just say that they are of no utility whatever in the destruction of this micrococcus. When the pustules appear, general principles must guide. The germicides should be administered regularly, till every vestige of the disease has disappeared.

With regard to pitting, there can be none, even if that simple *thuja* alone be given. Far less can it take place when such powerful germicides as sulphide of lime, comp. oxygen and glucozone are given.

If the physician is weak in faith in the action of bactericides, he can bear in mind that under darkness or a yellow light the microbe becomes sterilized in the pustules. Hence there is no pitting. If his faith is still weaker, resorcin jelly or ointment applied over the face at once destroys every microbe with which it comes in contact.

As far as practicable, disinfectants should be exposed all round the apartment; and if it were possible to move the patient on his cot to another apartment, sulphur fumigation for an hour will destroy every germ with which it comes in contact.

The factor in small-pox is the germ. The whole aim and object of all treatment is its careful, persistent destruction, and at the same time keep up by every possible means the vital forces of the patient. We must by all means crowd in germicides without offending the stomach. All complications are to be treated on general principles; convulsions, delirium, with bromide of potassa, belladonna; restlessness, with sulphonal. If the throat is seriously implicated, antiseptic gargles of boroglyceride.

We cannot insist too strongly on the imperative necessity of persistent and careful nutrition all through the case; food often, at proper intervals by day and night. Beef-tea, broths, milk food, cream, finely-chopped meat, chicken, game, are most acceptable.

The retrograding action of alcohol on all disease-germs must not be overlooked. This property alone renders it an agent of

infinite value in the form of milk punch. There is no form of fever that bears such an amount of careful nutrition in all forms as small-pox.

Does the modern system of vaccination with the cow-pox lymph sterilize the blood of the recipient? Does it render the soil unsuitable for the growth of the variola microbe? Does it exhaust the pabulum? Most assuredly not.

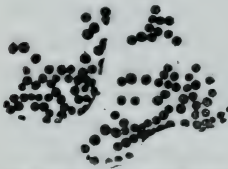
Modern vaccination is productive in creating a deterioration of race, as is seen in widespread neurasthenia and tuberculosis.

Bovine lymph has in it the oidium albicans from foot diseases of the heifer; the bacillus tuberculosis which affects eighty per cent. of all swill-fed and high-bred animals. Actinomyces is more common than what is really known, and all are familiar with the malignant anthrax which is decimating our cattle, polluting our soil.

Does a father or guardian desire to implant in his offspring microbes of disease, factors of crime?

Filaria Sanguinis Hominis.

In all tropical countries where solar heat ranges from 80° to upwards of 100° F., there are to be found in the human blood during night, millions of ova, of a minute, almost structureless, microscopic parasite, which is the embryonic form of the filaria, which requires the action of the



Filaria Sanguinis Hominis in human blood $\times 280$. In this case from 25 to 100 were found in every drop of blood between 6 P. M. and 5 A. M.



Filaria Sanguinis Hominis, taken from a lymphatic in the scrotum.

mosquito to effect a transition in its scale of being, a sexually mature worm.

The mosquito, ever active during the night, feeds upon human blood when those micro-organisms are present; being a greedy feeder it gorges itself, and once in its body grows prodigiously. The nature of the mosquito compels it to seek water, into which it liberates the developed spores of a trematode. Free in the water, especially if it be stagnant, it undergoes further changes, progressing onward in the water, in the human stomach, in its

migration from the gastro-intestinal tract to the lymphatic, where it is found in a mature state, measuring usually about three inches long.

The passage of this micro-organism into the human body is chiefly by the water as a drink, possibly by the skin in bathing or by the bronchial mucous membrane. Once the embryonic worm is within the body, it has a selective power, to seek out the lymph canals as an abiding place. Its aptitude in choosing the lymphatics, or lymph scrotum is remarkable.

Our knowledge of this parasite is very imperfect, so much so that we are unable to give *its* life history, *its* original mode of development, *its* duration of life, *its* habits, *its* power of reproduction, or how myriads do exist in individuals during rest or repose.

The embryonic filaria in the blood is a microscopic parasite, and will remain or die such, unless he finds an entrance into the mosquito, thence into water, and finally into the human stomach and lymph channels.

The mosquito has a peculiar and special affinity for this micro-organism, and will not suck the blood of those in whom they do not abound. The embryonic filaria are not common in the blood of those who lead an out-door life and enjoy the highest possible standard of health.

More is wanting to enlarge our conceptions of the nature of this and other blood parasites.

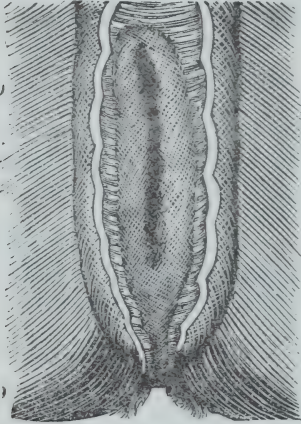
This usually consists of a narrow crack or laceration of the mucous membrane, involving the sphincter muscle at its coccygeal border. It is usually situated at the posterior wall, at the external border of the anus, where skin and mucous membrane meet, but it often extends up or across the internal sphincter, and even into the rectum. As a rule there is only one, but it is not at all uncommon for two or three to exist simultaneously. The great abundance of sentient nerves in and about the sphincters renders it very sensitive, and when fissured, the pain is indescribable; severe, agonizing, persistent, after a defecation; the reflex effect of which is most disastrous to the nerve centres, giving rise to collapse, chorea, epilepsy, nervous disease.

It may occur at any age, in both sexes, but most frequently met with in adult females.

Causes.—Scratches, abrasions, lacerations, due to straining at stool, or to excessive stretching produced by passing dry, hardened fæces, or to fish bones, or cherry stones, polypus, piles,

tumors, diarrhea, discharges, enlarged prostate, prolapsus of uterus and rectum, rectal ulcers, disease germs eating, eroding the tissues, the labor of childbirth.

Symptoms.—There is excruciating, intense, sharp, burning pain, at or subsequent to defecation, with mucus or muco-purulent matter from the anus, but it



A form of deep rectal fissure commencing two-and-a-half inches above the sphincter muscles, usually met with in persons that suffer from nervous bankruptcy, white softening and insanity.

needs to be seen, although the pain is an excellent symptom, being of an agonizing character, very depressing, owing to the fæcal matter lodging in the fissure undergoing chemical changes.

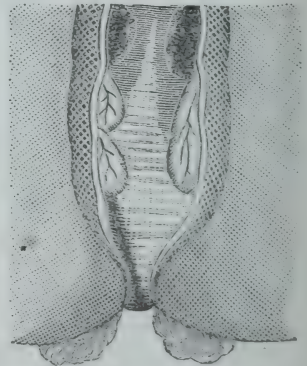
Treatment.—The general health must be improved by every possible means, alteratives and tonics. Among the last the following is invaluable as a rectal tonic: Fl. ext. juglans; fl. ext. Virginia stone crop; fl. ext. collinsonia, equal parts of each. Mix. One teaspoonful three times daily.

The sphincter muscle must be paralyzed by the local application of belladonna ointment, the bowels evacuated by oil. After a thorough movement, wash out rectum with boroglyceride solution, then wipe the parts dry and expose the fissure thoroughly; then sprinkle it all over with iodol or the solution of nitrate of silver, thirty grains to the ounce of water.

By keeping the sphincter thoroughly relaxed; causing copious soft stools with the administration of fl. ext. of juglans, and the introduction of the cocaine suppository, the fissure heals promptly.

Another plan is: after the bowels are evacuated, and the parts cleansed, introduce within the fissure a fragment of lint, soaked in a solution of chloral hydrate, one to fifty. This should be applied every morning. The action of the chloral is antiseptic, stimulates granulation rapidly.

Conium ointment is of great utility in all painful affections of



Piles, complicated with longitudinal fissure, high up as well as low down.

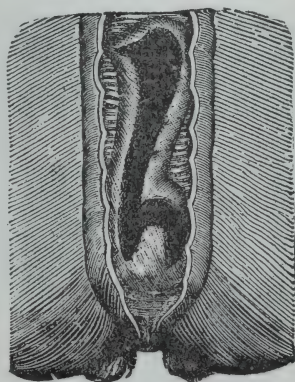
the anus and rectum, but it is especially efficacious in fissure with intolerable itching, severe tēnesmus, with bleeding; it affords marked and speedy relief, after every other remedy has failed.

If the case resists treatment, sphincter irritable, stretching the sphincter muscles is of great utility.

The office of the sphincter ani is to guard the rectum from involuntary discharges of its contents in health; this it does easily, perfectly, without strain or friction. But let disease supervene, ulcer, fissure, fistula, piles—the irritation incidental to which gives rise to thickening; piles are constantly tending to protrusion, ceaselessly warring with the muscle, when fæces are passed, they are either protruded, bruised, painful, or agonizing; whereas in ulcer or fissure the irritation is cumulative.

In order to effect a cure in the majority of cases, it is imperative that the muscle be placed physiologically at rest; to effect this, belladonna is the drug to be applied; and this is not at all times indicated, especially if there is fissure. While stretching the sphincter ani is neither recognized, nor taught, nor appreciated, but scouted as unsurgical, nevertheless, infinite good is to be derived from it in some cases. Digital stretching is the best, never lacerating, but sufficient to destroy its power for a few days until recuperation is effected.

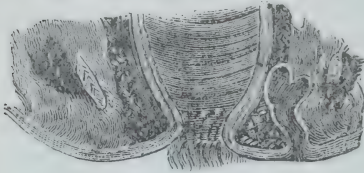
Piles and rectal fissures often co-exist—a good illustration. Fissures running up are best got rid of either by rectal bougies of boroglyceride and resorcin, or stuffing them on alternate days with iodol; the external chronic hæmorrhoidal condition best smoothed down by painting them once a week with a solution of chromic acid. Another excellent remedy is the ozonized distillation of hamamelis virginica; by two thirds of the profession it enjoys absolute precedence over all other drugs.



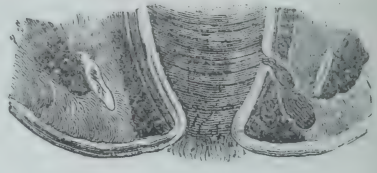
Fissured rectum, the result of the syphilitic microbe, cured by rectal bougies of zooidol.

This term is applied to a sinus or channel existing in the tissues surrounding the anus or rectum. **Fistula in Ano.** Anal fistula is a tube lined with a false membrane, which is a secreting tissue and communicates with a cavity. It is met with in three forms; complete, blind internal, blind external. A complete fistula connects the rectal

cavity with the external skin, by a sinus running outside of or around the sphincters. If the rectal wall be perforated and a sinus extends from the perforation to some point in the tissues, but does not reach the surface, it is called an internal, imperfect



External incomplete fistula



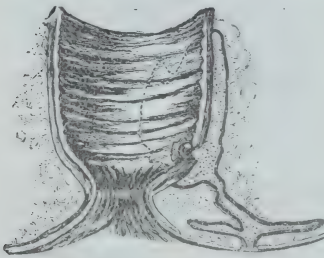
Internal incomplete fistula.

or blind fistula. If the sinus extends from an opening on the outside wall of the rectum, but does not penetrate the rectal wall, it is termed a blind internal.

Causes.—Constipation, which distends the lower portion of the bowel to a great extent, and then a weakened patch gives way, or a piece of hardened fæces, fruit seed, fish bone or some other hard body excites irritation, inflammation, ulceration clean through, or otherwise forming a fistulous ulcer. There may be one or more. Fistula does not necessarily co-exist or depend upon the presence of the tubercular bacilli, but may be caused by a germ-eaten rectum, the microbes eating their way through to the external parts. This is frequently the case in ulceration, due to the bacilli of tubercle, or to the vibrios of the insane.

The external tissues of such patients are soft, non-vital and disease germs perforate readily.

Symptoms.—The external aperture is usually small, and in some cases difficult to find. Generally it is near the anus, although it is not uncommon to find it several inches distant; it may be concealed in a furrow, or it will be found in the centre of a button-like eminence.



Fistula Devetricula.

Complete fistula is most annoying, because gas, intestinal mucus, and fluid fæces pass along the tract, causing external irritation and painful spasmodic contractions of the sphincter. The blind internal is easily detected by the introduction of a blunt probe, which does not penetrate through, the discharge from this is mucus; the blind external gives rise to symptoms nearly analogous to irritable ulcer. By a careful examination with a bent probe the orifice can readily be detected.

Treatment.—Before enumerating our modern method of treatment, which is satisfactory, we will simply enumerate the old methods which have fallen into disuse.

The old orthodox and approved treatment for many years has been to cut through the fistulous opening into the rectum, dividing the sphincter, and permitting it to heal from the bottom, if the patient has vitality enough, otherwise an imperfect or non-union of the sphincters may take place. This cutting may be done with the knife, or crushed by the chain of the *ecraseur*, or by a ligature. Even cutting the false membrane lining the sinus has been resorted to.

Most encouraging success has attended the treatment of this malady, by stimulating, cleansing, germicidal injections into the fistula. Generally we are successful with this method, but once in a great while we meet with a case in which the ligature or knife might be necessary.

Whichever of the methods is deemed best for success should be decided on; but before it is resorted to it is well to improve the patient's health by every possible means with tonics, fresh air, best of diet. The bowels should be cleansed with oil. If the injection method is selected, we append a few formulæ, with which we have had most gratifying success. Before any of those are used, the sinus and rectum should be washed with an antiseptic wash, such as one grain of chloral hydrate to one ounce of water; or one grain of nitrate potassa to two ounces of water; or one grain of bichloride of mercury to four ounces of water; or a few drops of peroxide of hydrogen in water; or a solution of boroglyceride.

After one or other of those washes have been used, the parts dried, then select one of the following formulæ to inject, to destroy the sinus and stimulate effusion of lymph to block up the passage.

Carbolic acid, three drachms; glycerine, one drachm; sperm oil, one-half drachm. Mix. Heat to 300° F., and evaporate to four drachms; then use as below.

Carbolic acid, twenty grains; corrosive sublimate, gr. i.; Monsul's solution, one drachm; glycerine, two drachms. Mix.

Carbolic acid crystals, forty grains; hydrochlorate of cocaine and of morphia, of each respectively, five grains; glycerine, two drachms. Mix.

An excellent radical cure is as follows: First trace fistula with a flexible probe. Wash out the tract with a five per cent. solution of hydrogen peroxide. Then inject a ninety-five-per-cent. solution of carbolic acid, plus an equal quantity of a ten-per-cent. solution of the muriate of cocaine. Draw from ten to fifteen

minims in the syringe. Push the nozzle of the syringe to the depth of the fistula, and then inject slowly as you withdraw the needle. Within two hours afterwards inject a few drops of equal parts of oil of eucalyptus and glycerine. Let the patient rest twenty-four hours. Lock up the bowels for a few days, and the operation is complete.

Fistula in Urethra. Stricture of the urethra, when old, and not got rid of by absorption or electrolysis, is very apt to excite irritation of the urethra and a gleet discharge; the obstruction, however small or large, causes a rebounding upon the prostate, and invariably gives rise to irritation and enlargement of that gland.

In bad cases of stricture a drop of urine is liable to lodge behind the stricture, which will, in time, excite irritation, inflammation, ulceration, and ultimately an opening on the inferior aspect of the penis, through which the urine drops or flows in micturition.

There is really only one successful method of treatment, namely, placing the patient under the influence of an anesthetic, and carefully dissect out the fistulous tract; then forcibly introduce into the urethra, through the stricture, into the bladder, a No. 12 silver catheter; it should be retained for about eight days; the wound should be carefully stitched up.

By the time the catheter is withdrawn both stricture and fistula are usually wiped out and a good cure is the result.

Fistula, Recto-Vaginal. This may originate from a laceration of the perinæum, which extends back through the sphincter muscle of the rectum, which has been stitched up, but left an opening between the vagina and rectum; or it may have arisen from chancre in the vagina perforating through, or from stricture of the lower bowel; foreign bodies; from the introduction of knitting-needles, whalebones, to induce miscarriage, and like conditions.

It is easily recognized by the passage of gas, liquid or solid fæces into the vagina. If very small, and in doubt, empty the bowels from above with castor oil; after it has operated, put patient on her back, knees drawn up, and a crow-bill speculum into the front part of the vagina; have a good light, and the index finger into the bowel, and examine it all over for an orifice. They are seldom high up, and by bulging the rectum with the finger, can be easily seen. If very small, so that a pea would

penetrate through, it can be closed up without an operation if carefully managed. Every second or third day for five or six weeks it can be touched with nitric acid; that is, the edges of the fistula and a little beyond; after it is raw, it will begin and throw out granulations that will effectually block up the orifice. It takes time and care, and while it is going on, the patient must keep bowels very soluble and free from gas, by eating a proper diet. If it fails, or if the opening is large, it should be stitched up. Patient's bowels having been well cleansed out, placed under chloroform on her back, a crow-bill speculum should be inserted, and the part exposed to a good light; its edges should be freely pared, so as to have a good raw surface. If the sore is round, like a three-cent silver piece, it has to be lengthened slightly, to prevent puckering when the stitches are introduced; then sewed up with lead sutures, and the sphincter muscle on both sides of the coccyx must be divided, so that the patient can have no control of the bowels, that gas and solid matter may pass without disturbing the fistula; bowels locked up for ten days with opium; and kept perfectly quiet in bed for two weeks. If the patient is strong and vigorous, all may go well; the cut sphincter may unite; if it does not, the patient is a miserable object all her future life, not being able to hold or have control over her bowels. The original fistula, however, unites perfectly, unless there has been some bungling in the paring of the edges or application of the stitches.

To obviate the cutting of the sphincter muscle of the rectum, tubes have been tried, with partial success.

In all cases the best of nourishment should be given, so that a high standard of health be maintained.

A fistulous opening from the bladder
into the vagina.

Fistula,
Vesico-Vaginal.

Its common cause is the use of instruments during delivery, especially if the bladder has not been emptied. A full or distended bladder, with hurried labor, or with a bad presentation; or a crooked or deformed pelvis, may also give rise to it; and various other like conditions. It is often caused by ladies attempting to commit abortion on themselves by knitting-needles, whalebones. The dribbling of the urine through the orifice, night and day, gives rise to irritation, rawness of the vagina and renders the patient very miserable, and an object of great distress.

It should be treated by getting her into as good health as possible, and then stitching it up; placing her upon her arms and

knees, head down, parts well exposed by two crow-bill speculums, a catheter in the bladder. The edges of the fistula should be well pared, and then stitched up with lead-wire sutures; patient put to bed, and a catheter kept constantly in the bladder. All cases are successful.

Functional Disorders of the Heart.

Reflex or functional disorders are extremely common, and embrace many of the principal organs of the body.

We have selected two as an illustration of them all.

Functional disorders of the heart are usually brought about in this way: the reflex centre, medulla oblongata, is weak from some cause or other, so are the various nerves that supply the heart. With a weakened bulb, any irritation in the body, such as worms, neuralgia, uterine irritation, or irritation of clitoris, penis, kidneys, bladder, stomach, liver, will be easily and promptly transmitted to the centre, from thence to the heart, giving rise to this functional disturbance; nervous exhaustion, over-study, anxiety, sexual excesses, weaken the nervous centre. Tobacco, tea, whiskey not only enfeeble the reflex centre, but devitalize the heart. Gout, rheumatism, syphilis, mercury, act on the weakened cardiac nerves, circulating through them, poisoning them.

Symptoms.—In the so-called functional derangement, we may have every symptom of organic disease, irregular pulse, palpitation, fluttering, with a cardiac murmur and subcutaneous anæmia, in anæmic subjects. Dull, weary ache over region of heart; occasionally sharp, lancinating, catching pain; inability to lie on the affected side, owing to tenderness; very great mental depression; often dyspepsia, with heart-burn, flatulence, and eructations of gas or acid secretions; vertigo, faintness, noises in ears, specks or spots before the eyes, flushing of face, violent palpitations, with pulsations in aorta. In women with uterine or ovarian trouble, or young men addicted to masturbation, smothering, difficulty of breathing, globus hystericus.

Treatment.—Cases of this kind require fine judgment, long experience and keen observation. Symptoms must be relieved, for they are real, not imaginary, until the cause can be reached. If patient is intelligent, his case should be fully explained to him. He must be told his nerve centres are feeble from some cause or other; that his cardiac nerves have lost their tone; that there is an irritation carried to the weakened, but now highly impressible bulb, thence transmitted to the heart; or that the nerves of the heart are starved from poor, or poisoned by bad blood. Once the cause can be removed there is usually

little difficulty in the case, but that must be done. Investigations as to them embrace not a cursory but careful examination of lungs, stomach, liver, bowels, kidneys, genito-urinary organs, skin, blood, for irritation or disease; and if no cause can be found, the case should be treated with alteratives and tonics, with irritating plaster over region of heart, and treatment persevered with for months. At the same time every means should be adopted to invigorate the nerve centres with cinchona, avena, matricura, kephaline, coca wine.

Functional Disorders of the Liver.

The terms biliousness and torpid liver are very common, and are applied to a variety of symptoms, such as constipation, sallow and itching skin, dark urine, headaches, lassitude, furred tongue, bitter taste in mouth.

Functional derangement of the liver may be due to structural disease, as chronic inflammation; abscess, acute yellow atrophy, gastric and intestinal dyspepsia, atony of the bowels, organic disease of the heart, lungs, kidneys, to syphilis, tuberculosis, malaria, to a faulty diet, too much hydrocarbon, ale, beer, sedentary habits, a deficient supply of oxygen, insanitary state, breathing sewer and other deleterious gases; poor ventilation, anxiety, prolonged mental labor.

The prominent symptoms which attract attention are anorexia, a bitter taste in the mouth due to taurocholic acid in the blood; flatulency, acidity, pyrosis. The tongue is large, pale, flabby, with indentations of the teeth along its edges. It may be white, with elongated papillæ.

The fæces are pale, unless they have remained a long time in the large bowel, when they are blackish. Constipation and diarrhœa may alternate; hæmorrhoids very common. There is often a weight, fulness, tightness, burning, or even a sense of actual pain over the liver. There may be obesity, but emaciation is liable to take place from deficient production of bile, or from disarrangement of the glycogenic function of the liver.

Bile may saturate the textures of the body, and yet fail to poison, so long as the kidneys are active. A torpid liver, with obstinate constipation, gives rise to a deficient elimination of cholesterin; lithiats and pigmented bodies in the urine are signs of a dormant liver, and the diathesis lithæmia is usually an antecedent state.

Renal derangements may be the result of hepatic trouble, and in this way liver disturbance gives rise to congestion of the kidneys.

After the function of the liver has been interfered with for some time, its granular structure is liable to become diseased. Amyloid and fatty degeneration is the most common. Senile decay, calcareous, atheromatous arterial changes follow next in order. The lactic and butyric are next, due to the non-destruction of fibrine in the liver.

This modern liver torpor seriously impairs the energies of life. It dwarfs ambition, creates debility, gives rise to pains in the right side, and not infrequently is the cause of numerous diseases, as sciatica, lumbago, vertigo, headache, muscæ volitantes, melancholia, insomnia, hypochondriasis, irritable temper, moodiness. It often gives rise to functional disorders of the heart, a variety of skin affections.

The treatment consists in regulating the diet. Forbid the use of all starchy or saccharine food; also all wines and malt liquors. Recommend fresh air, moderate exercise, attention to daily alkaline bathing, and abandonment of all severe mental strain.

The bowels should be kept freely opened. Alkalies, as the phosphate of soda, are always of service.

The remedies of real value are those which act directly on the liver. *Chionanthus virg.* is the most efficacious drug in functional hepatic disturbance. It increases the biliary secretions; it influences the disintegration of albumen, and thus relieves a weak or overworked organ. *Apocynum*, *podophyllum* and *taraxacum* make a good liver stimulant.

The use of iron, mineral acids, narcotics is contra-indicated.

In speaking of disease germs, it is not necessary
Germ to describe the origin, the growth, the development
Disease. of the human species; neither is it requisite to delineate the process of nutrition, mode of propagation, maturation from the most simple element, *a cell*, up to the most complex and perfect bodies, nor the ingestion and digestion of food in the stomach, bowels, and its elevation into a vitalizing fluid by the lymph canals and pink marrow of the bones—the *blood*, which is the life, a complex liquid that nourishes brain, bone, muscle, gland—a fluid in which infinitesimally flows the sparkling, vivifying elements of the soul. In other words, it is not necessary to describe the process of *evolution*, but sufficient it is to say that evolution is simply an ascending development in a particular order—the passage from the least, the lowest, to the most highly organized; from the most simple to the most complex; from the infinitesimal to the giant species; from a simple cell to the climax of brain development in man's sympha-

thetic ganglia. It is a *positive* process by which the body is built up, put together or constructed; the *negative* process is dissolution, one of undevelopment, of taking to pieces, when the organized, the complex, fall asunder, come back to simple original elements.

Man originates in a simple cell or germ, and this body, when of sufficient vitality, with a favorable location, evolves, grows, aggregates from its surroundings, and becomes the most complex and highly organized of all created beings—reaches the highest level, the top layer of *evolution*. Partial or complete *dissolution* is downwards, retrogressive; it is a process of change, of alteration, of living matter resuming its most simple form, and in this process of dissolution normal living matter is changed, altered into disease germs.

Disease may be defined to be any deviation from health, a partial death or dissolution—a state or condition in which there invariably takes place a degradation of the bioplasm of the blood of some special tissue or gland. Thus, for example, if the shock affects the nervous system—say grief, worry, anxiety—the matter concerned in the nutrition of the great sympathetic will be degraded into the disease germ, the *vibrios*, and there will probably be typhoid fever or neurasthenia; if the organs of digestion are impaired or damaged, the nutritive elements concerned in its nutrition are degraded into the disease germ *bacteria*; if the lining membrane of the nose is depressed by colds or otherwise, the nutritive elements concerned in its repair or construction are degraded into the disease germ, the *amœba*. The degradation may be local, but its pristine seat is in the blood—a fluid in which flows the sparkling, vitalizing elements of our being.

There can be no dissolution without *pain*, without altered secretion, without *disease germs* being present. Pain, by whatever name it is called, indicates a deficiency of life, a partial death, with its changed secretion and disease germs, calls for remedies to promote a renewal; *pain* is nature's cry for more stimulus, more pabulum. It disappears the moment a renewal is established. So long as *pain* exists colonies of disease germs are being formed or evolved, which are important factors in disease, being the degraded living elements of special nutrition. *Pain*, even a neurosis, an increased sensibility, whenever and wherever it exists, exhibits a deficiency of life and the presence of disease germs. *Pain* follows; nay, is an integer, a factor, in over-work, exhaustion, enfeebled brain, deficient vitality, disease. As a result, the mechanism of the human body is deranged, the appetite leaves; tongue coats, becomes bulky, dry, indented;

complexion muddy; countenance has the stamp of suffering, of mental depression; urine deposit lithates; the stomach, liver, kidneys work feebly, and the individual feels wretched; jaundiced in all his acts, thoughts, because he is clogged up with disease germs.

True, persons highly and finely organized, feel pain more keenly, more acutely than those of a lower organization; the higher the development, the less reserve of vital force, the less the resistance, the more the susceptibility, and less the capacity to bear it. No standard can be laid down as to the degree of pain. Men and women are variously organized and experience it differently.

Disease germs may be thus defined: "The blood contains every element, when properly supplied with food, for the proper nourishment of every tissue in the body, as brain, bone, muscle, gland; here all find their primary elements of nutrition. If the inherent, innate, vital force, that presides over the evolution of each be degraded by any condition adverse to healthy evolution or normal health, those primary elements become degraded into disease germs."

Disease germs then consist in the degradation or change or alteration of the primary elements in the blood, into other living matter which is capable of independent existence, noxious, with prodigious power of reproduction if vital force is low, and if much shattered may destroy the individual in whom they are evolved or from whom the degradation springs, or of being carried from the seat of evolution and communicated by contagion and infection.

The diseases of this class are very variable, being often different in one race from another, modified by soil and climate, but in all cases giving rise to epidemics, as plague, cholera, small-pox, diphtheria, catarrh, fevers, hooping cough, cancer, syphilis, tuberculosis. Thus disease germs in their varied forms and aspects, influence the fate of individuals, of cities and empires; they decimate armies, infest the habitations of the poor in our sewage-sodden cities and are direfully fatal to all in feeble health, with insanitary surroundings. They are emphatically the scourges of mankind.

The question how microbes act in disease has long been in doubt, but the progress of science tends to clear away obscurity. The first idea was that they were the factors of disease, that when they were evolved or taken in that they acted like parasites, lived upon the blood and tissues of their host. No doubt this is the case to a certain extent, that they swarm in the blood, abstract from the red corpuscles the oxygen they require for their nutrition.

It often happens that death is so rapid that the bacilli have not time to develop in the blood in sufficient numbers to produce fatal results, such as in tetanus, anthrax, rabies, in cholera; in the latter especially, death often takes place before the comma-bacillus enters the blood.

An explanation of this state of things is necessary.

It is this: all disease germs excrete or eliminate in their growth and development a poisonous substance, resembling snake venom, an alkaloid, the ultimate product of putrid fermentation of organic matter, an alkaloid termed *ptomaines*. The presence of this toxical principle is a natural excretion of all microbes, in the blood, intestines, brain, stomach, etc., gives rise to debility, rigors, fever, pain in sentient nerves, vomiting, diarrhea, hectic, delirium, spasm, collapse.

Poisoning by tainted meat, fish, milk, wool, water, is due to the presence of ptomaines.

The chief action of all pathogenic microbes, of the most harmless as well as the most dangerous class, is due to their excretion (in some part of the body) of the ptomaines. This explains the speedy death in snake bite, tetanus, rabies, and cholera; so rapid, so sudden, that the germ has simply localized, never entered the blood. Although the germ has not been absorbed by the intestinal mucous membrane, and carried into the blood, the poisonous alkaloid or ptomaine which it excretes, is certainly present, and it is to its presence that the symptoms must be ascribed.

This alkaloid has been extracted from the fæces.

The action of pathogenic microbes on and in the human body is complex, and may be thus stated. The action of the germ, the factor of morbid action, which is nourished at the expense of the blood; the formation and excretion by this same germ of a ptomaine, a highly poisonous alkaloid, which acts on the system as an annihilator of vital force.

A *ptomaine* is a chemical compound which is basic in its character, formed either during the putrefaction of animal and vegetable matter, or is an excretion from disease germs, some of which are not very poisonous, whereas others are so highly toxic that they will destroy life almost immediately.

Ptomaines are formed in the death of matter, in the transition; in the activity of bacterial life, which is present when structures are passing from the organic to the inorganic; they are formed in all microbial diseases as an excretion of the germ; they are pure alkaloids, and differ in their poisonous qualities, according to the nature and character of the germ which gave them birth.

Whereas *Leucomaines* are altogether different, being a basic substance found in the living tissues, either as the product of fer-

mentative changes or of destructive metamorphosis—all basic substances found in animal tissue during normal life. The term is used in contradistinction to the ptomaine, the basic alkaloid of putrefaction.

The leucomaines embrace two groups of waste, *uric acid* and *creatinine*.

The excretions of all living things, plants and animals are poisonous to the organisms which secrete them. These poisons are formed within the body; they originate in the changes by which the complex organism is split up into simpler compounds, urea, ammonia, water, carbonic acid gas. It matters little how these changes are effected by organized ferments, germs, or by the unorganized ferments of the gastric juices, or by unknown agencies, which will induce metabolic changes in all the tissues; in all cases poisons are formed.

At all times, but especially in warm weather, there is a profusion of both vegetable and animal germs in the atmosphere, of which even the most virulent or active cannot find ingress to the blood through the bronchial mucous membrane; but let the mouth be open, they find ingress there. The human mouth is an excellent culture apparatus, in which too frequently do the broods of microbes enter; for there they find heat, moisture, nutrient fluids, naturally provided for their nourishment and growth. Besides, the mouth is really the receptive focus, by or through which all disease germs enter the body; but if there is a lesion, even infinitesimal in its character, they merge in freely. If a few germs enter, they are apt to perish in the blood, but when a large mass enter, the vitality of the blood has not the power to destroy them.

Besides disease germs, the degradation of the primary elements of our own bodies, we are liable to take into our blood a giant form from animals, most malignant, such as anthrax, rabies, glanders.

The vegetable kingdom also furnishes elements, microbes in themselves, which enter the human blood, produce microbic changes, such as malaria, yellow fever. The degraded bioplasm of fruits, cereals, as borne by the wind or dew drops, give rise to fearful ravages.

Races are distinct and antagonistic to each other, so are the degradations of living matter into disease germs as distinct as the body in which they originated. The origin of disease in the Negro, Mongolian, etc., are dependent on the same condition as the Caucasian, but the germs are more active, virulent, if they are passed into an antagonistic race.

Not infrequently are animals and plants similarly affected; all

the result of a deterioration of original histogenetic elements. Besides, a special degradation in our own bodies, and that of animals and plants, "*disease germs*" may come into our bodies from other persons, or from animals, or from plants, if our vital force is weakened in any way, as that condition only permits of the ingress of disease germs from any source.

Germ diseases are more common in our country than in any other, mainly on account of the high development of the people, their less reserve of vital force, the necessities of a rising civilization, mixed races living in proximity, mingling with antagonistic races, our intensely oxygenized atmosphere, our sudden extremes of heat and cold, the mental strain or struggle, or worry, etc. The mortality from germ diseases is enormous, especially at the present time.

There is a special degradation of living matter corresponding to each disease. The practical difference in the evolution of those germs turn chiefly upon the amount, kind, degree, quality of expenditures of mental or physical force. Enervation, decrepitude, altered nutrition of various parts of the body follow a prodigal waste of the mental or corporeal energies. The quantum of germ diseases, contagious maladies, falling to our lot as a nation is in direct proportion to the demand upon the tissues, the character of the food, housing, clothing, and absence of sewage.

Taken in the order of their greatest fatality, "germ diseases" arrange themselves thus: Tuberculosis, typhoid and scarlet fevers. Small-pox, hooping-cough, measles, croup, diphtheria, dysentery, erysipelas are the most common.

Germ diseases vary with the density of population, the character of races, location, sewage. Certain trades are very deteriorating; whereas others are remarkable for their healthiness. Life is longer, the freedom from care, worry, excitement; the better the food and clothing, the fresher the air, the more salubrious and cleanly the house, the less the confinement.

Animals and plants, when their vital elements are deteriorated by adverse conditions, have also their vital elements of nutrition degraded into "disease germs," as anthrax or cattle plague among cows is simply a degradation of primary elements into a giant disease germ called bacillus anthrax; and the foot disease of the same animals is analogous to the grape and potato rot, both being identical with the disease germ *oidium albicans* in the human race. Again, glanders or epizooty (in which we find the giant amœba) is analogous to the amœba of nasal catarrh.

Every deviation from health, every disease, has its special degradation, its own disease germ, and all are contagious and infectious. As, for example, when nerve nutrition is damaged

there is a special degradation or alteration of neurine into the *disease germ vibrios*, the germ of typhoid fever and all nervous diseases. When the elementary matter concerned in the nutrition of the air-passages is degraded by adverse conditions we have the *amœba*, the disease germ of catarrh, chronic laryngitis, eustachian deafness, asthma, bronchitis; when the fundamental elements of nutrition are perverted we have the *bacteria*, the germ of boils, erysipelas, wounds, etc. If the elements concerned in the nutrition of the sexual organs are degraded by promiscuous coition, the syphilitic germ is evolved; if the typical fissures of the brain are partially or completely obliterated by consanguinity, sameness, isolation, solitariness, reflex irritation or disease, the *tubercular germ* or bacilli are evolved; if the vital forces are terribly shattered, a dilapidation, a sterility of vital elements, there may be a rot, and the *oidium albicans* is evolved, and so with other diseases.

The discovery of these and other disease germs has done much to alleviate human suffering, prolong human life. It has created a new system of medicine, a new cure, founded on the presence of disease germs in the blood and the employment of antiseptics in the treatment—a class of remedies to kill the germ, which at the same time tone, invigorate, elevate the standard of vital force, and thus prevent further degradation, which enter the blood, and coming in direct contact with the germ, annihilate it, without in the least diminishing the vitality of the patient.

Bacteriology has completely revolutionized the practice of medicine and the treatment of all diseases. What are bacteria or microbes? simply either the degraded bioplasm of our own or others' bodies, or of animals, or vegetable cells, the lowest forms of existence. All bacteria possess constancy of form, marking its complete development.

All bacteria have a cell wall and cell contents, and multiply or reproduce themselves by division or by the formation of spores. The spores are surrounded by a thicker and stronger cell wall than the bacteria from which they spring, they are consequently more vigorous than the original bacteria; can withstand much greater extremes of heat and cold or vicissitudes of atmospheric influences.

In a favorable environment, carefully nurtured, in a proper nutrient material, they grow and multiply with great rapidity, and if introduced into any animal will reproduce the disease to which they are the factor, and in their process of development, in the vital process so resulting, they excrete a chemical product, an alkaloid (a ptomaine), which in the living organism occasions

pathological changes, characteristic of infectious diseases, and which are antagonistic to the life of the microbes themselves and any vital fluid or tissue with which they come in contact.

These micro-organisms are cellulose, round globular (*micrococci*); short rods (*bacteria*); long rods (*bacilli*); spherical, twisted (*spirilla*).

The atmosphere, water, and even some articles of food, contain both animal and vegetable germs, even the mineral world in which we have the debris of perished creatures.

From the vegetable world we have micrococci, bacilli and other forms of the great family of bacteria, spores of other fungi, pollen, seed, parts of flowers. The air of cities is rich in microbes of all diseases, from their sewage-laden emanations.

The determination of the thermal death point of disease germs has a very important bearing in prophylactic medicine and curative therapeutics.

The following table exhibits the death point of a few of the microbial factors of disease :

Organism.	Thermal Death Point, Fahr.
Bacillus of typhoid fever	132°
Cholera-spirillum (comma-bacillus)	125.6°
Cholera-spirillum	125.6°
Cholera-bacillus	143.6°
Anthrax-bacillus (without spores)	129.2°
Tubercle-bacillus in fresh sputum	212°
Bacillus of glanders	131°
Bacillus of tubercle }	140°
Bacillus of cancer }	
Bacillus of syphilis }	
Bacillus from feces	143.6°
Bacillus of green pus	132.8°
Bacillus of so-called pneumococcus	136.4°
Bacillus of foul blood	212°
Staphylococcus pyogenes aureus	136.4°
Staphylococcus pyogenes citreus	143.6°
Staphylococcus pyogenes albus	143.6°
Micrococcus of osteomyelitis	136.4°
(Identical with Staph. aureus)	
Streptococcus of erys pelas.	129.2°
Micrococcus tetragon s	140°
Bacillus variola	212°

The spores of all disease germs require a heat nearly fifty per cent. greater to kill, than the mother germ itself; ptomaines, the excretion of microbes, correspond chemically and pathologically with the cadaveric alkaloids, which are indestructible by any known heat, or process of calorification.

The germ theory of disease has, and is producing a complete revolution in the treatment; it has created a new system of medi-

cine, a new cure founded on the presence of disease germs and their excreta ptomaines in the blood, and the introduction into the materia medica of a class of remedies called germicides.

Bactericides are a series of valuable antiseptics and disinfectants now becoming of very general use by the highest scientific authorities for the purpose of exerting a detrimental influence on the evolution, growth, and multiplication of disease germs, in either sterilizing or killing them.

In order that the remedy be pronounced a germicide, it is necessary to bring it in direct contact with the disease germ for a definite period of time, then remove the germ to a suitable nourishing medium; if the germs refuse to grow, the conclusion is, that the exposure has either injured, sterilized or destroyed its life.

While thus testing whether the remedy be a germicide or not, we must bear in mind that *Pathogenic Microbes* do not thrive in an acid medium, neither do they grow well unless there be some degree of warmth about blood heat; a very high heat kills all germs and parasites.

In the case of pathogenic microbes, all remedies are to be pronounced germicides which have the power, when they are exposed or brought in contact with the micro-organism, of perfectly annihilating them.

Pathogenic Microbes * either in the human blood or in a suitable nutrient fluid, acted on by a germicide, are incapable of producing the disease, which the same organism, unexposed to the substance in question, does produce.

A perfect germicide then must be capable not merely of destroying the micro-organisms and their spores, but also of destroying by chemical oxidation the toxic products which they are capable of producing.

The great scavenger of diseased blood is ozone.

Ozone exists in the atmosphere and is liberated by friction, it is manufactured in the laboratory of the chemist in a method analogous to that of respiration. This, then, is nature's antiseptic or germicide, the presence of ozone wards off all contagious and infectious diseases, it vitalizes all animated nature; without it there is no higher life, without ozonized phosphorus there is no thought, no longings after immortality.

* *Pathogenic Microbes*.—The pathogenic microbes are those which are capable of generating disease; and the evidence on which their disease-producing powers rest is, it must be admitted, sufficiently satisfactory, for no microbe is regarded as the cause of a disease unless it is, in the first place, found to be constantly present in that disease, either in the blood or in the tissues; secondly, unless when carefully isolated and cultivated, it can, when introduced into the body of a healthy animal, give rise to the original disease, and be again found in quantity in the body.

Ozone, then, chemically pure and in an assimilated form, is the most important agent in nature and in medicine. When introduced into the human body it does its work efficiently as a scavenger to diseased blood, it also vitalizes the healthy corpuscle and tissue, it kills disease germs and eliminates them when dead from the body; thus the important factor in disease is destroyed and rendered innocuous.

All the eminent medical men of this age and country attest the surprising virtues of the ozone preparations, and it is only a question of time as to its general utilization by the profession. It is of the greatest utility in all diseases to which flesh is heir to; good in all maladies, acute and chronic, when disease germs are lurking in the blood. We have many and numerous agents that are active germicides, but none so intrinsically valuable as C. P. ozone.

It is a scandal to our civilization if, with a proper knowledge of the uses of ozone, typhoid fever, scarlet fever, diphtheria, small-pox are permitted to remain the scourge of our day, the terror of any parent, and allowed to run their course by successive inoculations or infections from child to child, from man to man, when our increased knowledge teaches us that here we have an agent able to control and destroy any principle of contagion, every disease germ in any location.

Microbes differ greatly in their chemical composition, and in their toxical effects upon the nervous system, and the germicide, organic or inorganic, which is prescribed for their complete annihilation, must meet the requirements of a positive strength so that when it comes in contact with the organisms, they ever afterwards are incapable of growing or multiplying, even their very existence is wiped out.

Some germicides have a special affinity or chemical attraction to certain pathogenic microbes, and will unite with them more readily, combine with them and destroy them, than others.

Witness how silently, how efficiently the glycerite of ozone, when administered in pulmonary tuberculosis, annihilates the tubercle bacilli; and if additional degradation of bioplasm could only be prevented, how rapid the cure.

See the utter annihilation of the streptococcus, *oidium albicans* of diphtheric, the spherical and cylindrical masses making up the diphtheric membrane, the micrococci in the blood and every gland, and the pathogenic microbe of scarlet fever, if the ozonized glycerite of sulphur be freely administered.

The microbe *variola* in or out of the body refuses to grow in the presence of *thuja occidentalis*. Such germicides kill the germ and eradicate all ideas of contagion and infection.

The comma-bacillus of cholera will not grow in the presence of lobelia, resorcin, lactic acid, ozone water, peroxide of hydrogen.

The cancer germ, of all microbes is undoubtedly the most difficult to reach by a germicide, although the practical experience of a half of the members of our profession in America clearly demonstrates that the prolonged use of Chian turpentine mixture effectually kills it in the blood and also in the tumor. Administer the glycerite of wintergreen in acute rheumatism, fever ceases, all its symptoms disappear, because the microbe, its factor, is killed. Brush over a diphtheric patch or colony with the ozonized distillation of jequirity and the *oidium albicans* die; sprinkle or dust or apply in capsule, the ozonized powdered jequirity to an ulcerated neck of the uterus, and the entire brood of bacteria will peel or shell off in the form of a false membrane, leaving normal tissue unaffected. When the bacteria of erysipelas migrate to the skin for free oxygen, if a saturated solution of boroglyceride be applied and kept wet, they entirely disappear.

Witness the extraordinary action of sambul on the sugar fungus of diabetes; if administered it thoroughly annihilates it; the result is, the languor, debility, chloroform breath disappear; every function, appetite, excretion, becomes normal, and the affected individual, with deranged chemical centre in his brain, assumes a new lease of life.

Old physicians can scarcely realize the fact that the addition of resorcin to syrup of tolu, and administered in whooping cough, will cause the mycelia to disappear from the breath and blood, that morbid action will cease; or that resorcin jelly applied over extensive burns, will kill the bacteria; or over the abdomen in peritonitis, inflammatory action ceases the moment the microbe is destroyed.

Bring ichthyol close to any vegetable cutaneous parasites, they immediately die. The germicide calculated to do the work most efficiently should be selected; sometimes it is advisable to use one and sometimes another. The one best suited to the purpose is one which will retain the largest amount of positive or negative ozone, without causing the decomposition of the remedy, most of all the ozonized remedies contain from five to ten volumes of C. P. ozone, so that they are capable of yielding when taken on the stomach five times their own volume of nascent oxygen. They are all available for internal administration.

The more general use of ozonized remedies exhibits a more rapid cure of a class of diseases hitherto deemed incurable, and a greatly diminished mortality among all contagious and infectious diseases.

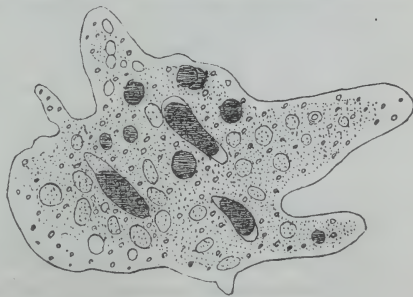
The following table of bactericides is prepared from the most careful experiments. One part in thirty will annihilate the bacteria. The highest or germicide of greatest potency at top, weakening as you descend the scale :

Peroxide of hydrogen.	Wild indigo infusion.	Oil of erigeron.
Corrosive sublimate.	Glucozone.	Oil of sassafras.
Sulphurous acid.	Arsenic solutions.	Oil of fennel.
Boroglyceride.	Glycerite sulphur.	C. P. ozone.
Chloride of lime.	Glycerite ozone.	Siegesbeckie.
Bisulphate of lime.	Glycerite wintergreen.	Essence mustard.
Chlorine.	Glycerite kephaline.	Pinol.
Iodine and bromine.	Bisulphate of carbon.	Ichthyol.
Chloride of zinc.	Con. ozone.	Creolin.
Menthol.	Resorcin.	Sambuï.
Thymol.	Solol.	Iodol.
Benzoate soda.	Chian turpentine.	Thallin.
Creosote.	Naphthaline.	Hydrocotyle.
Benzoic acid.	Quinine.	Arbor vita.
Methyl salicylic acid.	Camphor.	Saccharin.
Salicylic acid,	Ozone water.	Comp. oxygen.
Eucalyptol.	Alcohol.	Liquid ozone.
Sodium salicylate.	Oil of rue.	Chloride of carbon.
Carbolic acid.	Oil of thyme.	Simabicia.
Oil cloves.	Oil of peppermint.	Distillation of jequirity.
Chloral hydrate.	Oil of turpentine.	Distillation of witch hazel.
Permanganate potass.		


The above list, classified in the order of their activity. Each of the above, as a remedy, has more or less affinity for a special microbe, the factor of some special disease.

The dose of a germicide must in all cases be innocuous to the tissue of the body, and still must be sufficient to either arrest their multiplication or sterilize, or destroy them.

Amœbæ. This microscopical vegetable organism, which we find present in all cases of nasal catarrh, ozæna, eustachian deafness, ulcerated sore throat, chronic laryngitis, bronchitis, incipient tuberculosis, has a most wonderful tenacity of life, difficult to sterilize or destroy. Nasal catarrh and its kindred affections are predisposed to by the presence of the microbe of syphilis, the bacillus of tubercle and other disease creating organisms in the blood, but the active exciting microbial factor of nasal catarrh is the amœba, which is pathogenic of the disease; bears cul-

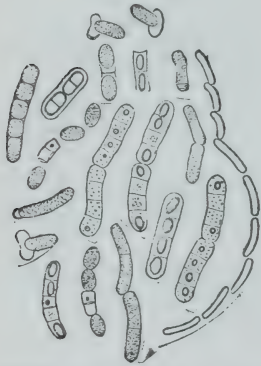


The amœba of nasal catarrh.

ture well in any nutrient fluid; the inoculation of the cultures into animals produces the disease. The amœba looks like , breed by fusion, distension of their cellulose walls, and a shedding off of their embryonic broods, they are aerobic, take a thermal heat of over 212° F. to destroy them.

This microbe is sterilized in the presence of ozone et chlorine, boroglyceride, resorcin, creolin, peroxide of hydrogen, myrtol, glucozone.

A general term once applied to all disease germs, but now restricted to that present on the tongue in malassimilation, or disordered states of the stomach. It is identical with the *bacillus megatherium*, which is found on spoiled vegetables. It consists of large rods, like



The Bacteria—the degraded bioplasm of nutrition, magnified 600 diameters, in an active state of growth and nutrition. Spore formation is seen beginning in a single cell, spreading in link-like sausages, which vegetate and divide. These protoplasmic bodies are surrounded by a cell wall or cellulose membrane so thin that they are virtually naked; they move either by rotation or oscillation. Present in erysipelas, boil, gastric fever.

small sausages, four or five times longer than wide, usually somewhat curved. Transverse division occurs, each segment attaining the length of the original rod. When fresh, they appear non-articulated, but when treated with alcohol, they are seen to be composed of segments. The rods are motile, and form irregular chains of a disjointed appearance.

They are pathogenic of malassimilation, bear cultivation well on nutrient agar and nutrient gelatine. Cultures injected into animals produce profound malnutrition; tongue coating heavily. Spore formation in the usual manner. If not sterilized or annihilated, it becomes an exuberant breeder, giving rise to colic.

This microbe bacteria is the most common of all disease germs, being the degraded bioplasm of normal nutrition in man and plants, changed or altered under some adverse state. It is found in all deranged states of the alimentary canal in wounds, ulcers, and all breaches of continuity.

Like all other disease germs, it has marvellous powers of reproduction under favorable conditions.

It is either sterilized or annihilated in the presence of eucalyptol, Warburg's tincture, matricaria, sulphur water, peroxide of hydrogen, and other bactericides.

**Bacteria
Pneumonica**

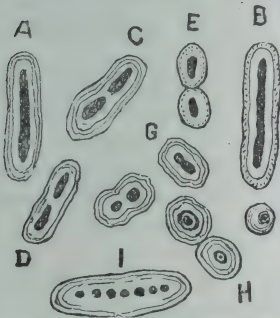
consist of short, thick rods, almost elliptical cells; often two to four linked together, forming dark granular colonies.

The lanceolate diplococcus represents the only pathogenic microbe or virus of genuine primary pneumonia. During the first three or four days of the disease the diplococcus is present in the patient's sputa in an almost pure cultivation; but later on there may be found, side by side with it, either the *amœba subtilis*, or sometimes various pyogenic micro-organisms, such as *staphylococcus aureus et albus*, *bacillus of green pus*, *streptococcus*, etc. The lanceolate coccus, however, is invariably detected in such enormous masses that a pneumonic sputum cannot possibly be mistaken for that of any other kind—bronchitic, etc. Still, in view of the fact that the *staphylococci*, *micrococcus tetragenis*, and such like microbes may stimulate to a certain degree the pneumonic cocci, the differential diagnosis in question should be always settled by means of plate preparations and cultivation

experiments, in addition to a microscopic examination. The diplococcus loses its virulence and vitality with characteristic rapidity, both in the patient's system and on artificial nutritive media. In the former case it becomes less and less virulent day by day, to perish altogether just after the crisis. In artificial media kept at 37° C. the microbe loses its vitality in a week; in that at 40° or 40.50° C., even in a few days. However, when the medium is daily renewed, and invariably kept at 32° C., the coccus may survive about three weeks. In lower animals, on inoculation of its pure cultures obtained from the sputa or pulmonary juice (in cases ending fatally before the crisis), the diplococcus gives rise to a typical fibrinous pneumonia. We strenuously insist that a bacterioscopic examination of the patient's sputa



Micrococci of the pathogenic; microbe of the pneumococcus seen in different stages of growth in the prune juice of the sputum prior to the rigor.



Perfect adult form of the pneumococcus magnified 2000 diameters; A and B, thread forms; C, D and E, rod forms; G, diplococci; H, cocci; I, streptococci. The pneumococcus consist of cocci, ellipsoidal or round, single or in pairs (diplococci), rods and thread forms, all enclosed in a cell membrane or gelatinous capsule.

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should be undertaken; possibly early. The latter should be collected always after a preceding thorough disinfection of the oral cavity.

The microbe is pathogenic of pneumonia; grows vigorously in blood serum or beef juice. Cultures injected into any animal will give rise to the disease. The microbe is most abundant in the prune juice sputum, from which it is easily isolated.

The microbe is either sterilized or annihilated by inhalations of comp. oxygen, peroxide of hydrogen, glucozone, etc.; locally by concentrated ozone and chloroform over the microbial-smitten lung, followed by linseed-meal poultices and resorcin jelly.

Germicides internally, peroxide of hydrogen, alternated with liquor ammonia acetatis and sulphate of quinine; Warburg's tincture, antifebrine, resorcin, creolin.

Jaborandi, administered before microbes form a colony (red hepatization), will cause the micro-organism to leave the lungs for the skin; later on, no good.

The microbe excretes ptomaines freely, the alkaloid being productive of embolism, and cardiac and intestinal paralysis.

The microbe of all warts, *contagium vivum*, a
Bacterium minute germ.

Porri. Bears culture well in any warm nutrient liquid (is pathogenic), injected into any animal it invariably causes an abundant crop of warts to appear over the entire body.

Microbe is at first sterilized, subsequently annihilated, in the presence of thuja occidentalis. Washing them over with salt water twice daily, and then sprinkling them with calomel. The reaction of the residual sodium chloride and calomel produces mercuric chloride, which speedily annihilates the microbe without the slightest pain. Lactic or acetic acid efficacious.

The bacillus of butyric acid—the
Bacillus Amylobacta. microbe of rheumatism.

This micro-organism results as an evolution of fermentation from starchy and saccharine solutions. It takes the form of minute cylindrical rods, rounded at their extremities, usually straight, and either isolated or united in chains of two or more articulations. They have a gliding motion, and are often curved and present slight undulation, they are reproduced by fission, and like all other germs, excrete ptomaines freely. They are found most abundantly in cheese, convert the lactic acid in milk into butyric acid.

This microbe, the evolution of fermentation, is pathogenic of rheumatism, bears cultivation well, and its injection into animals produces the identical condition of rheumatism which we meet with in the human subject. The microbe is anaerobic, in the ripening of cheese, in the fermentation of sauer-kraut, and sour gherkins; in a case of acute rheumatism, the micro-organisms can be detected for at least twenty feet from the ferment. Ptomaines are excreted freely, and are the cause of the intense suffering.

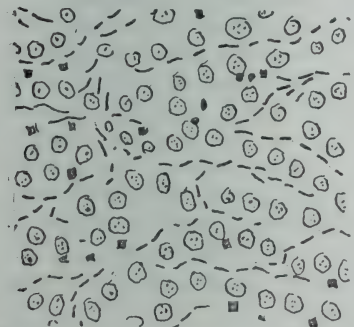
This microbe can either be sterilized or completely annihilated in the presence of the glycerite of winter-green; uric acid solvent; salicylate soda in acetate of ammonia; manaca, cascara sagrada tablets; tinc. cimicifuga racemosa.



Bacillus Amylobacta, spindle shaped forms including oval spores.

Bacillus Anthracis, wool-sorters' disease, or malignant pustule, consists of rods, long and broad, and threads, with spore formation present and active; rods are straight, or some-

times curved, rigid and motionless; vary in size in different animals. The most tenacious of life of all microbes; and excretes ptomaines in great abundance, so much so that it is probably as fatal a disease germ as rabies. It has a most vigorous growth, literally loads the capillaries all over the body, lungs, liver, kidney, spleen, skin, mucous membrane. In a well marked case they are so numerous as to cause infraction of the kidneys, and look under a small power as if the kidney was an injected specimen.



Bacillus Anthracis, as seen in the blood of a wool sorter.

and infectious of all malignant microbic diseases. Pathogenic in the truest sense of the term.

The sterilization and destruction of the germ is most difficult, because when a man, woman, or child, or an animal die and are



Anthrax, giant bacteria magnified 600 diameters; from foreign wool.

One of the most contagious

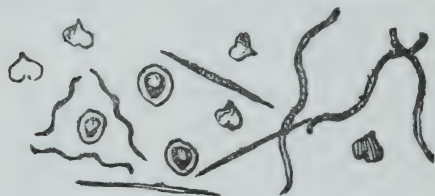
buried, the worms bring the germs to the surface and deposit them. The excrementary discharges from infected animals find a nourishing soil in decaying vegetable and animal matter; and their spore formation is active in marshes, rivers, ponds; inhalation of spores, ingress by the pulmonary or intestinal mucous membrane, or direct inoculation are thus being constantly kept up.

Various theories have been proposed as to the mode in which the anthrax bacillus causes death—by embolism, by a ferment which decomposes the tissues; by the evolution of ptomaines. From pure cultures of the bacillus, a most deadly alkaloid is obtained. The same in the blood of the affected individual is so toxic that death often takes place before the symptoms of the disease appears.

Bacteriological demonstrations on malignant or cancerous growths have arrived at the following conclusions:

Bacillus of Cancer. 1. The disease is caused by a special pathogenic red-shaped microbe.

2. The bacilli have slightly ovoid outlines, and are arranged mostly in pairs and little heaps, their length amounting to one-fourth of the diameter of a red-blood capsule.



The microbe of Cancer.

3. In a pure cultivation the rods grow best on coagulated blood-serum at the body temperature.

4. When inoculated under the skin in animals, the microbe gives rise to

a cancerous degeneration, commencing in the nearest lymphatic glands, and subsequently spreading to the internal organs, especially to the mesenteric glands, omentum, liver and pericardium. In all the organs genuine cancerous nodules are formed.

5. Of the lower animals, rabbits and cats prove to be most sensitive in regard to the bacterium. When inoculated they die in one or two months from cachexy, with generalization of cancerous foci all over the body.

6. All cancers (of any variety and any organ) seem to be caused by one and the same bacillus.

The microbe is pathogenic of all forms of cancerous growth.

It is sterilized and annihilated in the presence of Chian turpentine, saxifraga, sulphate of lime resorcin, thallin, compound saxifraga and phytolacca ozonized; siegesbeckie, hydrocotyle.

This microbe consists of very short rods, with rounded ends. They are round, ovoid, or spindled shaped, and have characteristic granular margins, having a strong resemblance to the microbes of pneumonia and rhinoscleroma, both of which are capable of giving rise to the formation of indigo blue, and to indigotic fermentation. It is present in Addison's disease.

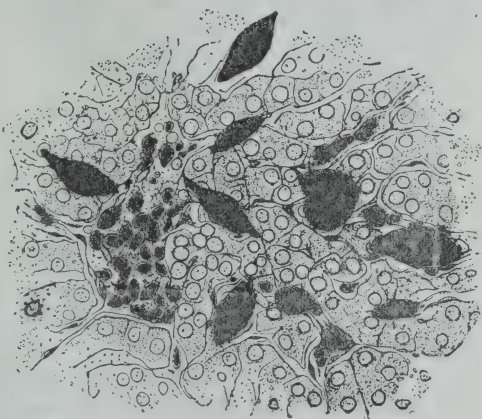
This microbe plays an important part, and determines the formation of indigo in various diseases.

Indigo is a fermentation product, due to the action of this microbe, and not to simple oxidation.

This indigo bacillus is pathogenic of various affections, due chiefly to non-aeration of the blood, bears cultivation

well. If injected into any animal gives rise to embolism, hepaticization of lungs, cardiac apoplexy, visceral congestion and fibrinous exudation.

This microbe is sterilized in the presence of compound tincture kurchicine, eucalyptol, sulphate of quinine, compound oxygen, ozone water, liquor ammonia acetatis, belladonna and acro-narcotics generally; peroxide of hydrogen.



Microbe of Indicus, as seen in the liver, magnified 1500 diameters; found in pneumonia, Addison's disease, asphyxia, cyanosis, valvular heart disease; excretes ptomaines freely.

Bacillus Mallei:

The Microbe of Glanders and Farcy:

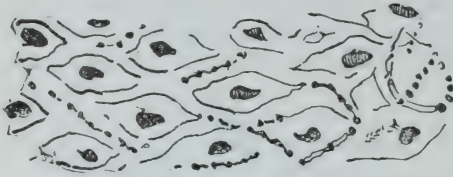
A giant form of bacteria transmitted to man from the horse.

The nasal discharge placed in the field of the microscope exhibits the micro-organisms in the

form of fine rods, about the size of the tubercular bacilli. They appear in the form of minute, transparent drops, consisting entirely of characteristic bacilli.

When this microbe enters the human blood it takes one or other of two forms, either excites by its presence irritation, inflammation of the lining membrane of the nose, which speedily passes into ulceration, round, scooped-out ulcers, elevated edges,

with a central granulation, profuse micro-purulent discharge (glanders), or the microbe causes a germinal blocking up of the lymph canals, with engorgement (farcy). The microbe excretes ptomaines freely.



Bacillus Mallei, the microbe of Glanders and Farcy.

The microbe is the essential cause of the disease, and is pathogenic.

Bears most excellent culture in beef tea or meal extracts.

To Sterilize or Annihilate the Germ.—It will not grow in the presence of peroxide of hydrogen, glucozone, sulphate of lime and other bactericides.

Rods, very fine, like thread forms, mostly collected in irregular masses, with characteristic spore-formation.

Bacillus in Tetanus. Inoculation of garden earth subcutaneously into rabbits induces tetanus. The bacilli found in their blood is identical with the microbe in man.

The germ is pathogenic of the disease, bears cultivation well, and is as active after several generations of culture as in its primitive state. Pre-eminently contagious and infectious, it has an uncertain period of incubation, depending upon the status of vital force of the inoculated. Cases occurring twenty-four, thirty-six or forty-eight hours after injury rarely survive the third day, but comparatively few are lost when it comes on the ninth or eleventh day.



Microbe of Tetanus.

The excretion of ptomaines is most active in and around the medulla, death often takes place from them before they have time to enter the blood.

Sterilized and annihilated by the administration persistently every few minutes of a combination of lobelia, capsicum, valerian, resorcin and sozoidol, aided with con. ozone and chloroform to nape of neck.

Caries and Necrosis,
Bacillus saprogenes.

Three rod-formed organisms, which give rise to and are invariably associated with a gangrene of bone and putrefactive processes generally. The microbe is readily procurable from necrosed bone or from otitis media, grows very readily on blood serum. All cultivations

yield the microbe with the peculiar odor of rotten kitchen refuse.

The bacillus bears inoculation well.

The microbe becomes sterilized in the presence of either of the following remedies:

Peroxide hydrogen; glucozone; chloride of gold et soda; baptisia; siegesbeckie; distillation of jequirity; etc.

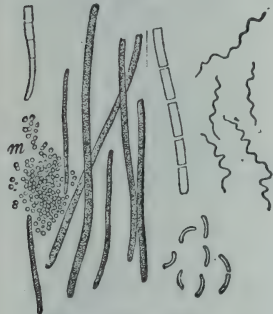


Bacillus Saprogenes, the microbe of Caries and Necrosis.

Caries Dentalis. Caused by a tissue-starved brain; hot and cold fluids; indigestion, formation of lactic acid degrades the elementary molecules into a polymorphic bacillus, which is pathogenic of the disease, bears cultivation well in beef tea to which some phosphate of lime is added.

Inoculation into animals gives rise to tooth caries. So infectious is it that one carious tooth will contaminate a mouthful.

The microbe becomes sterilized in the presence of the anti-microbe powder; concentrated ozone; distillation of jequirity; solutions of boroglyceride; soap-tree bark and hydrogen peroxide; infusions of wild indigo; fennel; rue; and nearly all the aromatics.



Microbe of tooth caries.

Bacillus Tuberculosis

consists of rods, occasionally long, very thin, and rounded at the ends. They are both straight or curved, and frequently beaded; occur singly, in pairs, or in bundles. They are found in the cells of tubercles, especially in the interior of giant cells. Propagate by spore formation.

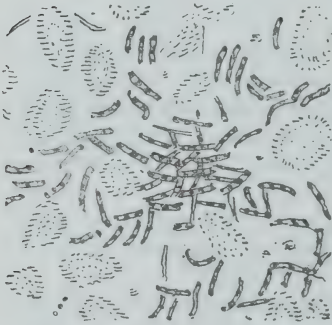
A tubercle bacillus consists for the most part, of a very delicate sheath, with protoplasmic contents which have a great tendency to be broken up, or coagulated into little segments or roundish granules.

The best medium for cultivation is solid blood serum of cow or sheep, with or without the addition of gelatine. The most favorable temperature for their development is 58° F. They grow slowly in cold latitudes.

The bacilli are found in all tubercular deposits of man, animals, and birds. The bacilli can be detected in the sputum and excretions.

Strictly contagious and infectious; food, such as milk, flesh-eating, inhalation, close contact; the bacilli or their spores are inhaled from the air, or taken in with food, find ingress by the pulmonary or intestinal mucous membrane.

Morphologically identical bacilli are seen in lupus, tabes, etc. The tubercular bacilli is pathogenic of all forms of tubercular



Bacillus tuberculosis in the blood.



Bacilli tubercle in lung structure.

disease, its inoculation into animals, reproduces the diseases, and *vice versa* into man. Ptomaines excreted give rise to fever, diarrhea, and other symptoms.

The microbe is both sterilized and annihilated in the presence of germicides, of which the glycerite of ozone is the most reliable and definite, but distillation of pine, tar, creosote, chlorinated soda, comp. oxygen, creolin, peroxide of hydrogen, are of utility. The great difficulty in tuberculosis is, there is a nervous blight or wreckage, which keeps on degrading normal bioplasm into new crops, and until this is overcome the cure is difficult.

**Bacillus in Typhoid Fever
and
Nervous Diseases.**

Rods, broad and forming filaments, rounded at their ends, and constricted in the middle like small feathers or yarrow leaves, exhibiting spore formation. These bacilli are found in the sordes on the gums, in Peyer's glands, the spleen, mesenteric glands, lungs, in typhoid and in the insane.

Spore formation occurs at the ends of the rods, and is most active.

The microbe is pathogenic, bears cultivation well in any nutrient broth. Inoculation in all cases reproduces the disease.

The germ is sterilized and annihilated in the presence of either of the following germicides: mixture of carbolic acid and tincture of iodine; or resorcin; iodol; lactic acid; creosote, salol; soziodol; creolin; kaki; siegesbeckie.

The microbe of typhoid breeds, excretes its ptomaines in the intestines, found abundantly in the stools. During its growth and multiplication in the intestines, the ptomaines are thrown off, which form the poison that gives rise to fever. The toxi-ptomaine is termed *typhotoxino*. The vitality of this germ is so great that freezing will not destroy it, and it takes a high heat to kill it. Communicated by contagion and confection, also by air, food, water, milk. Stools of the germ-stricken should be destroyed by fire, as they live in earth, water, etc.

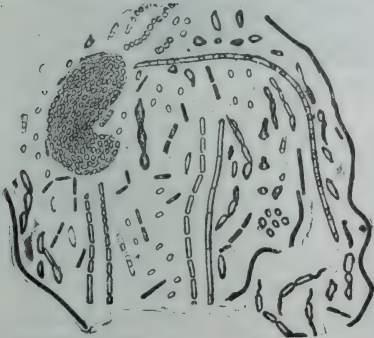


The bacillus of typhoid fever.

Hay Fever or Asthma. *Bacillus Subtilis*.

The bacillus of hay, rag-weed, roses, grapes and other nitrogenous bodies, resembles the giant bacteria of anthrax, the microbe consisting of cylindrical rods of variable lengths and breadths. Originally, they appear as threads, which become developed into rods and cocci. They are motile, and are provided with a flagellum at each end. They are easily obtained from any infusion of hay, and will grow prodigiously in almost any nourishing medium, by spore formation and division by segments.

The microbe is pathogenic of hay fever or asthma; bears culture well in any vegetable infusion. The inoculation of the germ into any animal produces the disease. The excreted ptomaines often give rise to violent constitutional disturbance.

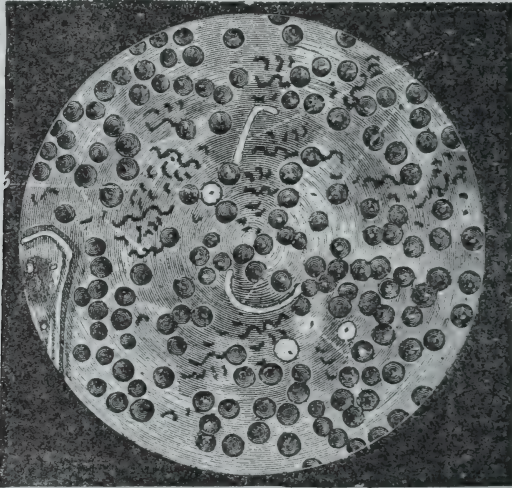


Bacillus Subtilis, the microbe of hay fever.

To sterilize or annihilate the *microbe*, a combination of lobelia, stramonium and belladonna (crude) inhaled, or administered in tincture form, will sterilize; glonoin, nitrate of amyl; sulphate sparteine, have the same action; euphorbia piluliform.

The *microbe* is annihilated in the presence of pyridin.

Bacillus in Syphilis consists of rods, very minute. Two or more ovoid points are visible in the course of the rod, which are spores. They are best observed from the secretion or discharge of the indurated chancre, or from the ulcers in the mouth. When the blood is searched for them, they are, when present, found in the interior of the nucleated cells. The *microbe* is pathogenic of systemic



The bacillus in syphilis as seen in the blood.

syphilis. Bears culture well; reproduces itself in all red-blooded animals when injected subcutaneously.

The ptomaines excreted by the syphilitic germ are peculiarly toxic to skin, mucous membrane, bone, brain, lungs, etc. When the atmospheric electrical influences are low, germ breeds most actively. Thence the nocturnal pains in bones, etc.

The micro-organism is annihilated in the presence of saxifraga, kalmia, phytolacca, stillingia, irisine, sulphur water ozonized, sozoiodol.

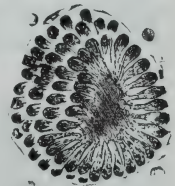
The Microbe Actinomycosis

appears in the form of a rosette of pyriform, or club-shaped elements. The little masses are arborescent, pure white, of a yellowish tinge, visible to the naked eye.

The microbe effects an entrance to the mouth through an abrasion, wound or carious tooth. Then the living organism sets up an inflammation, which results in the formation of a neoplasm, composed chiefly of round cells, resembling a tubercular nodule. These may break down or go on increasing in size. Fibrous growths may develop between the nodules, and these latter into purulent excavations or cavities. The microbe has a special affinity for the mouth, gums; if it does not localize there, it may select the lungs. There it produces great havoc, destroying tissue, forming fistulæ and sinuses, giving rise to fetid expectoration; often causes caries of the spongy bones. The fungus has been detected in the tonsil.

The fungus bears cultivation well, pathogenic of the disease; extremely contagious and infectious. Cattle drivers are most generally affected. The absence of antiseptic precautions among dentists aids greatly in maintaining and propagating the disease.

The microbe is sterilized and completely annihilated in the presence of concentrated ozone, ozonized jequirity, anti-microbe powder, peroxide of hydrogen, and other germicides; but before these are applied, free incisions, openings and counter-openings into the diseased parts should be made, so that the remedy may reach the microbe.

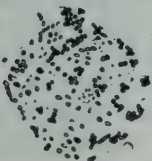


The microbe of Actinomycosis.

Microbe of Diarrhea.

Bacteria abound in the intestines even in health, and some have thought that they might even aid the digestive juices in breaking up the food. It is quite likely that they aid in breaking up the food, but whether they do so with any advantage to the organism may be somewhat questionable. They tend to split up the products of pancreatic digestion farther than the pancreatic ferment would, and one of the substances to which they give rise is indol. This body has an antiseptic action, and belongs to the aromatic series, members of which, as I shall afterwards have to show, have a very marked action upon the liver. In the intestine it becomes converted into indican, which is absorbed and excreted in the urine.

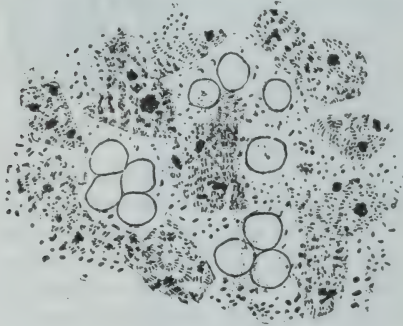
Diarrhea may depend either upon special microbes or their



Microbe of diarrhea.

ptomaines. These are numerous, but not completely isolated; but that due to cholera and typhoid fever acts to a great extent upon the organism by simply producing poisons in the intestines.

To sterilize the entire crowd of germs which produce diarrhea, *intestinal disinfectants* have been proposed. Naphthaline, which has been recommended by eminent authors, is very sparingly soluble; so much so that it passes to a great extent unchanged through the whole of the intestinal canal. It certainly destroys the disagreeable odor of the motions in infantile diarrhea, but it does not appear satisfactorily to check the disease. Salol is the phenyl ether of salicylic acid. It passes through the stomach unchanged, but in the duodenum it is split up by the pancreatic juice into salicylic and carbolic acids.



Microbe of summer diarrhea, magnified 2000 diameters.

Although the carbolic acid is set free at the point where its action is wished, yet there is still the disadvantage of its being poisonous, and so betol has been recommended. The constitution of this substance is similar to that of salol, but it splits up into salicylic acid and beta-naphthol, which is much more sparingly soluble, and which is less poisonous than carbolic acid, while it is much

more powerfully antiseptic. Resorcin, thymol and benzoate of soda are among the antiseptic remedies which sometimes are useful, but these are either weak or subject to the same objections as carbolic acid.

Direction in which to look for Intestinal Disinfectants.—When we consider the enormous number of aromatic compounds which have an antiseptic action, we may expect almost with certainty that amongst them most useful remedies are to be found for diarrhea, and Pellicani has found that substances containing a diphenyl nucleus are less poisonous, and at the same time more powerfully antiseptic, than those containing a single phenyl nucleus.

But there is another class of sulpho compounds—the sulphonic compounds—in which the atom of sulphur, instead of being united by means of oxygen to the aromatic nucleus, is attached directly to one of the carbon atoms in that nucleus.

One such compound—ortho-phenol-sulphonic acid, or aseptol, as it has been christened—has been introduced both as a local antiseptic and as an intestinal disinfectant. The commercial aseptol is a solution containing one part in three, and it is administered internally, in the same dose as salicylic acid, in cases both of gastric and intestinal catarrh, and apparently with good results.

**Microbe of
Epidemic Cholera.**

The comma-bacillus. Curved rods spirilla and threads. The curved rods or commas occur isolated or in masses, or attached to each other forming S-shaped organisms or longer screw forms. The commas are actively motile, rapid in development, excrete ptomaines abundantly in the superficial necrosed layer of the intestine, in the mucous flakes and liquid contents of the intestinal canal of epidemic cholera, and often cause death before the germ has time to enter the blood.

It is pathogenic of the disease, bears artificial cultivation well in broth, and reproduces itself by either being injected or fed to animals.

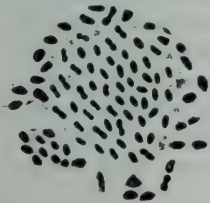
The microbe is either sterilized or completely annihilated in the presence of salol, creolin, sozoi-dol, lactic acid, naphthaline, terebene.



The comma bacillus of cholera.

**The Microbe of
Dysentery,**

when isolated from the ordinary excrementitious matter of the lower bowel, appears in the field of the microscope as a germ, slightly elongated and oval, or short and cylindrical, with rounded ends. They divide by fission; like the micrococci, the individual elongating and becoming constricted in the middle, capable of spontaneous locomotion, having a flagellum at one or both ends, with which they perform active spinning or darting movements. They are capable of forming zooglœa, in which the interstitial gelatinous is more copious. The microbe is pathogenic of the disease, bears cultivation well in any broth, the cultures when injected into animals give us all the virulence of the original disease. The micro-organism is indigenous to the rectum and colon; breeds and multiplies there, excretes ptomaines which give rise to the tenesmus, fever, furred tongue.



The microbe of dysentery.

The micro-organism is either sterilized or completely annihilated in the presence of ozonized stone crop; creolin, peroxide of hydrogen; naphthaline; resorcin; essence of mustard ozonized; salicylic acid in acetate of ammonia.

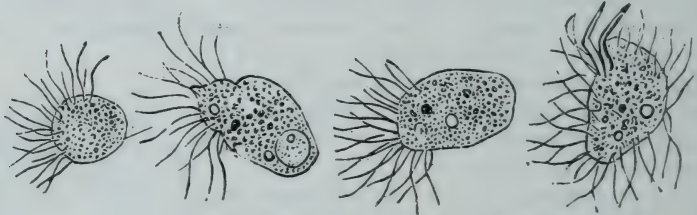
The Microbe of Influenza.

Asthmatus Ciliaris.

with body and cilia. It is pathogenic, bears cultivation well in any nutrient fluid.

While in the body it excretes ptomaines so freely that they

Infusorial catarrh, epidemic influenza, very common during the winter months. The microbe is a flagellated infusoria,

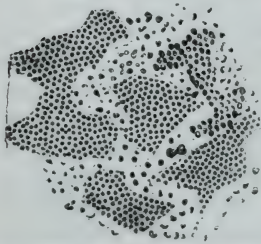


Microbe of influenza; infusorial catarrh.

are to be found in great abundance in the urine, and often cause sudden death.

The microbe is sterilized and completely annihilated in the presence of jaborandi, and peroxide of hydrogen internally; inhalation of either glucozone, or menthol, or nascent chloride of ammonia, or ozonized sulphur water, or benzoate of soda.

The Microbe of Boils.



Staphylococcus pyogenes aureus;
the microbe of boils.

Identical with that of erysipelas. The pus from a boil contains bacteria, analogous to those in the lymphatics of erysipelas, bearing cultivation well. Pathogenic.

The local application of equal parts of either ozone ointment and resorcin, or citrine ointment, applied before positive suppuration occurs, kills the microbe. A thick coating applied gives rise to a drawing sensation, followed by complete cessation of pain and tenderness.

Carbuncles may be well treated by applying a cerate made of ichthyol, four parts; camphorated cerate, fifteen parts. Apply on lint. The pain is relieved and the disease is arrested or modified.

Salicylic acid and extract of belladonna; or ichthyol, one drachm to a half ounce of water sterilizes the microbe; whereas, internally, either brewers' yeast, ozone water, iodol, one-fourth grain doses sulphide calcium, lycopodium and other germicides have a remarkable action in sterilizing the germ.

A most excellent method is to inject a few drops of the peroxide of hydrogen into the centre of the boil.

This unpigmented amœboid body makes its way into a red blood corpuscle, and lives and increases in size at the expense of the latter. It becomes pigmented, the pigment-granules being changed to hæmoglobin. It has been demonstrated that the granules contain iron.

Having come to occupy the entire, or almost the entire, corpuscle, it enters upon a cyst stage, during which the pigment-granules make their way to the centre, and segmentation of the periphery takes place, thus forming spores, which are subsequently set free. Each spore then begins again the same life circle.

The biological relation of the crescentic and flagellated forms to the others has not been made out. But there are, among the lower animal organisms, many polymorphic varieties, which at different periods of development exist as spores, amœboid bodies, cysts, and flagellated organisms. Among the protozoa, some forms develop falciform spores which in appearance resemble the crescents.

The paroxysm seems to be the period at which the segmentation and setting free of spores takes place. This is now tolerably definitely settled. The discovery in the blood of the segmenting bodies, justifies the positive prediction that the patient will have a chill at some time within two hours. Immediately after the paroxysm one finds free spores and unpigmented amœboid bodies. During the day of intermission the pigmented amœboid forms gradually increase in size till six or eight hours before the chill, when the cyst stage is met with. Immediately before and during the chill, one finds the segmenting forms.

The germ is pathogenic of the disease, will grow in almost any nutrient fluid.

Inoculative experiments on human beings are almost uniformly successful. Intravenous injection of malarial blood into a healthy individual is followed by typical intermittent fever, with



The bacillus of malaria.

the appearance in the blood of the second person of the various forms of the organism described.

The germ is sterilized by the administration of quinine; completely annihilated by comp. tinc. kurchicine; Warburg's tincture alternated with green root tincture of gelsemium.

The more atoms of carbon a drug contains, the more powerful is its anti-malarial effect, kurchicine and eucalyptol each contain twenty atoms of carbon, and are distinctly germicidal to this germ.

The Microbe of Neurasthenia. Poverty of nerve force invariably gives rise to the evolution of a pathogenic microbe, which bears cultivation well in a broth of wheaten grits. It can be readily isolated from the tongue of an insane individual, and can be found in all states of nervous exhaustion, languor, headache, neuralgia, spermatorrhea, impotency, suicidal mania; most commonly met with among males. The presence of this microbe explains why suicide and spermatorrhea are epidemic, impotency endemic, insanity contagious.

The first appearance of this microbe in a man strikes at the origin of life, saps his sexual vigor, causes the disappearance of spermatozoa in the prostatic secretion, and in their stead spermatic crystals appear, which are devoid of all vitalizing or fertilizing elements.

Kill this microbe with bactericides, languor, headache, suicidal mania disappear, the ravings of the insane will cease, impotency and sexual callousness be wiped out.

The remedies to sterilize this microbe and cause its disappearance from the nervous system are: cerebin, glycerite of kephaline, avena sativa, electricity and vitalized massage.

The Conferva of Chronic Bronchitis. Pathogenic of all chronic bronchial affections, found in greatest abundance in the slate-colored sputum.

Bears cultivation well in liquid gelatine; cultures injected into animals give the cadaverous cough, with its decided prostration so peculiar to the disease.



The conferva of bronchitis.

The micro-organism being difficult to reach, even by inhalation, renders the malady essentially very chronic; however, it is sterilized in the presence of creosote, peroxide of hydrogen,

glycerite of kephaline, lobelia, senega, ammonia, and completely annihilated by resorcin in syrup of tolu ; salicylic acid, and acetate of ammonia.

A streptococcus massed upon the thickened valves of the heart, small chains, three or four linked irregularly together, later on they assume the form of zooglœa and are found congregated together and form plugs in the vessels of the muscular tissue of the heart. In the detritus of the ulceration which follows, they are found in chains.

The micrococci are also found in the spleen, kidneys, liver, lungs, lymphatics, blood. They bear cultivation well in beef tea. This microbe is pathogenic of the disease.

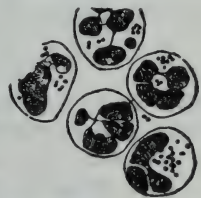
The changes in the heart after death give evidence of great microbial growth, the muscular structure is engorged, red ; later it assumes a grayish, mottled, opaque, buff color, and finally changes to green.

The microscopical appearances vary much, but simply elucidate different stages of germ proliferation, a degenerative process, a breaking down of tissue and formation of abscess ; muscular tissue, in chronic cases, is replaced by a new formation or calcareous deposits.

This micrococcus is most difficult to sterilize or annihilate ; quinine, strophanthus and other drugs of no avail.

The gonococcus, cocci, singly, in pairs, groups. They are found in great abundance in the muco-purulent discharge from the urethra, in the pus of a soft chancre and buboes. The microbe bears cultivation well in nutrient broth, and the pathogenic character of the cocci is established beyond all doubt by inoculation.

The micro-organism is sterilized and completely annihilated by the ozonized distillation of eucalyptus, by the introduction of the thalin ozonized bougies into the urethra ; internally by germicides which dodge or are unaffected by the gastric juice, and are excreted by the urethra in molecules, which coming in contact with the microbe, kill it. Those embrace balsam copaiba, oleum terebinth, petroleum, sandal-wood, cubebs, kava kava, etc.



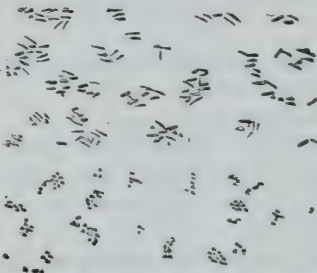
Micrococcus of gonorrhœal pus, twenty-four hours after its discharge. Within may be seen several forms of fission of their nuclei, and micrococci moving in the protoplasm ($\times 600$ diam.)

Micrococcus
in *Hæmophilia*.

Neonatorum, a coccus characteristic of this disease, has been found in hemorrhage of infants and young persons, which is pathogenic.

Micrococci
Scarlatina.

Blood germ-laden with the micrococci; mouth and glands of the throat swarming. The germ is minute, seeks the skin for free oxygen, where it will breed (if not smeared over with olive oil and resorcin or ozone ointment) in the scales of the desquamating epidermis; will continue this in colonies if not smothered out for two weeks or more.



Streptococcus of scarlatina and magnified 500 diameters; found on the mucous membrane of the mouth, tongue, tonsils, uvula. These, during the fever, prior to their appearance on the skin, form or grow into large diplococci and cocci in chains, and thick zoogloea are found on the larynx. The capillaries and interlobular spaces are blocked with cocci.

It is the deficiency of vital force, amount of germs present, with their ptomaine excretion, which give rise to the three forms of this fever.

Pathogenic—Sterilized and annihilated in the presence of glycerite of sulphur, sulphide of lime, peroxide of hydrogen, sulphur water. These also destroy spores and check the evolution of ptomaines.

Micrococcus
in
Measles.

Round cocci and diplococci have been found in the watery discharge from the eyes and, in the sweat, eruption, capillary vessels and blood of patients affected with measles. After the stage of incubation, ten days, and of active sprouting, four days, the micrococci leaves the blood and migrates to the skin for free oxygen.



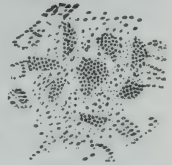
Micrococci of measles.

The germ is pathogenic, bears culture well. The disease is reproduced in animals by either feeding or injecting the cultures. The germ is easily sterilized and destroyed by either the administration of jaborandi or resorcin.

We find, in a small-pox pustule, micrococci, either **Variola**. isolated or united, which may be seen on a section of the skin. The same microbe may be observed on the pustules of the mucous membrane of the mouth or larynx, in the liver, kidneys and blood.

The micrococci are pathogenic of the disease, bear cultivation well in any warm, nutrient broth; cultures, injected or fed, will reproduce the disease in either man or animals.

The micrococcus, found in small-pox pustules, does not differ in its form from that of the cow-pox in cows; chemically, morphologically and microscopically, they are the same; they are completely sterilized and annihilated by the same remedies, to wit, thuja, sulphide of lime, dioxide of hydrogen and bichloride of mercury.



The micrococci of small-pox.

This microbe is found in the sputum of patients suffering from pulmonary tuberculosis and in the walls of the cavities in the germ-eaten lung.

They are found in groups of four (tetrads) surrounded by a hyaline capsule. Present invariably when the actinomyces are in lung structure. They are pathogenic of vomica, caverns in the lung; bear cultivation well; reproduce the disease in animals.



Micrococcus tetragonus: from the walls of a vomica in the lung.

Groups of the characteristic tetrad are found in the capillaries, lungs, spleen and kidney after death.

When present, urine usually loaded with ptomaines. The presence of those deadly alkaloids explains the sweats, diarrhea, hectic fever that are present.

The microbe is sterilized in the presence of glycerite of ozone, tar syrup, peroxide of hydrogen; completely annihilated by kephaline and toluene.

Actively motile, dumb-bell cocci are found in the blood, lymphatics, in all cases of typhus, ship or jail fever.

They are isolated from the breath, saliva, sweat, the eruption. They are pathogenic; easily cultivated in any nutrient medium.



The microbe of typhus fever.

An injection of the cultures into animals reproduces the disease.

A course of ordinary germicides effects a destruction of the micro-organisms in the blood.

The same class of remedies, act also as prophylactics, by sterilizing the blood.

Micrococcus Urea.

The transformation of the urea (the nitrogenous principle of urine) into ammonia and carbonic acid, under the influence of a microbe, appears in the form of free globules of articulated filaments, or of chaplets, resembling those of the lactic ferments. So long as the bladder is perfectly empty, that is perfectly evacuated, no residual urine, there is no microbe in it, but let there be some little retention, probably owing to an enlarged prostate, then this microbe is evolved. True it is often carried into the urethra by bougies, catheters, sounds, but very generally found in the bottom of the chamber. This microbe is the true cause of ammoniacal fermentation and intense uriniferous odor.



Micrococcus urea, magnified 1500 diameters, as found in the bladder of all patients with prostaticorrhœa, catarrh or ulceration of the bladder, with dribbling urine; a germ of rapid growth.

The germ is positively sterilized and annihilated by boroglyceride internally and locally.

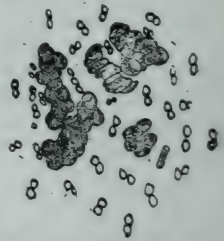
Micrococcus in Hooping Cough.

Elliptical cocci, having a strong resemblance to the oidium albicans or its mycelia, are constantly present in the breath, expectoration and secretions of all individuals suffering from pertussis. In the sputum of patients affected, in their blood, micrococci resembling figure 8.

The microbe bears culture well, and is pathogenic of the malady. Culture injected or fed to animals reproduces the original disease in all its virulence and precision. It is an active ptomaine eliminator, to whose toxic presence is due the embolism of blood, fever, vomiting, convulsions.

The micrococcus is either sterilized or annihilated in the presence of either of the following remedies: Syr. tolu, with resorcin and thymol; bromide of sozoidol; ozonized tar syrup and creolin; tincture of iodine, siegesbeckie, and in all cases the apartment in which the child is domiciled should be fumigated twice a week.

Micrococcus of hooping-cough.



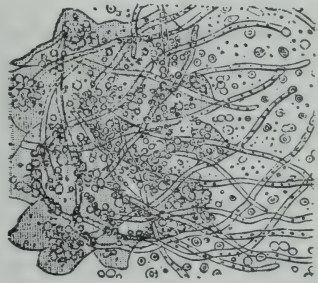
Micrococcus of hooping-cough.

for half an hour on each occasion, with burning sulphur. Local stimulation to nape of neck of value as a means of raising the standard of vitality, on that part of the cervical portion of the cord upon which the microbe feeds.

Oidium Albicans. Cells partly round, oval or cylindrical, all sizes. The bud colonies consist of rows of cylindrical cells; from the ends oval or round cells sprout; spores form singly in roundish cells. They are found on the mucous membrane of the mouth, tonsils, dorsum of the tongue; very common in children in the grayish-white patches, sore mouth and on the nipple.

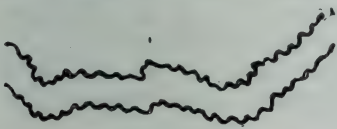
Bears cultivation well in sweetened water and tartrate of ammonia. The cells germinate according to its richness in sugar.

The *oidium albicans* is sterilized, completely annihilated, in the presence of a solution of boroglyceride, resorcin, creolin, naphthaline.



The *Oidium Albicans*.

Spirillum Plicatile. Within a distance of five miles from the emptying of any sewer into a river, this microbe is found, few, and at some distance at the five mile point, but more numerous as the point of egress of the sewer is reached. As found it consists of thin



Spirillum Plicatile (*Marsh Spirochaete*).
From sewage, contaminated water;
magnified 1200.

threads, with numerous narrow windings. The threads have primary and secondary windings, very irregular; their ends cut off bluntly, and they exhibit rapid movement. Besides being common in rivers into which sewage empties, they are abundant in marsh water, and can be obtained by allowing algæ to decompose in water. On cultivation, the threads break up into long rods, short rods, and finally cocci.

Progressive cultivations finally produce the microbe of typhoid fever.

The *spirillum plicatile* in water can be sterilized either by the addition of a few drops of dioxide of hydrogen, or comp. oxygen,

ozone water, aromatic sulphuric acid, sulphur water, or completely annihilated by passing the fumes caused by dropping sulphuric acid on permanganate of potassa, or by the addition of lime.

**Spirillum of Relapsing
Fever.**

This germ consists of threads, with screw curves. They move rapidly and exhibit peculiar wave-like undulations. They are found in the blood of patients suffering from relapsing fever. They are to be found only during the relapses, and are absent during the non-febrile intervals. Their number is usually great, excessive as it nears the fifth or sixth week.

They are pathogenic of the disease, bear cultivation well in blood serum or broth highly salted.

Cultures are inoculated successfully into all animals near to man in the scale of being; lower grade of quadrupeds, negative results. The prodigious ptomaine excretion occurs every seventh day, at which time the multiplication of the germs are enormous. The microbe is either sterilized or killed in the presence of con. tincture of kurchicine, or Warburg's tinct., avena sativa; eucalyptol.

**Streptococcus in
Diphtheria.**

The cells lie singly or in pairs, or in rosaries, or in spherical or cylindrical masses.

A microbe of easy cultivation on blood serum, or veal or lamb broth. A small piece of the membrane affords the best bacilli. So far successive generations have not been attained.

Its malignancy is due to its very rapid excretion of ptomaines, a very toxic alkaloid.

The germ is pathogenic. It may be sterilized in the presence of the glycerite of sulphur, resorcin, carbolic acid and tincture of iodine, and completely annihilated by brushing it over with a distillation of jequirity bean, lactic acid, hydrogen peroxide; solution of salicylate soda.

From the cultivations of diphtheria microbe, an exceedingly soluble alkaloid has been obtained, which induces embolism, paralysis and rapid death (ptomaine).



Streptococcus of diphtheria.

The Microbe of Croup resembles that of diphtheria; in well-marked cases the blood and kidneys are thoroughly infiltrated with the micrococci. They often unite or are agglutinated in small masses.

forming *zooglæa*. Found in all the tissues, even in the marrow of bones.

They bear cultivation well, and the cultures injected in animals give rise to the disease.

The germ is sterilized or annihilated in the presence of acetic or lactic acid; sulphide of calcium; either of these remedies checks the evolution of microbes in the blood and tissues.

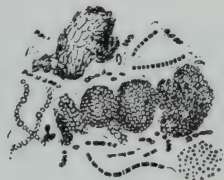
Here, as well as in diphtheria, too much cannot be said against the misuse of emetics. The administration of such an agent may remove the false membrane in which the micrococci are imbedded, and leave an irritated or bleeding mucous membrane behind, which is a most attractive and luxuriant pasture field for an additional multiplication of the micrococci, which are sown there afresh, and reproduced with fearful rapidity.

Streptococcus in Cerebro-spinal Meningitis. Cocci, diplococci and chains are found in the cerebro-spinal fluid, base of brain, around the medulla oblongata, spinal cord; *zooglæa* in spleen, liver, kidneys. In all cases excretes ptomaines freely, hence its remarkable fatal character.

The microbe is pathogenic of the pathological state; bears cultivation well in barley broth.

Difficult to sterilize or annihilate; best remedies are those which induce a *quasi-suspension* of the activity of the brain and cord, such as scull-cap, lobelia, calabar bean, gelsemium, alternated with either peroxide of hydrogen, resorcin, sulphur water.

Recent bacteriological investigation reveals a micro-organism morphologically and biologically identical with this streptococcus in inflammation of the brain-substance.



Streptococcus in cerebro-spinal meningitis. (Spotted fever)

Streptococcus Erysipelatosus. The bioplasm of normal nutrition, changed, altered, degraded by adverse conditions into other living matter, which acquires an independent form of existence, with prodigious power of growth and multiplication; a disease germ. The *micrococcus erysipelas* is very small, consisting of

minute cocci in chains, found in the mouth, breath, blood, fæces, kidneys, and by millions in the erysipelatous blush. They occupy the lymphatics of the skin, and as they sprout and multiply, spread along these just at the margin of the erysipelatous zone, where the microbes are multiplying by millions, marked by the characteristic redness and swelling; the lymph glands



Streptococcus of erysipelas.

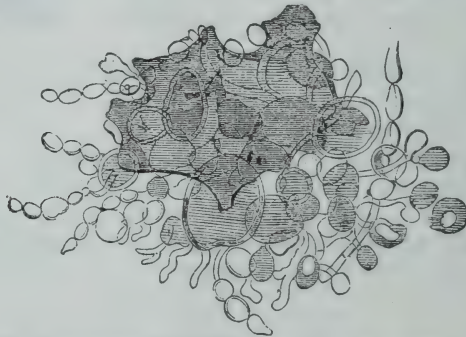
are filled with zooglœa of micrococci and the injection of these vessels keep pace with microbe growth; contagious and infectious.

The germ is pathogenic of the disease; artificial culture succeeds well on nutrient base; inoculation into animals gives us the characteristic.

To sterilize or annihilate the microbe, solution of boroglyceride, kept constantly wet, over the microbic patch; internally emetic of lobelia, followed with either ozone or sulphur water, or resorcin, or sozoidol; peroxide of hydrogen.

Cocci, singly, in dumb-bells, and in curved chains, essentially identical with the oidium albicans or rot, with the exception that they grow well in milk, in alkaline peptone broth, in almost any nutrient fluid. Very common among cows which feed on marshy pasture, or insanitary condition; found in their milk, and by or through that fluid give rise to diphtheria, scarlet fever and malignant stomatitis in children.

Streptococcus
of
Foot Disease.

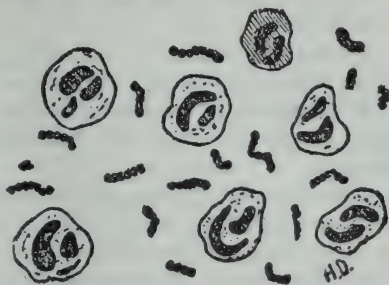


Streptococcus of foot disease, magnified 50 diameters.

The microbe is pathogenic of the disease, bears cultivation well for ages. Cultures injected into animals gives rise to diphtheric effusion and death.

Same remedies sterilize and annihilate as in diphtheria.

Streptococcus Pyogenes. Pathogenic, and the cause of amyloid degeneration; microbe can be isolated from pus or muco-purulent matter, most abundant when greenish colored, whether pure or from bandages. The bacillus consists of slender rods, linked two or three together, or collected in irregular masses. Multiplies rapidly by spore formation on liquid gelatine. In twenty-four hours culture exhibits a greenish pigment or coloring principle "*pyocanin*." The germinal mass is soluble in acidulated water, which it colors red; neutral solution is blue. The microbe crystallizes in chloroform in long needles, and in some cases form lamellar prisms.



Streptococcus pyogenes.

To sterilize or annihilate the microbe, iodized oil, saxifraga ozonized, phosphated tincture of oats, kephaline, glycerite of ozone, matricaria, comp. siegesbeckie, iodide potass, ozone water, peroxide of hydrogen.

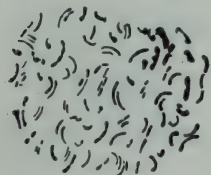
Streptococcus in Puerperal Fever.

Cocci in zooglœa, and sometimes in chains, have been found in all organs affected in puerperal fever, and especially in the lochial clots or discharge

in the blood, brain, heart, lungs, spleen, kidney.

The microbe bears cultivation well, and is pathogenic of the fever.

It is sterilized and completely annihilated in the presence of either hydrogen peroxide, or resorcin, or creolin internally, with intra-uterine injections of either boroglyceride, creolin, chlorinated soda, peroxide of hydrogen, and locally over the entire abdomen either ozonized turpentine, followed by resorcin paste, or concentrated ozone, with chloroform and creolin.



The pathogenic microbes of puerperal fever.

great are they in this affection that they can be readily isolated from the urine.

The production of ptomaines in the blood and tissues plays an important part in the gravity and fatality of the disease. So very

Cocci, microscopically minute, are found in the blood, brain, vomit, stomach, spleen, liver, kidneys. They occur in chains, aggregate into masses, distend the capillaries of the organs enumerated, exciting inflammation, with acute fatty degeneration of liver, kidneys, spleen.

The microbe is pathogenic of the disease. Difficult of cultivation so far.

Ptomaines cause the vomiting, acute inflammation of stomach, liver, spleen, kidneys; the intense prostration, fever.

It seems to be sterilized in the presence of dilute hydrocyanic acid, comp. tincture of kurchicine, ozone water, Warburg's tincture.

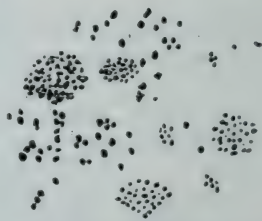
The microbe, or fungus of yellow fever, has (up to the present date) not been isolated. A paludal germ, probably originating in the delta of the Mississippi, spread by maritime commerce over the whole inter-tropical zone of the globe. Centres of infection, the sea-boards and mouths of great rivers. The scientific researches of Prof. McFall, in Galveston and Jacksonville, show that in the liver, spleen, kidneys, intestinal canal, chaplets of micrococci exist, visible under a high power. New and sustained researches are necessary to elucidate the germ.

The Microbe of Dengue



The appearance of the microbe of Dengue at the time of rigor.

much resembles that of yellow fever, microscopically. Growth is not so rapid; neither has it the faculty of exciting acute fatty degeneration in the liver, spleen and kidneys. It is



The germ as found in the blood seventy-two hours after rigor.

much more easily sterilized than the streptococcus of yellow fever.

Whitlow, felon; chains of bacteria or micrococci are always present prior and subsequent to supuration.

The microbe is pathogenic, an inoculation of the cultures gives rise to periostitis of the small bones.

The micro-organism can be sterilized and annihilated by the local application of either of the following remedies: a saturated tincture of lobelia, or citrine ointment, if the tincture is applied it must be kept constantly moist for twenty-four hours or more; if the ointment is applied, a thick layer. Neither application is painful, causes a drawing sensation, followed by a complete cessation of pain and tenderness.

The Glucose Fungus of Diabetes.

When the co-ordinating chemical centre in the brain is damaged, an irritation is transmitted to the liver, grape sugar is elaborated in such abundance that the ozone-forming faculty of the lungs is incapable of burning it up, hence the presence of this agent in the blood and tissues necessitates the formation of a living breeding fungus, which is pathogenic of the disease. The fungus is most easily isolated from the urine, capable of culture in any saccharine or starchy liquid at a temperature between 80° and 90° F.

Injected into animals, gives rise to the disease, with all its symptoms of thirst, voracious appetite, prostration, chloroform breath, cataract, etc. This fungus is sterilized and annihilated by the administration of a five-grain pearl of sambul after meals, glycerite of ozone before meals. Antipyrin is often of value.



The saccharine fungus of diabetes.

Rabies, as a canine disease, is evolved in dogs by a degradation of the primary elements of their nervous system, under adverse states or conditions, communicated to man and other animals by or through the saliva, in some crack or fissure or indentation of a tooth, or bite, so as to reach the true skin.

The microbe is essentially an outcome of perverted nerve nutrition, consisting of small globular cocci, single or united into characteristic colonies; they are most abundant in the brain juices, especially in and around the medulla oblongata and spinal cord.

The microbe of rabies must never be confounded with the virulent saliva evolved in man under rage, passion. The exceptional virulence of this micro-organism is due to its vital and reproduc-

tive energy, to the rapidity with which it multiplies, and the excessive amount of ptomaines excreted by the germ.

No germicide has yet been discovered that will either sterilize or annihilate the germ.

Ptomaines of the most toxic character are found in the brain and medulla oblongata.

The Microbe of Mumps.

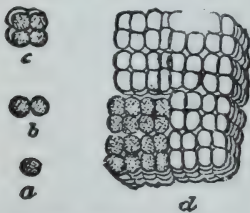
This germ is round, oval, occasionally elongated. It is pathogenic. In artificial cultivations they appear as white dots, and as they grow larger, become of a grayish color. They bear culture well in gruel or any nutrient fluid, and if injected into any mammalia will reproduce the original disease, either in the parotid, mammæ, ovaries, testes or cortical substance of the brain.

The microbe is sterilized in the presence of either resorcin, thallin, ozone water, aconite, phytolacca, belladonna, or avena.

Locally, concentrated ozone, to which a small amount of chloroform is added, applied over the parotid, testes, mammæ, ovaries, is instant death to the microbe, there is neither contagion nor infection left.

Sarcinæ Ventriculi.

Cocci, cubes or packets, with rounded off corners in groups of four, or multiplies of four, united in families of eight, sixteen, thirty-two, sixty-four. Contents of the fungus, greenish or yellowish red. It occurs in the stomach of man, and is detected in the vomit, on the fur of the tongue.



Sarcinæ ventriculi, in different degrees of development; strongly magnified.

The germ or fungus bears cultivation well on albumen or liquid gelatine.

Pathogenic of catarrh of the stomach communicated to water, thence to poultry and animals. The nervous symptoms which accompany gastric catarrh are due to the peculiar ptomaines excreted by the fungus.

Fungus *starved* out by either drinking freely of bayberry, or stone crop, or collinsonia; *sterilized* by mineral acids, peroxide hydrogen, kaki; annihilated by sulphide of lime, saccharated sulphur, lactic acid, creolin, sulphur ozonized, soziodol.

Sarcinæ Intestinalis. Cocci, or packets, in groups of four or eight, very small in size, but very regular in form, occur only in the intestines in cases of chronic diarrhea and catarrh of the intestines.

Sterilized by the use internally of Virginia stone crop, alternated with salol, naphthaline.

Sarcinæ Urinæ. Extremely small cocci united in families of eight to sixty-four, present in the bladder in vesicle catarrh.

Sterilized by either boroglyceride or uric acid solvent; the insertion of either a papoid or trypsin bougie into the bladder, permitting them to dissolve.

Sarcinæ Uterinous. Cocci very small, but forming large packets, common in intra-uterine catarrh.

It is sterilized by the aleteris far. comp., and the insertion of papoid or salix-nigra bougies into the uterus.

Yeast Fungi. Yeast torula consists of spherical or oval cells, very much larger than the largest micrococci; each cell consists of a membrane and contents. The contents are either homogeneous, or finely granular protoplasm; in the latter case there are generally present one, two or more vacuoles.

There are a great many species of torula, varying from one another morphologically, chiefly in their size, and physiologically by their action on different fluids.

The cells of all of them multiply in suitable media by gemmation, a minute knob-like projection appearing on one side of the cell and keeps enlarging till it reaches nearly the size of the original mother cell. It finally becomes constricted, or exfoliated off from this latter, or having reached its full size remains fixed to the mother cell, and each cell again producing by gemmation a new cell. In this way, aggregations



Torula, or Saccharomyces. In the lower part of the figure an aco-spore and four isolated spores are shown. Magnifying power about 700.

of four, six, eight, or more cells are formed, which may be arranged either as a chain, when the production proceeds in a linear manner, or otherwise, or as a group if the gemmata takes place laterally.

Under varying conditions of nutrition or growth, yeast cells enlarge twice, thrice, and more times; form in their interior two, three, four, or more cells by endogenous formation.

These new cells are regarded as spores, the mother cell being an ascospore, and finally becomes free by bursting the membrane of the mother cell.

Classifying them according to their physiological function, there are various species of *Torula* or *Saccharomyces*; all of them possess the power to split up sugar into alcohol and carbonic acid, but this power is not possessed in the same degree.

Torula cerevisiæ, ordinary brewers' yeast, is found in the human stomach in gastric catarrh; in the bowels in intestinal catarrh; in the uterus and bladder in catarrh of both organs. Their presence in those organs gives rise to intolerable uneasiness and pain, and results of a fatal nature are due to their presence in the hollow viscera. The yeast fungus, in the uterus in intra-uterine catarrh, grows well as the catarrhal secretion is slightly acid and little saccharine matter present, cells elongate when the case is chronic into cylindrical elements, a linear series, separated from each other by a thin septum, a mass of filaments, resembling a mycelium or elliptical *Torula* cells.

Chronic cases of gastric and intra-uterine catarrh thus have the fungus changed or altered into the *Oidium albicans*, hence ulceration of the mouth, stomach, uterus, vagina.

Artificial cultures prove the same thing; the fungus after repeated cultures on and on, becomes spherical or cylindrical, taking on another type in the series of evolution.

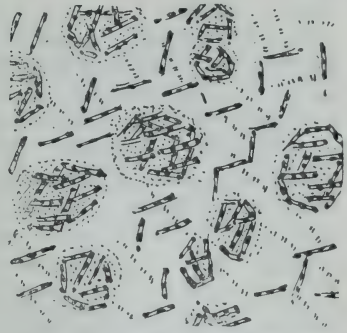
The yeast fungi is easily sterilized and completely annihilated in the stomach in the presence of peroxide of hydrogen, sulphide of lime, ozone water; in the bowels by the ozonized Virginia stone crop; in the uterus and bladder by the occasional introduction of a thallin, iodol, resorcin, creolin bougie.

The nervous symptoms which accompany dyspepsia are due to the ptomaines excreted by this germ.

The Microbe of Leprosy. This hybrid germ consists of fine slender rods, occasionally pointed at both ends, some clearly motile, others not. In the secretions from the tissues, they have a beaded appearance. They are best cultivated artificially on blood serum or meat juice.

The microbe is pathogenic of the disease, just the same as that of syphilis or small-pox. The micro-organism demonstrates the true nature of the disease. Not a single sporadic case has ever occurred in our country. Every case we see here is imported, coming from some portions of the world in which the disease is prevalent.

In some cases the microbe is sterilized in the presence of the Chian turpentine mistura; chaulmoogra and gurjun oil in the form of an emulsion have also been found useful.



The full-fledged bacillus of leprosy, magnified 1500 diameters.

Bacteria of Rhinoscleroma

nose, skin and mucous membrane and contiguous parts, the colonies of neoplasm form either flat or elevated dense ivory nodules.

are rod shaped, one and one-half times longer than they are broad. Their location is the nose, skin and mucous membrane and contiguous parts, the colonies of neoplasm form either flat or elevated dense ivory nodules.



Bacteria of rhinoscleroma; rods surrounded with their capsules; group of bacteria surrounded by a single capsule; bacteria seen from above and resembling a coccus.

The microbe is pathogenic of the disease, they bear cultivation well in any nutrient fluid, the cultures injected into animals give rise to the same ivory nasal deposit.

The germ and its broods are sterilized in the presence of the peroxide of hydrogen and Chian turpentine emulsion.

Locally, ozone ointment and resorcin; boroglyceride and creolin; benzoated ointment and naphthaline.

Dual, Triple and other Complex Organisms.

In the culture of the various pathogenic microbes we have found by careful culture that the union or junction of microbes in the culture glass gives us most remarkable results. For example, an equal quantity of the cultures of the bacillus of tubercle and the microbe of syphilis will produce the *microbe of lupus*; an equal quantity of the micro-organisms of syphilis, tuberculæ and scarcoma, will give us the *microbe of leprosy*. The bacteria of malnutrition, the germ of erysipelas and the vibrios of typhoid fever, unite to form the *microbe of puerperal fever*.

If we take a lupus nest, or a scraping from the skin of a leper's face, or a drop of lochial discharge, this statement can be immediately verified.

In neurasthenia in both sexes there is an evolution from the blighted or weakened embryonic elements, which assume various forms of microscopic life. In gynecological practice in the maladies peculiar to women, as a neurosis of the womb or vagina, either affecting the mucous membrane or body, a damaged uterus is followed by a relaxed or altered state (acid), mucous secretions, yeast fungi and other microbes. This naturally gives rise to more microbes in women than men, and explains why those latent discharges are so common in men. From puberty to the cessation of the menses the uterus has a rich, nervous, arterial connection, and the organ is liable, from very slight causes to suffer a neurosis or get out of gear.

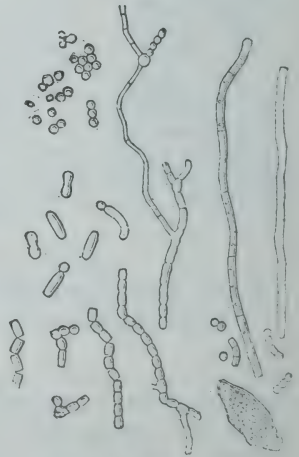
Can we wonder at the number and variety of female disease when we look at modern society, and our women, with this maundering, wandering activity and great fluctuations of animal spirits, gay, fascinating in society; brisk, orderly, thorough in business, but at home dejected and fretful; a small eater, light sleeper, worn worker, an heir of any true neurosis, from insanity to toothache; perturbations of intermarriage, with great mental power, with eccentricities agonizingly painful, when affected with any disease, instead of single disease germs being present, we have them dual and complex, as in peritonitis we have both the bactarian and vibrios.

**Microbes of all
Cutaneous Diseases.**

There is no lesion of the skin without a degradation of its living matter into a disease germ. *No* damage done, *no* depression of its vital elements, without some fungi, or mould, or vegetable parasite appearing on its surface.

All skin diseases are indicative of poor health; all have their special microbe, which is pathogenic of each cutaneous affection, which bears culture in some nourishing broth.

As an infallible result, all cutaneous affections possess in their innate elements contagion and infection; even the sweat is loaded with microbes.

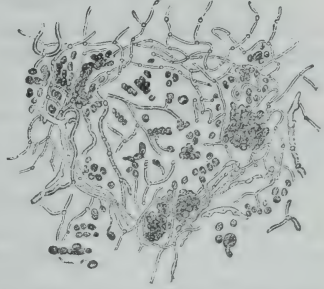


Fungi from Favus.—Patch.

All cutaneous diseases must be treated with bactericides chemically adapted to the utter annihilation of the germ, as thymol, menthol, ozone ointment, sulphurous water, creolin, peroxide of hydrogen, sulphide of lime.

Very favorable results have been obtained by creolin, chrysophanic acid, ichthyol, resorcin.

All vegetable parasitical skin affections should be treated with a course of internal germicides, such as the peroxide of hydrogen, compound saxifraga and phyto-lacca, cascara sagrada, lycopodium.



Photograph of the micrococcus versicolor—small cocci which are seen form iridescent colonies—growing in the form of yellowish beads.

Cocci, singly or in pairs, seen in the roots of the hair in cases of *alopecia areata*. Microbe is **Bacterium Decalvans**. pathogenic; bears cultivation in rich soup; injected into animals, reproduces the disease.

It is completely sterilized either in the presence of ozone ointment or turpeth mineral, gr. i. to xv. gr. benzoated ointment; ozonized boroglyceride.

Trichomycosis nodosa, a peculiar condition, nodose in character, affecting the hairs of the axilla and scrotum; due to the evolution, growth and encapsulation in the cortical layers of the shaft of a small, red-shaped bacterium.

In the various forms of bacteria occurring in sweat, there exists in the secretion numerous granular bodies, the number of which is increased according to the hairiness of the part, the armpit and between the thighs. They are micrococci; they attack the hairs, causing small, knotty swellings. These are composed of bacterial elements, cause clefts, spindle-shaped projections; hairs are friable; affect the hair shaft.

**The Microbe
or Living Poïson**

of sumac, ivy, poisoned vines, stings of wasps, bees, gnats, are pathogenic.

The bacterial germs can be annihilated either by solution of chloride of ammonia or concentrated ozone.

The *oidium albicans* (rot) often attacks the roots of the nails of man as well as the hoofs of animals, as the horse, ass, mule. The parasite fungus is readily transferred from one person to another, introduced into the cracked, superficial layer of the hoof through the fissures.

Pathogenic of the disease; bears culture well in any nourishing broth. The cultures injected into any mammal produces the original disease.

Germ sterilized and annihilated in the presence of ozone ointment and resorcin, or resorcin jelly, hydrogen peroxide, and the use of comp. saxifraga ozonized, avena sativa, glycerite of kephaline ozonized.

The Microbe of Burns and Scalds. In the three different stages of burns, erythema, vesication, ulceration, we have a degradation of the primary elements of the different coats of the skin in a bacterium, so that whatever application is made to a burn of any degree should be a powerfully stimulating application, as carbolic acid and olive oil, glucozone, creolin, resorcin, thymol, sulphide of lime, balsam of fir, tolu, siegesbeckie in ozone ointment, or in olive oil, or oil of boroglyceride, resorcin and cocaine in olive oil.

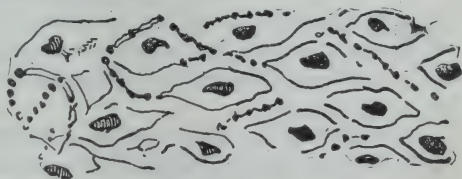
Glanders. A malignant, very contagious, microbial disease, which appears in the nasal organ of the horse, ass, mule, or in the lymphatic glands. It is termed *glanders*, when in the nose; *farcy*, when the lymphatics are infiltrated by the microbe.

The predisposing cause of glanders in animals is depressed nervous and physical energy, such as is produced by hard work, overcrowding, isolation, sameness of diet, exposure to air currents, privation, depressed and vitiated states of the atmosphere, endemic conditions, air loaded with germs, abnormal meteorological states, dispersion of germs over large areas, very fatal to man and animals, destroying the red discs of the blood, and is death to that fluid; besides, it causes immense hypertrophy of spleen, starchy degeneration of liver and kidneys and general dropsy.

Like all germ diseases, it is propagated by contagion and infection. It is very prevalent in all sections of the country, and it exists to such an alarming extent that it is becoming a serious and growing evil. It makes occasional epidemic attacks under a form named epizooty.

The gathering together of several hundred horses in one stable is not conducive to their health, and the slightest catarrhal condition when present is likely to be disseminated. It is well known that the disease-germs are not only abundant in the nasal discharge, but that the breath, sweat, urine and other excreta are loaded; and where have we the least sanitary arrangements made for its suppression? In the stalls, blankets, feed boxes, water troughs there is the living contagion. The public drinking troughs are a source of danger to animals, as the germs pass into the water and the glandered horses are allowed to quench their thirst at those valuable conveniences. In the act of drinking by the horse, a certain amount of saliva and nasal discharge always escapes into the trough, so that one glandered horse may infect all that drink subsequently from the same trough; for, although the discharge is heavier than water, and as we would naturally suppose, sinks to the bottom, the fact of its being alive and the germ growth increased by water, myriads and millions are grown light enough not only to float in the water, but also to float through the air.

A microbe communicated from horses to man caused by the presence of a giant bacterium, the degraded bioplasm of nu-



Bacillus of glanders.

trition of the Schneiderian membrane of the horse, evolved by insanitary states, exposure, over-crowding, bad or meagre food and other adverse states. The microbe as found either in the discharge from the nose (glanders) or from the contents of a lymphatic (farcy) appears in the form of very fine rods, about the size of the tubercular bacilla. When this germ is cultivated either on blood serum or extract of meat, it affords magnificent results, appearing in the form of minute transparent drops, consisting entirely of characteristic bacilli. Pure cultivations, after several generations, when inoculated into horses, asses, rabbits and other animals, give us genuine glanders.

It takes place as follows: a spreading ulcer with an indurated base first makes its appearance at the site of inoculation, while a crop of smaller ulcers break out in close proximity. There is a general state of languor, debility, rigors, fever; lymphatics become engorged with the microbe; general infection follows, nodules of microbes are thrown out on all internal organs, and on the inner lining of the nose, these eminences of the nasal septum break, form characteristic ulcers, round, scooped-out, with granulations in the centre.

Glanders is fortunately a very rare disease, and is met with, almost exclusively, among grooms, coachmen and others occupied with horses. The salient feature of the disease is the formation of pustules, followed by ulceration of the skin, nasal cartilages and bones. The earliest *symptoms* are secretion of a thin, tough mucus, followed by swelling and redness. The mucous membrane is covered with scabs and ulcerations. There may subsequently be ulceration of the throat, larynx and tongue. The discharge from the nose, which is sometimes limited to one side, only, becomes, sooner or later, sanious and fetid. The majority of cases go on to perforation of the septum, necrosis, glandular enlargements and death from pyæmia and exhaustion. The complaint may run a very chronic course, but in the acute form may terminate life within a week.

If the history of the case is clear, the diagnosis is easy; if not the microscopical examination of the nasal discharges will decide it.

The ulcerations bear a strong resemblance to those of syphilis, and are apt to be mistaken for them.

The microbe is pathogenic of the disease, bears cultivation well; cultures injected into animals reproduces the disease in all its malignancy.

It is resident in the nasal secretions of the infected animals and in the ulcers which form upon their mucous membranes, also in the so-called "farcy buds" and in the large lymphatic glands of the infected animal. There seems some probability, also, that it is occasionally present in the urine. The rod itself bears a strong resemblance to the ordinary tubercle bacillus, but it is more uniform in size. It can be readily seen when stained with fuchsine or methylene blue, and certain appearances have led people to believe that spores are present in the bacilli. The infective material does not appear to be capable of living for any great length of time outside the body, and never develops after the bacilli have been exposed to a temperature of 130° F. for ten minutes. Exposure for five minutes to a five-per-cent. solution of carbolic acid, or to corrosive sublimate of a strength of one in five thousand, is quite sufficient to destroy all possibility of infection. Practically there seems not the smallest doubt that any suspected article can be readily disinfected by being boiled for, say, a period of half an hour in ordinary water, whilst any article that will not stand boiling can be readily disinfected by carbolic acid or corrosive sublimate. The exposed parts of the stable should be thoroughly disinfected by burning sulphur in them, with all the doors and windows closed, after which the walls should be thoroughly washed down with carbolic acid of

the above strength or with perchloride of mercury, and the various troughs, etc., should be thoroughly scrubbed out, so as to remove all trace of the disinfecting materials. After the walls are carefully lime-washed there seems to be no possibility of infection taking place.

The treatment of glanders, either in the horse or in man, is the same. Remedies calculated either to sustain the vital powers, or sterilize the blood or allay pain, should be given internally.

Either the sterilization or destruction of the germ should be effected by either peroxide of hydrogen or sulphide of calcium in the form of an aqueous solution internally and locally; these two remedies kill the microbe, stimulate the blood currents and have a special vitalizing action upon the mucous membrane and lymphatics.

Other bactericides which have met with success are resorcin, creolin, pyridin, creosote, naphthaline.

The nostrils should be douched out thrice daily; all enlarged or painful lymphatics immediately opened.

Exalgine is a good remedy for both pain and fever. General principles as to bathing, diet, nursing, hygiene, should be carried out. Scrupulous cleanliness, immediate destruction of all dressings and discharges.

The Epizooty, the epidemic form of glanders, is due to insanitary states existing in stables, to overcrowding, to a sameness or meagre or insufficient food.

Pink Eye is simply the same disease germ colonizing in the eye instead of the nose or lymphatics.

A form of blindness, attended with disorganization of the various tissues of the eyeball, in which objects are surrounded by various colors, especially blue and green.

Glaucoma.

Causes.—It seems to depend upon extravasation of blood in retina and choroid; serous effusion between retina and choroid; retina raised in folds; and clots in vitreous humor, and changes in the optic nerve. What induces such changes, aside from shocks, jars, concussions, it is impossible to say.

Symptoms.—It may be acute or chronic, that is, it may come on suddenly, or more slowly; take months to do so. In both there is a rapid and irreparable loss of vision; begins with intense pain in the ball of eye during night, with throbbing in both eye and temple. Pain continues, and the eyes become congested. Iris of a dusky hue, and motionless; cornea becomes dim; pupil widely dilated, and sometimes of an oval shape; eyeball

unusually hard. Everything looks as if surrounded with prismatic colors ; often bright flashes of light before eyes ; both eyes are affected.

In the chronic form the symptoms are the same ; perhaps more congestion of iris and cornea, and more fulness of eyeball. Opacity of the lens is common in chronic form, as a result of deranged nutrition.

Treatment.—So far there is no known mode of treatment that avails. The improvement of general health and relief of pain is about all that can be done. Any depressing treatment, anything that weakens the patient, aggravates the trouble, so that the careful administration of sulphate of quinine, ozonized glycerite of kepheline, and other elements to invigorate the brain, should have a trial, with change of scene, and a sea voyage, etc.

At the present day, when science is slowly ferreting out the secrets of nature, both under normal and abnormal conditions, it is a matter of great interest to trace out the origin of uric acid and the presence of urate of soda in the blood of gouty patients.

What gives rise to the liberation of vast quantities of this salt in the blood has never been clearly explained.

Special typical conformations of the body which are hereditary give rise to it, and an excess of certain kinds of food, by supplying an over-abundance of nitrogenized material, for the blood creates an excess of urea and uric acid. Besides certain special agents as malt liquors, wines, sedentary habits, want of exercise, irregularities, lead poisoning, excessive mental strain, worry, give us urate of soda or uric acid and soda, which exist in the blood in a separate state, but a depression of the nervous system causes their union. The morbid state is aggravated by gastric and intestinal disorder, impaired appetite, furred tongue, acid or bitter eructations.

The disease cannot be developed unless the blood contains a considerable quantity of uric acid and soda in some form. They never exist in the blood in combination before an attack of gout, but the moment they combine the disease is produced. Nerve force in health keeps them separate, so that they can be eliminated by the skin, kidneys and bowels, but as soon as nerve force is lessened or impaired these two unite. Good nerve force keeps them apart, but in shocks or debility they unite and crystallize as urate of soda. In lessened nerve force the uric acid seizes the urate of soda, and this is deposited in the tissues generally most remote from the heart and brain. This union generally arouses

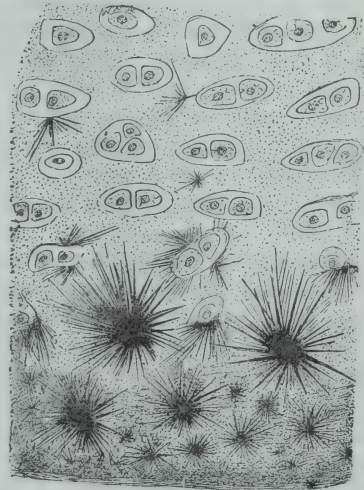
the nervous system, and a febrile effort takes place and it is warded off, but in subsequent attacks the febrile effort fails. In youth, before care, anxiety and disappointment have well-nigh worn out the brain, the nervous system is active, and in spite of dissipation and indulgence, gout is rare, but as soon as age and care stamp their mark upon the great nerve centres, gout too often appears.

In the gouty diathesis, without local manifestations, are to be found neuralgia, dyspepsia, palpitation, syncope, congestion of liver, piles, anæmia, pains in head, toothache, tonsillitis and asthma; besides it is a common cause of disease of heart, arteries, kidneys, and, indirectly, of apoplexy, etc. Gout presents itself in so many different forms that it is often difficult to recognize it when we meet with it, and many cases are overlooked because the disease is not found in its accustomed seat.

One patient may suffer from bronchitis, another from psoriasis; one may have gravel, another asthma, or, again, neuralgia of the face. One may be alarmed by his having to be treated for an apparent gonorrhœa, while another may have piles or tenesmus; all of which are but local exhibitions of the constitutional affection.

The morbid anatomy of gout shows the brain cells to be feeble, exhausted, the red blood discs greatly impaired by the presence of the urate of soda, and the deposit of that substance on the cartilages of joints, and valves of the heart, or wherever vitality is lowered. This consists of the urate of soda in the form of needle-shaped crystals. In the early stages the articular surfaces are granular, form a thin incrustation, which, as the urates increase in the blood, becomes thicker and thicker, the deposits becoming large concretions.

Symptoms.—The attack may be preceded by debility, heart-burn, flatulence, dull pain in left side of chest, irregularity in heart's action, dry skin, urticaria, urine loaded with phosphates and urates containing albumen. It may come on suddenly in the night with acute pain in the great toe, heel, instep or wrist; rigors, followed by fever with great irritability and restlessness,



The appearance of the cartilages of a gouty subject, showing a deposit of urates of soda—dense deposits of uric acid.

tenderness and swelling of the affected part. The attack passes off, an interval elapses of length proportionate to the care taken, and then another attack follows.

The local affection takes place in weakened parts, then the inflammation and exudation take place, so there is liable to be a change of location according as the vital forces of a part are strong or feeble. In this manner a metastasis occurs from the joint to some internal part, as the heart, stomach, lungs, brain, etc. When the kidneys act imperfectly, and there is a retention of the urate of soda in the blood, it is taken up and deposited in other structures to which it has an affinity, as cartilage, bones, fibrous tissue, forming tophi or chalk formations, or stones consisting of urate of soda. They are found in innumerable situations in chronic gout, in the eyes, ears, heart, joints, etc.

Treatment.—The general principles of treatment consist in perfect rest between blankets, attention to the condition of the skin, kidneys and bowels; to the former, warm baths, to the latter, with salines, so as to relieve the overloaded heart and blood vessels. For any irritation about the heart, mustard applied and to be repeated. The following is to be given at repeated intervals, so that the sensorium experiences no sensation of pain :

Pulverized opium, ten grains; Dover's powder, thirty grains; pulverized nitrate potash, sixty grains. Mix and make twenty powders. Dose, one, as indicated.

If there is fever, aconite and veratrum viride. To cut short an attack, nothing excels the phosphate of quinine in alternation with the wine of the root of colchicum. These two remedies act quickly and meet the indications most promptly. As to the dose, from one to three grains of the quinine every three hours, with colchicum enough in alternation to slightly move the bowels, the dose necessary being usually from fifteen to thirty drops. If the evacuations from the bowels are too frequent, diminish the quantity, but do not discontinue.

As soon as the acute stage is over, the same remedies may be continued, although it is often advisable to change to some of the following drugs :

The uric acid solvent, highly ozonized, has a marked effect in causing the urate of soda to disappear from the blood, and a dissolution of the incrustations in the joints. This remedy has permanently cured the most aggravated form of the disease. In the present state of medical science there is no longer obscurity about what gout is; a bankrupt brain and a perversion or mal-assimilation of the secondary process of digestion, with deficient elimination of waste products through functional disorder of the

kidneys ; a disease always attended with danger on account of the tendency to metastasis.

In order, therefore, to effect a radical cure, and get rid of the urates in the blood and joints, we must administer this solvent in all cases ; because it never fails to neutralize this morbid product, increases the secretions from the kidneys and skin, and with the elimination, pain and irritation cease. It acts first as a chemical solvent, then as an alterative in absorbing and removing deposits in valvular disease of the heart.

It is best used in small doses, frequently repeated, say from ten to thirty drops, added to a glass of cold water.

Cascara sagrada lozenges, two after each meal are most efficacious in preventing the elaboration of the acid ; they are of great utility.

Carbonate, or bromide of lithia, possesses remarkable chemical properties, being, next to the uric acid solvent, one of the most soluble salts of uric acid known.

Salicylate acid, administered in the acetate of ammonia, is most efficacious in preventing the formation of the urate of soda ; best administered in alternation with sulph. quinine.

Iodide of potassa, chlorate of carbon are of utility.

Benzoic acid administered after meals prevents the formation of the tephaceous deposits.

Phosphate of ammonia decomposes the insoluble lithates of soda and leads to absorption of them when deposited.

In chronic gout, or a state nearly allied to gout, or half gout, there may be no local inflammation, pain or obvious swellings, or the gouty paroxysms, but it works more silently and is characterized by the abundance of lithates in the urine. There is apt to co-exist signs of ill-assimilation of food, with aches and pains, unaccompanied by any perceptible change in the aching part.

A very common and prominent symptom in these cases is vertigo, associated with dull headache, occipital pain, occasional irregularity of the heart, oppression about the heart, memory fails and an exercise of the mind is laborious. Frequently the gastric derangement is not well marked, so that the patient is apt to believe that the trouble is all in the head.

According to the most recent views on the subject it is due to the liberation of a certain amount of this salt by certain special agencies. Once the urate of soda ceases to circulate in the blood the attack of acute gout passes off, only again to reappear whenever another exciting cause appears to liberate a further amount of the stored-up urate of soda. It is not our purpose at the present moment to go into the various views which have recently been expressed on

the pathology of the uric acid diathesis. Whilst one set of writers put down the formation of uric acid to insufficient oxidation of the various products of digestion, others are inclined to ascribe it to some deficiency in the action of the liver. This much, however, at least, is certain in the treatment of the disease, that all gouty patients do not do well upon a similar diet.

It is certainly impossible to say that gout is *in all cases* the product of a nitrogenous diet, as opposed to one which is formed mainly of starchy food. But in addition to acute gout, which we have considered so far, there is the more chronic form of the disorder which supervenes when the urate of soda is deposited round about the joints and in certain of the other fibrous structures, thus mechanically interfering with the function of those particular parts. Such a condition may go on for a great length of time, interrupted occasionally by an acuter attack of the disease, whilst the same patient will be the subject of various forms of dyspepsia, heartburn, and other similar forms of indigestion. The heart will be very irregular in its action, and chronic inflammation may take place later on in the walls of the arteries and veins. There is perhaps nothing which more readily helps us to understand the affections of the circulation of the system than watching the effect of an infinitesimal amount of urate of soda introduced into the blood of an excised frog's heart. If the beats of this heart are registered on a revolving drum, they will be seen to be rendered most remarkably irregular when the blood contains certain poisons, such, for example, as uric acid; whilst they resume with equal speed their regular rhythm when these impurities have been removed. In the case of the respiratory organs, pneumonia, pleurisy, and bronchitis are all affections of the gouty diathesis, and in many instances, as inflammation of the pharynx and the larynx, hardly any of these affections exist without some associated irregularity of the heart's action. It was ascertained years ago by Berthollet that the skin of a part affected with gouty inflammation instantly gave to litmus paper a deep red color, owing to the large quantity of acid which was passing off by exudation from the inflamed surface. A very similar observation may be made in the case of many of the acuter forms of gouty affections of the respiratory organs. The gouty affections of the genito-urinary tract are too well known to need any very lengthy description here; but those who have had any prolonged opportunities of observing the course of the attacks of gout which are acute or chronic will easily call to mind the large amount of irritability which often exists in the bladder and other portions of the urinary tract in such patients. In children occasionally so great is the irritation caused by the

highly acid condition of the urine that the interior of the bladder is irritated and caused to secrete an alkaline mucus which makes the urine alkaline when it is voided; whilst if it be drawn off from the bladder with a catheter, and the bladder is washed out, the urine which is drawn off a quarter of an hour later will be found to be strongly acid, owing to the fact that it has not yet had time to be converted into an alkaline condition by the irritable mucus from the surface of the bladder. Of nerve affections it seems certain that we are only just beginning to appreciate the way in which gout is able to affect the various portions of the nervous organization. Opinions are rapidly gaining ground that many forms of epilepsy and other obscure discharging lesions of the brain are due to excess of uric acid in the system. It is curious that in some cases epileptiform seizures are preceded by hemi-crania, and are readily kept in check by those medicines which should be given in the case of the uric acid diathesis. The treatment of a gouty patient in the future must be directed towards ascertaining what these particular conditions are, whether mental or bodily, which are liable to provoke the formation of a large amount of uric acid in the body, and to ascertaining how far the formation of this acid is dependent on the particular forms of diet which are ingested, and how far it is brought about by the surroundings of the individual. Until we are in a position to answer these questions it will be quite impossible to arrive at a scientific treatment of the gouty diathesis. Whilst much is to be hoped from a preventive treatment in the early stages, we seem to be as far as ever from the removal of urate of soda from the body, when it has been deposited in large quantities in the various tissues, and has already set up pathological changes there which are spoiling the tissues in question.

On examination of the urine in these cases, we find the lithates in great abundance, urine scanty, highly colored, specific gravity greatly increased, and readily deposits urates of a pink or brick color, and crystals of uric acid.

In the treatment of these cases, rest from mental labor, a plain, rather spare diet, free exercise in the open air, and the bowels kept regular with salines once a day. The remedy from which most satisfactory results are obtained is the uric acid solvent, in small doses, barely enough to move the bowels.

The diet in gout should be nutritious, as milk, arrow-root, tapioca, fish, oatmeal, fruit, vegetables, avoiding animal food as much as possible.

Women are comparatively free from gout. This immunity is due to sexual causes, the character of her nervous system, and the rudimentary condition of her great sympathetic. A gouty,

bald-headed woman may be said to have left her sex, cast off the woman and become the man.

Among males whose nervous systems are exhausted by any kind of drain, or worry, or study, the gouty diathesis is very prevalent, and it lies at the basis of nearly all cases of Bright's disease of the kidneys.

Man, endowed with both an instinctive and moral

Habits. nature, is easily moulded by habit, more especially by the love of stimulants, which is an inherent element in the organization of all men, barbarous as well as civilized.

The most extensive and devitalizing of all habits is the *alcohol habit*.

In no country in the world does the use of whiskey and malt liquors produce such direful results as they do in our climate. Our dry, clear atmosphere is highly oxygenized, vivifying and stimulating, causing great activity of muscular movement and cerebral thought; add to it another fuel, it actually burns up the tissues. The use of alcohol in small quantities produces chronic inflammation of the stomach, arrests normal metamorphosis; that is, checks elimination by liver, kidneys and other excretory glands, and tends to the production of fatty degeneration in muscles and glands. Besides, it coagulates, indurates, atrophies the cineritious or cell-producing structure of the brain; at the same time, it paralyzes the motor elements. Its use in large quantities so coagulates and shrivels up the abode of Deity in man that every vital function is destroyed, or at least impaired. As an illustration: should the drunkard impress his damaged spermatozoa upon the living healthy ovum; that is, if there be progeny, it will be tubercular, of a brain type, weak-minded, imbecile, idiotic, or the victim of nervous disease. Habitual inebriation is not even necessary to produce this result. One dose of this poison will prevent the brain elements from developing in the embryo, foetus, child or adult. Brain-growth is retarded, and incapable of habitation by the soul; idiocy of a congenital type is impressed; judgment, reason, memory are defective.

The tobacco habit is one of great importance to our people, to whom from mere babies to a short old age it is of very general use. It relaxes and enfeebles the muscular system, especially involuntary muscular fibres, like the heart and stomach; it exhausts the base of the brain, gives rise to aphonia or paralysis of the cerebral faculty of speech. Take alcohol and tobacco in their joint action, they dwarf and atrophy the brain, cause tuberculæ in the user and his offspring. They fret, whittle down the

over-stimulated American ; and, under these two habits, it is difficult to say what new forms of degradation and disease may not be produced.

The general method of use is by smoking, chewing, snuffing ; ladies are often addicted to it in the form of eating snuff. We are unable to account for so many ladies using it, as it is ruinous to their nature, hostile to their happiness. How disease-creating, nauseous, disgusting tobacco ever became a habit to our ladies is an enigma to be solved ; its use constantly indicates degeneracy and corruption. The use of tobacco in all cases is inimical to health. Snuff-eating is confined to ladies, and they generally begin by using snuff as a tooth powder. The habit gains, and the nervous system craves the stimulant, but it soon destroys the rosy hue of health and subverts and ruins digestion ; following that the complexion becomes pale, sickly, yellow ; the cheeks lank, faded and hollow ; eyes lose their brilliancy, and become jaundiced, sunken, hollow, beamless. It destroys the vital energies, gives rise to languor, debility, tremors, disturbed sleep, and gives the eater the sepulchral shade of death. In the form of minute subdivision of snuff, its action is more destructive than by smoking or chewing, and how young, blooming girls can bear its use is most unaccountable.

The opium habit is generally created by the physician prescribing opium or morphia for the relief of pain ; but ladies have found out that it gives unusual brilliancy to the eyes, and have got in the way of using it too extensively. Its use at first is not incompatible with great intellectual efforts and brilliant thought, but by and by, when it makes its dreadful ravages into the brain, muscle and gland, it is, without a doubt, the most persistent, irresistible and destructive of all habits. It over-stimulates, and thus exhausts, giving rise to the most feeble form of languor and despair ; it atrophies the brain, so that the consumer is dull and stupid ; it causes sterility, drying up the very fountains of life, and causing a human wreck often fearful to behold.

The tea and coffee habit ; the characteristics are : anorexia, disturbances of sleep, trembling of the lips and tongue, attacks of gastralgia, different kinds of neuralgia, dyspepsia and leucorrhœa, often profuse. Slaves to tea and coffee suffer from great mental disturbance, vertigo, impaired vision, poor memory, insomnia ; their deleterious action upon the brain is bad, but upon the liver and bowels even worse ; all the symptoms of functional liver trouble are present, as brown-coated tongue, want of ambition, yellow conjunctiva and skin, with obstinate constipation or diarrhœa. The evil effects of coffee are especially observable in children. The coffee drunkard is described as thin, pinched

features, pale, wrinkled face, and a grayish-yellow complexion. The pulse is weak, frequent and compressible. The sleep is troubled with anxious dreams.

No doubt coffee does on the whole far more good than evil. But it is important that the medical profession constantly bear in mind the evils that it is able to produce under favorable circumstances. In a general way it may be said that indoor brain workers do not bear coffee as well as outdoor muscle workers. Persons of nervous temperament bear coffee badly.

The chloral hydrate is another very destructive cerebral stimulant, exhausting more especially the ophthalmic tract and causing impaired vision. Much used.

Arsenic, belladonna and other cerebral stimulants are not much used in this country.

The arsenic habit is not so common in our country as the others; still, isolated cases are met with now and again. It is generally found in ladies, first inaugurated by ignorant doctors prescribing arsenic for some roughness of the skin. Its use gradually wears on the patient, stimulating both brain and heart until the habit is acquired, when the patient can tolerate large doses of the drug in solution as well as in a crude state. Still, the lady, in order to procure the smooth, enamelled white skin, will persevere, until some day an over-dose is reached, which will terminate the case, and some one else suffer from her reckless indiscretion.

Although these and other habits are thus acquired, it must ever be borne in mind that in all cases the working faculty of the brain is thrown out of gear. Brain and nerve tissue are of the highest possible organization; they play in the organism the part of primary activity. They are the centres of all energy, they generate all force. They do not live for themselves but for the whole body, and when a habit is created, their nutrition is impaired. We see this well illustrated in the dwarfing and whittling down process when any of those habits are acquired by children or young persons in arresting their growing brain. It is positively certain that those habits never strengthen the brain, but it is too true that they impair its activity, retard its progressive tendency. That higher organism, the brain of man, certainly requires a better stimulus than what can be supplied with *alcohol, tobacco or opium*. None of these elements impart nutrition or growth. *No*; they are fatal to the growing brain of man; they cripple its organization; they do irreparable structural mischief, the effects of which are permanent. A well-fed and properly exercised brain free from those habits works without tension or friction of any kind. The knit brow, straining eyes and fixed

attention of the tobacco or opium, slave are not a token of power but of weakness. When the brain is not crippled by those debasing, deleterious habits, its intellectual faculties work easily, without tension or jar.

Treatment.—In the treatment of one or all of these or other habits, we must bear in mind that the brain is out of gear, bankrupt, and that all the secretions as well as excretions are vitiated. There must be a new era of existence commenced, a complete change; moral and physical restraint; daily shower and plunge baths; secretions stimulated; massage as laid down in the (article Neurasthenia) morning and night. General alteratives and tonics are always of utility and should be insisted on.

The only two drugs, however, of real permanent value are the erythroxyton coca and the phosphated tincture of oats.

They produce an effect which is difficult of explanation, but they are the remedies in opium, alcohol and chloral habit and dipsomania. They are safe, reliable nerve tonics, acting rapidly as diffusible stimulants, leaving no unpleasant effects. They act promptly upon the nerve centres, causing mental quietude and satisfaction, with easy respiration and excellent digestion; acting upon the cord, relieving anæmia of that structure. They have a most wonderful effect in relieving that undefinable sensation of languor, weariness and mental unsteadiness. They are very exhilarating, which is followed by ease and comfort, relieving all mental misery and distress.

After using coca alone for five to six weeks it should be alternated with the oats.

This remedy should be commenced in small doses and gradually increased.

The avena seems to correct and deepen the cerebral fissures and imparts tone and vigor to the entire nervous organization.

After continuing both remedies for about three months, they should be gradually decreased and by and by discarded.

The coca, of all known remedies, is specially adapted to usurp the place of alcohol, tobacco, opium, chloral; the drug habit must be at once discarded and the coca substituted in its place, and administered at proper intervals.

In a few days the patient relishes the substitute well, his appetite for food becomes keen, and then he should be fed upon the very best; his sleep also becomes refreshing, and it should be prolonged by the administration of sulphonal.

His strength physically and mentally increases, and he is the being of a new existence, free from the slavish action of the habit and capable of wonderful powers of endurance and fatigue.

Its wonderful action on the nervous system in causing its recu-

peration under the most adverse conditions ; its stimulating power in perfectly supplanting the most inveterate habit, the person feeling better with it and having the power of discarding it at any time after six or eight weeks.

The best preparation is the orange wine coca. This wine extracts altogether different properties from that extracted by alcohol. This wine subjected to the dioxide of hydrogen gives us a remedy of marvellous power in all habits, by appeasing the desire or craving.

Hemorrhagic Temperament. In individuals of a sanguine temperament there exists in the blood, irrespective of any special disease, a peculiar constitutional defect which gives rise to a micrococcus hæmophilia, which is pathogenic of hemorrhage. This micro-organism impairs the fibrine of the blood, and weakens its cohesive property, so that on the slightest irritation, or wound, there is apt to be hemorrhage, and especially so from mucous membranes, as the nose, bronchi, stomach, kidneys, uterus.

Patients with light hair, white skin, and highly sanguine temperament are its victims.

It may be hereditary or acquired. It may be suspected if there be debility, vertigo, hemorrhages or ecchymosis.

The treatment to overcome this diathesis should consist in the best highly animalized diet, rich in blood elements, beef, poultry, eggs, cream, etc., mineral acids, preparations of cinchona, etc., and all surgical operations on this class of subjects should be carefully avoided.

Hemorrhage. Loss of blood, or the escape of blood from the blood-vessels, in which it is naturally contained, constitutes a hemorrhage.

It is variously classified and designated ; as for example, it is termed *traumatic*, when due to a wound, injury or incision, and if a middling large vessel is cut or torn, it will escape in jets, corresponding to the contractions of the heart ; *idiopathic*, when there exist a peculiar germ in the blood, which destroys the cohesive faculty of the blood, as in the sanguine temperament ; migration, localization of disease germs ; as well as their destructive action on the red discs of the blood, give rise to hemorrhage, as the bleeding from the nose in typhoid fever.

It may be *active* or *passive*. *Active* hemorrhage is present in operations or injuries when vessels are torn or cut ; *passive* when it depends on the presence of disease germs in the blood, or poverty of that fluid. Hemorrhage is sometimes *periodic*, as in cases of vicarious menstruation.

The seat of hemorrhage will depend upon the location of the lesion, weakness, or partial death.

There are general principles which must be observed in all hemorrhages.

The recumbent posture must be rigidly maintained; perfect freedom from excitement.

The circulation must be perfectly regulated by keeping the action of the heart below seventy contractions per minute, this can be effected either by the administration of *veratrum viride*, or *exalgine*, or both.

Plain, simple, nourishing food; elevation of the bleeding part; and the application of stimulants and styptics.

Remedies to arrest hemorrhage will depend greatly upon its location and cause. All bactericides are active styptics, as carbolic acid, creosote, creolin, peroxide of hydrogen, mineral acids; the various preparations containing *terebene*, gallic acid, etc. As soon as arrested, great caution is to be observed in diet and movement.

Bleeding from the nose or sinuses connected

Hemorrhage, with it is quite a common occurrence; owing to
Epistaxis. the exposed position of the nasal organ and its richness in blood-vessels, to its possession of erectile tissue, the organ is liable to severe hemorrhages. These may be either traumatic or idiopathic.

Among the commonest traumatic causes are blows, falls, fractures, entrance of foreign bodies, violent blowing, catheterizing the eustachian tube, and other surgical operations. Spontaneous or idiopathic hemorrhage is more rare, but may be met with in both sexes at the age of puberty. It may also occur from engorgement, hyperæmia, and presence of disease germs during hooping cough; from diseases of the heart, lungs, and liver; in acute affections, such as scarlatina, measles, typhoid fever or diphtheria, and in recurrent fever. In some of these cases, the primary cause is increased arterial tension, resulting in the rupture of small and badly-supported blood-vessels. Habitual hemorrhage is also met with, without disease of the mucous membrane, in unhealthy conditions of the blood, such as hæmophilia, anæmia, chlorosis, pregnancy, leucæmia, and, according to some authorities, in scurvy, but that at least appears doubtful. There may also be nasal hemorrhage in cases of general plethora in children or adults. Small varicose vessels, angiomata or erosions of the septum, naso-pharyngeal polypi, malignant tumors, and ulcers may also be causes. Vicarious epistaxis occurs at times, and may take the place of habitual discharges from the

anus or uterus. Free hemorrhage occasionally takes place under the mucous membrane, where the blood collects and forms hæmatomata, or blood tumors.

The *symptoms*, apart from the flow of blood, are chiefly those of cephalic congestion, such as giddiness, throbbing, noises in the head and sleeplessness. The actual bleeding may be in a stream, or drop by drop from one or both nostrils. When it comes from the posterior part the blood flows through the nasal fossæ into the pharynx, and is swallowed. The quantity lost may vary from a few drops to several quarts. After these severe attacks patients remain pale and anæmic, and if often subjected to them may gradually succumb.

Diagnosis.—The first point is to establish the origin of the hemorrhage, which may come from the lungs, stomach, or pharynx. Sometimes the bleeding point can be seen. The absence of vomiting will preclude hæmatemesis, and the history of the case, together with physical examination, will eliminate diseases of the lungs and heart. Hemorrhage from the pharynx may be recognized on inspection. If the hemorrhage ceases on compressing the nostrils, it comes from the anterior third of the nasal fossa.

Treatment.—Epistaxis in some rare cases may be beneficial, as in plethora, hemorrhoids, heart disease, and vicarious menstruation, but must always be looked upon with some degree of suspicion. In a large proportion of cases the bleeding stops of itself; this of course can be aided by a few simple manœuvres, such as placing the patient in the erect posture, holding both hands above the head; the application of cold to the nape of the neck to cause contraction by stimulating the olfactory at its root in the medulla; the application of spirits of turpentine over the liver; by snuffing cold, or, better still, very hot water; the insufflation of alum, tannin, matico-leaf, or injections or sprays by a cold atomizer of tannic acid, perchloride of iron.

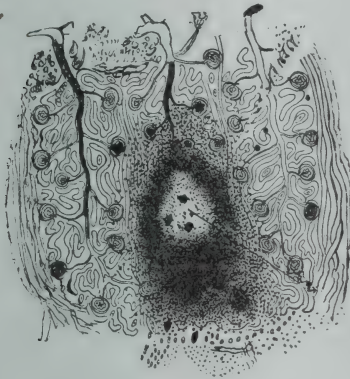
Sometimes these methods fail, and recourse must be had to plugging the nose with cotton or lint saturated with perchloride of iron. In no case should the plug be permitted to remain in over twenty-four hours.

Constitutional treatment will often improve the condition of the blood; rid that fluid of microbes, and thus lessen the predisposition to hemorrhage. For this purpose such remedies as iron in the form of syrup of quinine and aromatic sulphuric acid, *avena sativa*, kephaline, peroxide of hydrogen; whatever may improve health and vitality may be prescribed. Ergot here is a remedy of great value.

Hæmorrhage
From the Kidneys.
Hæmaturia.

Bloody urine, hæmorrhage from the mucous membrane of the urinary passages, the kidneys, bladder, urethra. It may be a symptom of acute or chronic nephritis; to the presence of the microbe of malaria in the kidneys, or to parasites, or calculi; morbid states of the blood, strains, blows, cancer in the kidney.

It is easily recognized by the smoky or port-wine tint of urine; albumen invariably present. When from the kidney, it is generally diffused through the urine; when from bladder or urethra,



Renal hæmorrhage; illustrating renal infarction, as often occurs in malarial hæmaturia.



Renal hæmorrhage; diagram showing hæmorrhage from the vascular tufts of the glomeruli.

blood comes away after passing clear urine. Blood-casts of renal tubes, cancer-cells, or renal calculi.

Hæmaturia very often present in Southern ague; it may occur paroxysmally with the fit.

Strong liability to hæmaturia in purpura, scurvy, or white cell-blood; comes on from the slightest cold or exertion; also a symptom in bilious, remittent, and yellow fevers; and in or among the inhabitants of those localities where such prevail, it is endemic.

The treatment must be varied according to cause; but in all cases rest, and stimulants over kidneys. In all inflammatory forms, turpentine; when passive without inflammation, hamamelis; con. tincture of kurchicine, when due to the malaria microbe; gallic acid in infusion of uva ursa best astringent.

**Hæmorrhage
From the Lungs.
Hæmoptysis.**

Hæmorrhage from the lungs is invariably an essential symptom of bronchial tuberculosis; not at all so common where the substance of the lung is infiltrated by tubercle. It is also a common symptom in congestion of the lungs, due to the presence of the pneumococcus; periodic in vicarious menstruation; lifts, blows, running, jumping.

Treatment in all cases, according to cause, common salt, exalgine, comp. tincture of myrrh, erigeron, iron, are good remedies, when the bleeding is due to the tuberculæ bacilli, causing ulceration of small vessels; cannabis indica, if there is much nervous irritation; turpentine, ipecac, cricus lanceolatus, witch hazel, ergot, sulphur water, peroxide hydrogen, all excellent remedies. At the same time enjoin rest, recumbent posture, cold drinks; keep heart's action under control with exalgine.

**Hæmorrhage
From the Rectum.**

Hæmorrhage from the bowels may be due to the lesion produced by the germs of typhoid fever in the glands of Bruner and Peyer; to the germ-eaten rectum of tuberculosis; or the presence of the vibrios in the insane. It may be due to congestion of inflammation, as in dysentery; to the rupture of the pile sacs (varicose veins); to the eating of the cancer germ through the vessels invaded by it. Foreign bodies, large or hardened masses of fæces, calculi or concretions may rupture a vessel and considerable loss of blood may take place; polypoid growths.

From whatever cause it has occurred, it should be promptly checked by rest in the recumbent posture, heat over abdomen; either green root tincture of gelsemium or antipyrine should be administered freely to bring the action of the heart to sixty. Enemata of witch hazel or stone crop, or a teaspoonful of Monsul's solution of iron to an ounce of water, or aromatic sulphuric acid and water. Internally, our best styptic is the bursa pastoris, or shepherd purse, a tincture from the green or fresh herb is the best rectal styptic in the materia medica, always reliable, ever efficacious; and the general treatment of the disease which gave rise to it should be carried out.

It is well for all individuals who have rectal trouble, or who have had any operative procedure about the rectum which may have rendered them liable to hæmorrhage, to avoid all straining, lifting, or violent exertion for some time.

Hemorrhage from Skin,
 or
Hæmatidrosis.

The escape of blood-stained fluid from the cutaneous surface is a very rare disease. Most frequently met with in young ladies suffering from vicarious menstruation; still, it occasionally occurs in young men after puberty.

The treatment must be upon general principles, chiefly directed to stimulating the uterine function by caulophyllum and uterine tonics.

A general course directed to improving the general health by tonics and stimulants.

Hemorrhages
in Skin.

Hemorrhages into the skin may occur under various conditions. They are not uncommon in the specific fevers and allied affections, occurring especially in typhus, measles, variola (hemorrhagic variola), diphtheria and pyæmia. In erythema and urticaria slight hemorrhages may occur. In scurvy, cutaneous and subcutaneous hemorrhages are prominent symptoms, while in one disease (purpura) cutaneous hemorrhage may be said to be the only symptom. Hemorrhagic spots in the skin are variously described, according to their size. Those which do not exceed a line in diameter are termed *petechiæ*; when somewhat larger, they are described as *vibices*; while large patches are denominated *ecchymoses*.

Purpura, an unclassified affection, doubtless from the difficulty of deciding where to place it. Its cause is not known. Occasionally it occurs amongst those depressed in health, or subject to insanitary conditions, but it also attacks those in perfect health. May occur at any age, but more common in children. Sometimes preceded by lassitude, pains in the limbs, etc., but frequently the hemorrhagic macules appear suddenly, without any premonitory signs whatever. They are mostly closely aggregated together, and vary in size from mere points to spots a quarter of an inch in diameter. They are circular, purplish in tint, not raised, and not attended with any abnormal sensations whatever. Most common on lower limbs and lower part of trunk, but also occur in other parts. Also seen on mucous membranes and beneath conjunctivæ. Fade away in the same manner as bruises do, but successive crops may appear for weeks. Larger extravasations may also occur; these are generally more deeply seated, and gradually manifest themselves in the same manner as deep-seated bruises. Very often purpura is attended by no symptoms whatever. Sometimes weakness and lassitude accompany the attack, or the temperature may be elevated. In

some cases hemorrhages from the various mucous membranes may occur. If these be severe, symptoms due to loss of blood will be developed. In severe cases death may ensue from asthenia or syncope. In fatal cases hemorrhages have been found beneath the mucous and serous membranes and into the substance of various organs, especially the heart, lungs and kidneys.

The treatment should consist of rest; digitalis or strophanthus, mineral acids and quinine, with the best blood-forming diet.

Scurvy is characterized by cutaneous hemorrhage, caused by a want of vegetables; limited to seamen or people who live on heights.

The skin symptoms resemble, to some extent, those of purpura, but the other symptoms should prevent all possibility of a mistake in the diagnosis. There is marked and rapidly-increasing anæmia, accompanied both by bodily weakness and mental apathy. Hemorrhage is very common, The gums swell and bleed, and the teeth become loose. Ulcers are apt to form on various parts of the body, and old wounds often re-open. In severe cases death may occur from syncope or from some complication.

In the treatment *rest* is of essential importance; digitalis, abundance of fruit, vegetables, speedily effect a cure.

**Hemorrhage from the
Stomach.
Hæmatemesis.**

morbid liver, or cancer, or ulcer of the stomach; morbid states of blood, as purpura and scurvy; or vicarious menstruation.

Vomiting of blood by the stomach is due to a large variety of causes. It is often but a symptom of some disease, as acute gastritis, of yellow fever, of abdominal disease, as a

The vomited blood may be either a pure red, or mixed with the gastric juices, or it may be dark, frothy, like coffee grounds, or changed to black by the acids of the stomach.

In the treatment enjoin rest, recumbent posture, heat over stomach. Try first green root tincture of gelsemium; that failing, tincture of ipecacuanha, in four to ten drops if there be much vomiting. If the blood is dark, grumous (venous), hamamelis tincture; oil of turpentine if there is great debility; ergot hypodermically; other astringents, as sulphuric acid, iron, tannic and gallic acid, etc.

Various terms are used to express the idea of uterine hemorrhage at different periods and conditions. For example, it is called *menorrhagia*, when menstruation is copious or profuse, or prolonged; *metrorrhagia*, when there is a copious, excessive, continuous flow of blood during the interval, not necessarily associated with menstruation, but more frequently blended with tumors, warts, disease germs, polypus, cancers and retained products of conception.

The uterus is the only organ in the body from which blood flows at stated intervals, and so long as it does not exceed in quantity over four ounces, and does not occur more frequently than every twenty-eight days, it is to be regarded as normal.

Causes.—Among Caucasian ladies, the uterus is very freely supplied, nay, its anterior portion literally covered all over, with branches of the great sympathetic nerve; hence in that class of patients violent emotions, desires, affections, passions, as intense grief, sorrow, worry, etc., give rise to relaxation of uterine tissue and congestion; sedentary occupations, repeated abortions, devitalize the uterus, cause it to lose its contractility; wearing sponges, rings, pessaries, excessive sexual congress, all impair its vitality and aid in bringing about an excessive flow. Debility is a common cause, whether it be directly from disease, or the presence of disease germs in the blood; long continued or excessive lactation, over work, lifts, strains, inordinate excitement; poisons in the blood due to sewer-gas; defective sanitation.

The excessive flow, with debility, anæmia are the symptoms; and these, outside of the causes enumerated, may be essential landmarks of metritis, uterine or ovarian tumors; of placenta prævia; uterine cancer; polypus, moles, etc.

Treatment.—During an attack, enjoin rest of body in recumbent position in bed, head low, foot of bed somewhat elevated. With this horizontal rest, ease of mind, no hot drinks or hot food, and the patient is not to get up for either urination or defecation, for the blood pressure is greatly increased by stooping or straining. Diet to be nourishing: beef essence, milk and lime-water, eggs, toast.

The judicious physician will select remedies and administer them according to their indications.

In the menorrhage of young ladies, ovarian hyperæmia, no drugs excel fluid extract *salix nigra*, *aletris farinosa*, *digitalis*, bromide of potassa. These are unfailing remedies.

Ergot, *ustilago maidis*, terebene, are useful in hemorrhage due to chronic metritis, pelvic hyperæmia. These drugs cause contraction of the pelvic vessels.

Strychnine is useful when the flow is associated with general debility and loss of muscular tone.

Witch hazel is indicated in venous or passive hemorrhage.

Sulphuric acid and spirits of turpentine, oil of erigeron, hydrastin, gallic acid, etc., best adapted to cases of hemorrhage after lingering labor.

Ergot in combination with compound oxygen as follows: Fluid extract ergotæ, three drops; compound oxygen, two drachms; dilute muriatic acid, ten drops; infusion of gold thread, one ounce. Administer in four doses, half an hour apart.

Local treatment of utility, if there be a thick, heavy, congested state of the neck of the uterus, even hypertrophied; pack the vagina nightly with boroglyceride till removed.

The hot vaginal douche is always a valuable auxiliary to treatment.

One of the most powerful local means of aiding a renewal of life in the uterus, and inducing contractility, is dry heat, in any light vehicle, as camomile flowers, bran, hops in bags or pillows, applied over the uterus and vulva hot. The old doctors swear by cold, but cold water, or ice either, over pubes, or up vagina and rectum, is positively injurious. If these means fail, resort at once to a plug; in the unmarried it is difficult sometimes to insert, but in married women there is no difficulty. A sponge answers the purpose most admirably, or several small ones; they may be saturated with a solution of carbolic acid, or tincture of iron, or vinegar.

Of intra-uterine applications (used with great care and judgment), boroglyceride, resorcin, creolin, etc., and the positive pole of the continuous current are of chief importance.

Bleeding from a cancer or polypus is always mitigated by rest, brushing the diseased surface with lactic acid; their removal.

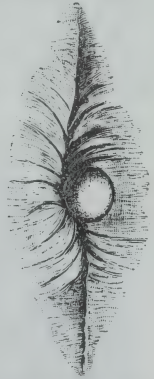
In all cases, no matter what the origin may be, strengthen the uterus, induce contraction of its vessels by the alternate administration of the salix nigra; aleteris farinosa, compound syrup of partridge berry, stylosanthus, etc.

Hemorrhoids or piles are terms applied and restricted to small, vascular tumors, or excrescences situated either within or on the verge of the anus. They consist of folds of mucous and submucous membrane in an inflamed, infiltrated or permanently thickened condition, and usually contain enlarged varicose veins.

Certain distinctions are admitted, and these are engrafted into all our literature on the subject, as blind and bleeding, according as they are or are not accompanied by hemorrhage; and into external and internal, as they are without or within the sphincter ani.

Hemorrhoidal disease is essentially one of debility—a true varicose condition of the veins of the rectum, involving altered nutrition, with dilated, tortuous vessels, surrounded by tissue thickened by inflammatory products. Those tumors may in some cases consist of erectile tissue, formed by the abnormal condition of the vessels of the mucous membrane.

In order to appreciate the subject thoroughly, the anatomy of the rectum must be reviewed. Here we see that it is very freely, nay, largely, supplied with blood. The vessels on its outer side are large, and send branches at intervals through the muscular coat, which ramify between it and the mucous membrane. The arrangement of the coats of the bowel is not the same throughout; over the greater part the arteries and veins take the same course, penetrate the muscular coat at short intervals, and at once divide into small branches, and go in a transverse direction, forming a network by their communication with the subdivisions of other smaller vessels. Towards the lower end of the bowel, for the length of about six inches, the arrangement is quite different. Here the vessels have considerable length, and their direction is longitudinal. Penetrating at different lengths, they merge in parallel lines towards the end of the gut. In their progress downwards they communicate with each other at intervals, and are still more freely connected near the orifice of the bowel. Here the arteries all join by transverse branches of good size. The veins form loops, inosculate or anastomose with great freedom.



External pile.



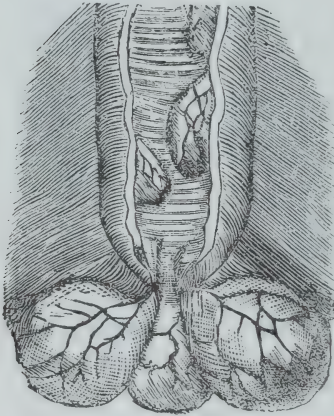
Internal and external piles.

At an early stage of hemorrhoidal disease the blood may circulate through the dilated veins; but as they advance dilatation becomes greater, and they are still further enlarged, and when so, they are found to contain clotted blood or fibrinous matter. From the aggregation of veins, thus dilated in different ways and degrees, loaded with blood or one of its elements, more or less solidified, the hemorrhoidal tumor is formed. The rounded masses which fringe the

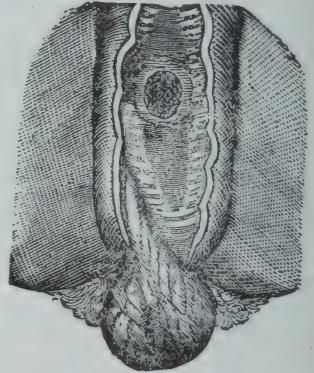
end of the rectum, soft, pulpy, are simply coagulated blood which is confined there. When unravelled out and inspected with a magnifying glass, those swellings are simply varicose veins, loops dilated, enlarged, tortuous, thickened by inflammation.

The dilatation of the terminal loops, from their dependent position, the weight of the column of blood, the want of valves in those rectal vessels, gives us an uninterrupted flow from heart and liver, the large size of the vessels at the lower end of the rectum and of their terminal loops favor varicosity.

The predisposing causes are inherent, or acquired debility, or weakness of the veins, which permits of their alteration or



This wood cut affords an excellent illustration of both external and internal hemorrhoids in a full stage of development, three protruding through the external sphincters, three higher up in the bowels.



A complete state in which a hemorrhoid protrudes externally with an eroding ulcer high up. Very common in pulmonary consumption.

change into a hemorrhoidal tumor. This change takes place in the loops into a species of gradual dilatation, usually in the form of a round pouch, fusiform, or abrupt, or elongated.

The exciting causes are any thing that give rise to congestion of the lower bowel, as luxurious living, sedentary habits of life. The use of alcohol, carbonaceous food, overcrowding, solar heat, render the liver sluggish, and this inactivity rebounds upon the rectal plexus of vessels; causes turgescence. A germ-smitten, malarial liver and spleen retards the formation of bile, embarrasses its function, gives rise to inertia or inactivity of the bowels. Whenever the portal circulation is slowed, vascularity of the rectal vessels take place. Constipation is the most common cause; it operates in producing hemorrhoids by pressure of the accumulated and hardened fæces upon the veins; the straining

and irritation such as alvine evacuations produce in their passage; drastic purgatives, as aloes, dysentery; inflammation of the prostate; uterus; all persons habituated to diarrhea.

The ordinary symptoms of hemorrhoids are very variable, but may be embraced in a few sentences. The patient, after experiencing for an uncertain length of time a feeling of itching, heat, fulness, throbbing about the lower portion of the bowels, becomes conscious of a sensation, as if there was a foreign body in the anus. On an examination, after an evacuation of the bowels, he discovers a small tumor, usually about the size of a small marble, which either remains outside or is retracted inside, according as it originated, without or within the sphincter. The tumor gradually increases in size, and others form around it, until a mass of them may form, or the original one remain solitary. Whichever be the case, they gradually increase in size, reaching about the bulk of a pigeon's egg or larger. In its ordinary indolent state it has little sensibility, and may occasion little annoyance; but when inflamed from strangulation of the sphincter muscle, or any other cause, it is exquisitely tender to the touch, and is the seat of burning and stinging sensations, rendering the evacuation of the bowels, and sometimes the bladder, difficult and very painful. In men those tumors may give rise to leakages, prostaticorrhæa; in women, to irritation of the uterus, ovaries, vagina, with mucous or muco-purulent discharge, anæmia, loss of flesh, debility, and many other anomalous symptoms. In severe cases patient can neither sit nor walk with comfort, and only finds relief in the horizontal position.

The reflex symptoms are numerous, as pain in the back, albuminuria, headaches, prostration, chorea, epilepsy, nervous disease, and general derangement of the vital forces.

Itching piles, as they are termed, present no distinct elevation, but great irritation of the anus and puffiness of the surrounding parts, often accompanied with an eczematous eruption; usually disappear under an alterative and tonic course of treatment, with a lotion of boroglyceride to the part.

Hemorrhoids are liable to be affected by attacks of general ill health, or irregularities of the stomach, liver and bowels.

Cold, damp, carelessness in the selection of article for cleansing the parts after defecation, often excite an irritation, a little redness, with slight tenderness and œdema. Any thing which irritates the delicate integument about the verge of the anus, an obstruction to the circulation, preventing a return of venous blood, high living, alcoholic drinks, mercury, malaria, use of tobacco, act in the production of piles by obstructing the liver.

The diagnosis of piles is very simple; the history of the case, their appearance are most significant.

Treatment.—The general management of a case of either external or internal piles is simple and most effective. In all cases the patient should be placed upon an alterative and tonic course, generous diet, free from carbonaceous material, daily alkaline or acid baths, and rest in the recumbent posture inculcated; all predisposing and exciting causes as far as possible removed.

Remedies that will efficiently stimulate the liver should be administered, and all alcoholic drinks or conditions of life which will cause torpidity of that gland removed. For this purpose the following formulæ are excellent: tincture of nux vomica, and tincture of belladonna, of each half an ounce. Mix. Dose, from five to ten drops before each meal, in alternation with fifteen-drop doses of tincture of sulphur, both administered highly diluted in water. And on retiring to bed every night, the following is to be injected into the rectum: three drachms of the fluid ext. of hamamelis; two drachms of the fluid ext. of hydrastis canadensis; and two ounces of sweet oil. Mix, and if possible, retain over night. As a palliation, and often curative remedy for local and internal piles, hamamelis is very superior to all other remedies. The external parts should be bathed thrice daily with warm water and castile soap.

After each morning stool, the rectum should be injected with warm water, or if great debility exists, beef tea, and permitted to remain half an hour or longer. When this is passed, a cocaine suppository should be inserted, or a half a drachm of either of the following should be introduced into the rectum: sub-nitrate of bismuth, two drachms; muriate of hydrastin, thirty grains; butter of coca, one ounce; oil of eucalyptus, twenty drops. Liquefy the butter of coca by heat, then add the bismuth, hydrastin, and eucalyptus; run in moulds so as to give thirty grains to each. Or, the following may be tried: fluid ext. eucalyptus, one drachm; oxide of zinc, two drachms; butter of coca and vaseline half an ounce. Use as above. Petroleum oint., one ounce; salicylate soda, solid extract elder bark, and burned alum, of each one drachm. Mix. All are excellent, and should be applied to the outside, and inside as far as possible. This treatment will get rid of the inflammation.

Small piles, or cutaneous excrescences around the anus should be removed, or absorbed. For this purpose some of the following should be tried: Monsul's solution of iron, one ounce and a half; fluid ext. belladonna, three drachms; fluid ext. hamamelis, three ounces; tinct. calendula, four ounces; sulphate of morphia, thirty grains. Mix. Apply locally around the parts once or

twice daily with a camel's hair pencil brush; or a mixture of hamamelis, glycerine, and boroglyceride is excellent.

In our treatment of both external and internal piles, whether they be blind or bleeding, protruding or ulcerated, or whatever name may be given to them, a cure can be effected in all cases without the use of the knife, ecraseur, clamp, torsion, or burning with caustic, by simply injecting them to coagulate their contents and excite absorption.

If it is decided to operate for either external or internal hemorrhoids by injection, the bowels should be freely opened, and then the rectum washed out. If they are external, the mode of procedure is very simple, simply throwing the injection into the centre of the pile; but if they are internal, the speculum must be inserted, and the tumor brought well into view. Then introduce the needle of the syringe (which is charged with one of the formulæ which are given below), into the most dependent part, taking great care not to push the needle into the connective tissue underneath the sac. This accident would cause great pain and inflammation, and in some cases produce much trouble. Should this occur, a warm sitz bath should be immediately resorted to, to be followed by a cocaine suppository. This affords instant relief.

It is unnecessary to state that there is always less irritation from injecting one, than two or more.

In all cases the irritation passes off in from four to eight days, unless an overdose be given. Scarcely any pain follows if the injection is deposited in the centre of the sac.

It is a good rule to adopt, never to inject internal piles when they are protruding, they should invariably be returned into the rectum before being injected, and the inflammation, if possible, must be reduced before treatment is carried on, although we have treated piles when protruding from the anus, with our favorite prescription, with no unpleasant results.

The following are a few of the formulæ in very general use by rectal specialists for the purpose of coagulating the contents of piles, and causing their disappearance or perfect obliteration by absorption:

Carbolic acid crystals, fifteen grains; fluid extract thuja occidentalis, thirty drops; oil of eucalyptus, sixteen drops; glycerine, thirty drops; aqua dest., three drops. Mix. Inject from five to fifteen drops into each pile, the quantity injected being governed by the size of the pile to be injected.

In using this, and either of the following formulæ, no irritation or sloughing will occur, even if a drop or two penetrate into the connective tissue.

In preparing any of the formulæ, a very small quantity should be prepared at a time, as it will be fresher, more active. None of them should be exposed to a strong light for any length of time.

A variety of formulæ for injecting piles :

Carbolic acid, glycerine, of each one drachm ; fl. ext. ergot, one drachm ; water, one and a half drachm. Mix. Three to eight drops to be injected according to the size of the pile.

Carbolic acid, thirty-five grains ; fl. ext. ergot, twenty drops ; glycerine, fifteen drops ; dist. water, fifty drops. Mix. Inject two to ten drops.

Carbolic acid, four drachms ; olive oil, three drachms ; oil origanum, one drachm ; salol, five drachms. Mix. Inject two to six drops.

Olive oil, twelve drachms ; carbolic acid, ten drachms ; tinct. opii, one drachm. Mix. Heat to 290° F. ; evaporate to two and one-half ounces to drive off the water and alcohol, then inject from two to ten drops.

Fl. ext. thuja, six drachms ; fl. ext. hamamelis, one drachm ; fl. ext. horse chestnut, three drachms ; water, four drachms. Mix. Inject from five to twelve drops.

Carbolic acid, one drachm ; sperm oil, three drachms. Mix. Inject from three to fifteen drops.

Carbolic acid, one ounce ; creosote, twenty drops ; olive oil, glycerine, of each one ounce ; muriate of cocaine, three grains. Mix. Inject three to six drops.

Salol, ten grains ; fl. ext. horse chestnut, one drachm ; fl. ext. ergot, one drachm. Mix. Inject ten to thirty drops.

With those, and like formulæ, a good rule to adopt is never to inject more than one pile at once ; if small, two can be injected, provided the amount injected did not exceed ten to twelve drops. Better to repeat the operation in eight or ten days, until all have been injected and cured. In some rare cases, very large piles may require two or three treatments.

Select one of the following formulæ, to apply on cotton or lint continuously for irritable piles :

Hydrochlorate of cocaine, five grains ; two drachms each of fluid extract of opium, aconite and stramonium ; glycerine, one drachm. Mix.

Tannic acid, two drachms ; solid extract of belladonna, five grains ; pulverized opium, one drachm ; ozone ointment, one ounce. Mix. Apply inside and outside.

Subnitrate of bismuth, two drachms ; hydrarg. chloride mit., forty grains ; sulphate of morphia, three grains ; glycerine, three drachms ; ozone ointment, one ounce. Mix. Apply in pile syringe.

We cannot speak too highly of the utility of curing hemorrhoids by injecting and dispensing with the old and barbarous methods. It is the most serviceable and requires very little skill, nothing but good common sense; the number of drops injected should correspond to the size of the pile. It is best to use a curved needle, it throws and holds the medicament deeper into the base of the tumor than a straight one. The operation is simple with hemorrhoids situated near the anus, a little more difficult higher up.

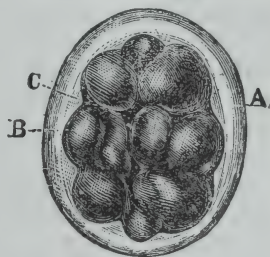
The injections are more painful the nearer they are to the external anal orifice, but this soon subsides. Even in very sensitive ladies pain is scarcely appreciable. It is undoubtedly the best plan, after they are injected, to lock up the bowels for a few days by administering a grain of opium thrice daily. Even when the bowels are moved there is no difficulty, no danger of any complications whatever.

The almost freedom from pain permits the patient to follow his avocation undisturbed, there is no need of chloroform or ether with their dangers and disagreeable effect. There is every argument in favor of the method.

Hemorrhoids and Prolapse of the Rectum often co-exist. In cases of this kind the eminent rectal specialist, Prof. G. W. Powell, M. D., Moriah, New York, gives what he denominates a safe, simple, and effective mode of treating these troublesome affections. He injects into the tissues with a hypodermic syringe an eight-grain solution of muriate of cocaine with an equal volume of phenol sodique. The quantity of this solution injected varies from twenty minims, in small hemorrhoidal tumors, to one ounce, in prolapsed rectum.

One injection is sufficient to cure hæmorrhoidal tumors in all his cases, while two to four trials are found necessary to cure prolapsed rectum. The syringe point is introduced at the most prominent point of the tumors—large or small—and thrust boldly to the most vascular part of their base, and a liberal portion of the solution deposited, according to the size of the tumor.

Then the balance of the tumor is well saturated with the solution. After injecting hemorrhoids no topical treatment is applied, except a daily wash of dilute solution of boroglyceride as hot as can be borne. After injecting prolapsed rectum a mild



Numerous small piles protruding from the anus, which were all injected at one time with carbolic acid injection; excellent cure.

antiseptic healing salve is applied. The following formula was found very efficient :

Iodoform, in fine powder, balsam Peru, oil of camphor, oil of sassafras, of each half a drachm ; pine tar, castor oil, powdered aloes, of each one drachm ; subnitrate of bismuth enough to make a stiff salve. Apply thoroughly twice a day, and cover with a soft cloth.

Before applying the salve each time, let the parts be well washed with the syringe ; soapsuds from tar soap, as hot as can be borne, being employed for the purpose.

In addition to whatever general internal treatment may be indicated in any given case, he is in the habit of directing, with excellent results, something like the following :

Fl. ext. witch hazel, half an ounce ; sat. tinct. horse-chestnut, one drachm ; muriate of ammonia, one drachm ; glycerine, four ounces. M. ft. sol. Dose. A teaspoonful three times a day, just after meals, on alternate days.

Muriate of hydrastin, twenty-four gr. ; ergotin, twelve gr. ; ext. capsicum, ext. ipecac, aloin, of each six gr. Mix. Make twenty-four pills and silver-coat. Dose. One pill three times a day, just after meals, on alternate days.

These last two prescriptions should be administered regularly, on alternate days, as long as the hemorrhoids or prolapse give trouble, and for several weeks after they have ceased to do so.

After operation on hemorrhoids, patients are allowed to attend to their ordinary business at pleasure.

The cases of prolapsed rectum are confined to bed until cured, which is in the mildest cases about two weeks, and in some severe or complex cases about four weeks. They are then allowed to move gently about the room, but if the patients are parturients, the horizontal posture and quietude are doubly indicated. No general anesthetic is found necessary in any of the cases, as the operations produce but little pain or subsequent soreness. No inflammatory reaction follows the injections.

Pain indicates a partial death, so here we have, **Headache.** in the brain, an organ suffering a loss of its vitality from the wear and tear of civilized life ; this lies at the origin of all headaches ; then the presence of disease germs in the blood acts as an exciting cause, so we have the headache of syphilis, gout, rheumatism, malaria, etc.

Poisons in the blood, like uric acid ; polluted atmospheres, with sewer-gas and other effluvia ; want of nutrition in the brain proper, as starved areas ; reflex causes and organic disease of the brain substance.

A division or classification of the various headaches is of great value in the application of remedies for its relief.

Of all varieties the nervous is the most common, it is due to debility, exhaustion, poor blood, to the use of a diet deficient in phosphates; to hemorrhages, over-lactation. When neurasthenic men or women suffer from this headache, it is confined to one spot, resembles the driving of a nail into the part, and is known as the *clavus hystericus*.

The congestive form is due to inherent weakness in brain substance and a determination of blood. There are symptoms of plethora, vertigo, beating in ears, caused by over-stimulation, or it might arise from a sudden suppression of the catamenia.

What is termed *bilious headache* is associated with derangement of the stomach and liver. There is usually a coated tongue, fetid breath, flatulence, nausea, constipation, stools clay-colored.

In the *organic form*, there is some well-defined cerebral disease, with vertigo, *muscæ volitantes*, tinnitus aurium, vomiting, convulsions. The character of pain will indicate its location, whether it be the membranes or substance of brain.

In the *treatment* of all headaches general principles should guide us. Bowels should be regulated either with cascara sagrada or kolatina lozenge, skin stimulated, rest inculcated; warm mustard foot baths and a light nutritious diet given, and above all things breathe pure air.

We briefly enumerate a few of the more prominent remedies in the cure of headache:

When purely *nervous* the salicylate soda in the effervescing citrate of caffeine, guarana, fluid extract tonga, simabacidia, one-per-cent. solution of nitro-glycerine.

The caffeine in this form of headache is of great efficacy. Nothing can excel it. Menthol also of utility.

When *bilious*, compound extract of colocynth, nux vomica, gelsemium, chloride of ammonia.

When due to *congestion*, bromide of potass, liquor ammonia acetatis, bryonia, exalgine.

In *anæmic states* of the brain, as in cerebral neurasthenia, nitro-glycerine stands unrivalled; Indian hemp also good; cimicifuga, caulophyllum, pulsatilla, are three excellent remedies at the climacteric period, with pain at vertex and hot and cold flushes.

In headache, due to the *inhalation* of foul air, sewer-gas, densely populated localities, peroxide hydrogen, compound oxygen, chlorate potass.

In that due to organic changes in the brain, large doses of solid extract hyoscyamus, alternated with sulphonal; croton chloral hydrate.

An acute affection in which one or more groups of vesicles are seen seated on a red and inflamed base. The vesicles are generally small and their contents clear, but sometimes they become opaque; several may coalesce. The vesicles begin as papules, but these quickly become vesicular, and the eruption is at its height in twenty-four hours. In a few days the vesicles dry up and scabs form, which drop off, leaving simply a patch of redness. Two varieties are described in the official nomenclature: *H. facialis*, (*Syn. labialis*) and *H. præputialis*. Other varieties also receive special names according to the part affected, as *H. auricularis*, etc.

H. labialis is a not uncommon accompaniment of catarrh, especially when accompanied with much fever. It so constantly occurs at the onset of croupous pneumonia as to form a marked symptom; it follows the rigors.

H. præputialis is a vesicular eruption occurring on the genitals, as implied by its name. It may cause alarm by being mistaken for a venereal affection. It is sometimes exceedingly obstinate, recurring again and again.

H. circinatus and *H. iris* are rare forms which are occasionally seen. The former is the name applied to a ring of vesicles seated on an inflamed base. This gradually enlarges and fresh vesicles form at the periphery while the centre clears. *H. iris* is a very rare form of eruption, in which vesicles form in concentric rings upon a reddened base which gradually increases in size.

In the treatment of these different forms of herpes, we must always recognize the fact that the serum of the vesicles contains the *germ*, the factor of the disease; that if this is permitted to ooze around and contaminate sound parts, it will have a perpetual existence. So that whatever dressing is applied, must be powerfully germicidal, *wet* or *dry*, to kill the microbe; if a lotion is desired, let it be made of either ichthyol or resorcin, or creolin or bichloride mercury; if a powder, the anti-microbe powder; ointments are to be avoided if possible, but if used, must be made of resorcin, ichthyol, creolin, bichloride of mercury, etc.

Internally, patient should be placed upon alteratives and tonics, as saxifraga and cinchona; at the same time the blood must be kept sterilized by the constant administration of either ozonized sulphur water, peroxide hydrogen or compound oxygen.

Herpes, zoster, shingles, formerly described as a variety of herpes, but now considered a distinct disease, and named *zona* in the official nomenclature. In appearance it somewhat resembles ordinary herpes, consisting, as it does, of small vesicles seated on an inflamed base. It has, however, marked differences. The

distribution of the vesicles should alone suffice to diagnose it. They usually appear along the course of one of the principal nerves, very commonly one of the intercostal or superficial cervical nerves, though it may also occur on the limbs. The eruption is almost invariably unilateral. It is generally preceded or accompanied, sometimes followed, by neuralgic pain along the course of the affected nerve, which may be very severe. Zona is regarded as a neurosis. Changes have been found in the adjoining nerves, also in the inter-vertebral ganglia. Hyperæmia and hemorrhage have been found to occur within the ganglion and surrounding cell-infiltration. Peripheral nerves show neuritis or perineuritis. Both motor and sensory nerves have been found affected. Dubler believes that zona is not a neurotrophic disturbance, but a direct extension of inflammation along the nerve to the skin.

Eruption may occur at any age, but more common in latter half of life. A second attack is rare. In many cases no discoverable cause is present. In others, some source of nerve irritation may be known to be present, as tumors causing pressure on nerves, caries of vertebræ, locomotor ataxy, etc. Eruption has also been observed after poisoning with carbon monoxide, and has been known to appear during the medicinal administration of arsenic.

The vesicles of zona may be few and isolated, but more often occur in groups, the individual vesicles being small, prominent and set rather closely together. Successive crops may come out for a week or more. The vesicles become opaque and then dry up, leaving yellowish scabs which soon drop off. It is not followed by scarring unless ulcers have formed, or the inflammatory process has proceeded to gangrene.

This form is best treated by the local application of powerful stimulating bactericides and the use of such remedies as glycerite of kephaline, tincture of oats, and such formulæ as the following :

Glycerite of kephaline, four ounces ; sulphate of quinine, one drachm ; tincture of nux vomica, two drachms. Mix. One teaspoonful thrice daily. Phosphide of zinc and extract of nux vomica, of each, one-third of a grain, added to solid extract of hydrastis, thrice daily.

Hiccough is a short, convulsive and noisy inspiration, followed immediately by expiration. It is due to the sudden and involuntary and momentary contraction of the diaphragm with the simultaneous narrowing of the glottis.

The cause is either in the brain, at the origin of the pneumo-

gastric and vagus, or at their periphery in the stomach or recurrent branches in the diaphragm. Occurring in brain irritation or disease, it is to be looked upon as one of great danger when dependent on irritation of digestive organs; usually not to be dreaded, but the paroxysms occurring at short intervals, and for days in succession, give rise to pain about the heart and great exhaustion. Young and old are most liable to attacks. In all cases the treatment should be adapted to the cause; but if no acute or dangerous malady is under way, in a mild case it can be checked by patient taking a deep inspiration, and then holding the breath as long as possible, so as to keep diaphragm contracted; the wearing of a belt around epigastrium. In other cases it can be checked by snuffs, a good sneeze.

In more severe forms try one of the following remedies by the *smell*, as inhalation of a few drops of chloroform, ether, nitrate of amyl; *by the mouth*, ammonia, musk, camphor, menthol, Indian hemp, aconite, belladonna, nux vomica, chloroform. bromohydric acid, hydrocyanic acid; *local*, dry cups, aconite, belladonna and chloroform; liniment to nape of neck and over diaphragm.

If due to dyspepsia, emetics, bitter tonics, cinchona and ammonia.

If hysterical, sambul, valerianate of zinc.

If intermittent, iodine and quinine.

If infantile, a few drops of oil of aniseed, wintergreen, warm bath; see to the milk.

In the United States, with its heterogeneous population of different races of men, all possessing more or less an affinity for that spot of earth on which they each respectively originate, we find this malady very common and in a most aggravated form. Among the Caucasian race the Anglo-Saxon is the most easy to climatize, whereas, the Celt, with all his vivacity and dash, is the most difficult. In the latter race there is often a perfect want of adaptability, especially if there exists a poverty of nerve force in the individual; in the former the acclimatization faculty is perfect, truly cosmopolitan.

Neurasthenia lies at the root of this disorder, and all its varied symptoms are present.

Nostalgia shows itself by a fondness for solitude, and an indulgence in grief and despondency; together with a loss of appetite, constant pain in the stomach, difficulty of breathing upon the least bodily exertion, paleness of the face and palms of the hands, whiteness of the tongue, with an appearance like stains of ink

upon it, whiteness of the lips, drowsiness, inactivity, unwillingness to attempt and inability to perform motion, and general debility. The tunica adnata is of a glassy whiteness, the skin of an olive complexion and cold to the touch; the eyelids, face and extremities show evident signs of an extravasation of water in their cellular membrane; and the unhappy sufferer can only breathe in an erect posture, from water being likewise collected in the chest and cavity of the abdomen. The entire lymphatic system becomes vitiated and fails to raise the standard of the blood to that of red discs.

As a sovereign remedy, none can excel the tonic and stimulating effects of the coca. It is used with the most gratifying success for the cure of this form of neurasthenia—it facilitates digestion, relieves the depression of spirits and all other attendant symptoms.

Added to this the glycerite of kephaline acts well in aiding a restoration of vital force and building up nerve tissue. The avena sativa also is very effective.

May be defined to be a contagious and infectious disease, due to the presence of a micrococcus in the blood—a disease of great frequency in childhood, and to which a large proportion of infant mortality is due. Indeed no disease germ, except the comma-bacillus of cholera infantum, kills more children under two years of age than this. It exists in all parts of the world, and has been recognized from the most remote times.

The cause is the presence of a micrococcus in the blood, its field of nutrition seems to be in and around the cervical portion of the spinal cord, in which locality it finds a proper pabulum for growth and reproduction; although the germ is constantly present in the blood, it is also found in the breath, expectoration, saliva, urine and fæces, and it can be detected within a radius of fifty feet on the furniture, walls, carpets, etc.

The germ consists of elliptical cocci or their mycelia, and looks like the annexed cut, with figure 8 interspersed.



Micrococci of whooping-cough.

Like all other living poisons in the blood, it has a period of incubation, sprouting, fecundation, growth, activity, and death, depending greatly on the vigor of vital force of the patient.

The pathological effects produced by the micro-organism are embolism, and as it is a free excretor of ptomaines, toxæmia of the brain—convulsions. Its duration under the old treatment, from six to eight weeks.

Symptoms.—The earliest is a common cold or catarrh, accompanied by a cough; there is also a slight amount of fever, restlessness, and sometimes running at the eyes and nose. The cough in a few days becomes more troublesome, and some glairy fluid may be brought up from the chest; in a week or ten days, but oftener later, the child will begin to have the characteristic hoop; the cough comes on in paroxysms, and is more frequent by night than by day; each paroxysm begins with a deep and loud inspiration, followed by a succession of short and sharp expirations, again followed by a deep inspiration, and the repeated expiration; this may go on several times, and last one or two minutes, according to the severity of the case. Just before each attack comes on, the child clings to its nurse or mother; it sits in an erect position; during the paroxysm the face is flushed, the veins in the head and face prominent, the eyes suffused and watery, and generally there is some glairy fluid expelled from the mouth, or vomiting may come on. After the paroxysm the child will rest for a time and appear pretty well until the next attack comes on. In bad cases there may be twenty and thirty paroxysms a day, and several fits of coughing besides, without the hoop being heard. In ordinary cases there are from four to ten spasmodic attacks in the twenty-four hours. These symptoms last for three or four weeks, and then the cough abates in severity and frequency, and finally ceases altogether; even when there is no hooping, the child may continue to have a troublesome cough for some time. In most cases there is some bronchitis attending this complaint, and this is shown by the hurried breathing, rise of temperature, and by hearing rattling noises over the chest. The more mischief there is in the lungs, the greater is the danger to the child. Convulsions are a sign of ptomaines being liberated, and this is generally the way in which such cases die. Hooping-cough cannot be made out until the characteristic hoop appears, with microbe in breath, and then there can be no difficulty in recognizing the disease.

Complications, as measles, small-pox, bronchitis, pneumonia, disordered bowels, as cholera infantum, tubercular meningitis, always render it fatal; cough, accompanied with hemorrhage from nose, mouth, ears, effusion into the conjunctiva are bad

complications. It may prove fatal from exhaustion, marasmus, convulsions from embolism, or thrombosis in heart or large arteries. Renal complications are extremely common, if the physician fails to recognize its germicidal origin; stasis of blood in the kidney, albuminuria, suppression of urine. When disease is permitted to run its course, emphysema, dilatation of ventricles of heart and glucosuria are common.

In the *treatment*, child should be kept as quiet as possible; if the weather is fine, it can be taken out, but if stormy, it must be kept within its room, which should be of an even temperature and protected from draughts. Warm clothing should be worn, nourishing diet given, and well bathed morning and night in an antiseptic bath; all complications, as diarrhea, carefully guarded.

In all cases, the reflex impressibility of the medulla oblongata and spinal cord must be diminished by the administration of some one of the following remedies: comp. syr. lobelia, musk root; bromides of potass and ammonia; tinctures of calabar bean; black cohosh; belladonna, etc. Such a formula as the following: comp. syr. lobelia, six ounces; fluid ext. sambul, one ounce; tinctures of belladonna, calabar bean, each one drachm; bromide of potass, half an ounce; bromide of ammonia, two drachms. Mix. Dose, from a few drops to half a teaspoonful or more every three or four hours. The action of this can be aided by applying local stimulants to the back of the neck, as concentrated ozone and chloroform; or thymol dissolved in chloroform; or an ointment of eucalyptol and iodol. Children, as a rule, do not bear inhalations well, but if they can be used, in an atomizer or otherwise, the best are distillations of jequirity, pine, eucalyptus, creolin, naphthaline, glucozone.

The little patient should be taken off some distance, a mile or two, twice a week, and while absent the apartment in which it is domiciled should for one hour be fumigated with burning sulphur, doors, windows, and every crevice carefully closed; this has a salutary effect in destroying every germ in the apartment, on the walls, floor, playthings, etc., so that when the patient returns it will breathe a sterilized atmosphere. This sulphur fumigation is most beneficial, exercises a marked effect on the future evolution of the germ.

Having attended to those preliminaries, then the correct treatment of the case should begin.

The patient, as far as possible, should be surrounded with an antiseptic atmosphere; tincture of iodine, or distillation of the pine or solution of carbolic acid, etc., should be exposed in the apartment in saucers, so that they mix freely with air breathed, and thus paralyze the activity of the micrococcus.

Internally, the true curative treatment consists in administering persistently some efficient germicide that will either completely sterilize or annihilate the germ. For this purpose, one of the following formulæ may be selected: Syrup of tolu, four ounces; resorcin, half an ounce. Mix. One teaspoonful every three hours while child is awake. Liquor ammonia acetatis, six ounces; salicylate soda, four drachms. Mix. Dose, as above. Hydrogen peroxide (ten volumes strength), six drachms; glycerine, four drachms; distilled water, three ounces. Dose. One tablespoonful thrice daily. Syrup of benzoin, four ounces; drosera rotundifolia tincture, two drachms; tincture belladonna, thirty drops. Mix. Dose. One teaspoonful every three hours. Other germicides often used. Salicylic acid, pyridin, exalgine, chloral hydrate, benzoic acid, boroglyceride, bromohydric acid, etc.

All complications should be carefully guarded and treated on general principles, holding on to germicides as the agents to destroy the factor of the disease. Warm clothing, moderate exercise; some mild, efficient tonic should be given.

Hydatids are watery vesicles in whose fluid are found the larval elements of the tape-worm. These hydatid sacs may occur in any part of the body of man and animals. They are generally enclosed in an external sac, which is attached to the tissue of the organ in which it is situated;



Showing the growth and budding of hydatids.

they rapidly grow, young broods sprouting forth, with distinct envelopes peculiar to each. The fluid in the interior of the hydatid contains millions of larvæ, and is almost colorless and limpid, but the fluid in the common cyst in which the hydatids float is often of a yellow color.

Two species of echinococcus are usually noted, that which is peculiar to man, met with in the brain, eye, liver, intestines, kidneys, and that which is common in animals, but it is by no means certain that they are distinct.

Whenever any of the hydatids are swallowed by man or animals they proceed under favorable circumstances to be developed to a higher stage of existence, the tapeworm.

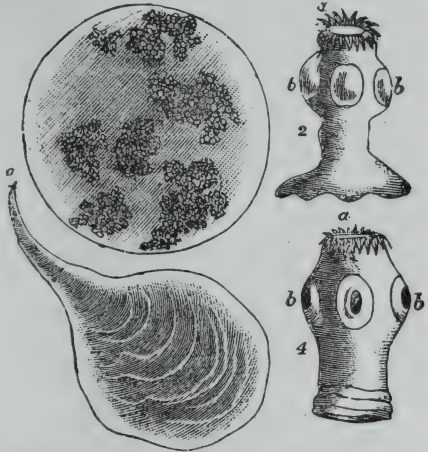
These echinococci do not become developed into tapeworms unless they reach the intestinal canal of some animal by being taken in as food or drink.

In ordinary cases of hydatids, consisting of echinococci, the cysts and their contents undergo a species of degeneration, be-

coming changed or altered in some cases into fatty or calcareous matter, while in other cases the contents become granular. The peculiar hooklets which occur in them, and which remain unaltered for a long time, reveal their true origin.

The common globular hydatid or acephalocyst, which sometimes attains quite a large size, is merely a degenerated or abnormally developed echinococcus.

Hydatids sometimes occasion so little inconvenience that persons in whom they are discovered after death have not even suspected any disease in the organ in which they were found. On other occasions they grow rapidly and cause so much irritation that suppuration occurs in and around the common sac. In such a condition it is very liable to either burst externally or into a mucous



Hydatids. 1, *Cœnurus cerebrialis*, natural size; 2, one head magnified; *a*, oval circling of hooks; *b*, suckers; 3, *Cysticercus tenuicollis*, natural size; 4, head magnified; *a*, circling of hooks; *b*, suckers.



A bright elastic tumor of a translucent appearance on neck of the womb; when punctured, its serum yields myriads of echinocercs.

canal or serous cavity. When discharged into any of the natural outlets, all is well; recovery may take place, but if it ruptures into a cavity, a shut sac, like the chest, abdomen or brain, fatal inflammation will follow.

False hydatids are simple serous cysts, either occurring alone, or in clusters, common in the choroid plexus of the brain; constituting the fluid of ovarian dropsy. These false hydatids are comparatively common in the uterus, where they cause great enlargement of that organ, simulating pregnancy.

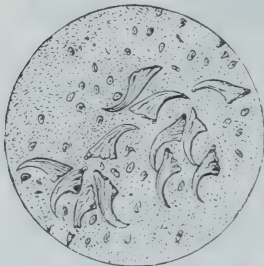
Most remarkable cases of epilepsy, chorea, might be cited as due to the presence of those larva formations in brain and cord.

Even the eye becomes affected by bathing it in water from a pond in which animals have drunk.

Hydatids of the Brain.—Parasite cysts of the brain are very commonly found in sections of the country in which the inhabitants live chiefly upon pork.

Chiefly two parasites, the *tænia echinococcus* and the *tænia solium*, are found in the human brain in the cyst condition, and it is of some importance to distinguish between them more definitely than has hitherto been done. Where dogs are admitted freely to human dwellings and have access to sources of drinking water, the *echinococcus* will be the more common, as, for instance, in Iceland. In our Western States, the *cysticercus cellulosæ* is the more common parasite, and it has been shown that it has a special tendency to affect the brain in man. Out of eighty-seven patients in Cincinnati, Ohio, who were affected with this parasite, it was found that in no less than seventy-two the cyst was situated in the brain. Two cases have been reported where the *cysticercus acanthotriax* and the *cœnurus* respectively were discovered in the brain, but these were isolated instances. It is not surprising, seeing that the male sex is more liable than

the female to cerebral tumor, to find that a much larger proportion of men than of women are attacked by hydatids of the brain. The proportion is greater than that of their general tendency to hydatid disease.



Cysticercus as seen in the eye.

The *echinococcus* forms in the brain a much larger tumor than does the *cysticercus cellulosæ*. A case has been recorded which weighed eighteen and one-half ounces, and contained eighteen ounces of clear fluid. In regard to the

anatomy of these cysts, it is curious that in a large number of the cases collected, the tumors consisted of the parasite pure and simple. In other organs, as, for instance, the liver, the *echinococcus* cyst has around it a fibrous capsule, derived from the tissues among which it lies. In most cases the brain cysts appear to be devoid of this coating. A consideration of the seat of the parasite brings forth some facts which may become of some practical importance. In more than half of all cases, the cyst was in one or other hemisphere of the brain, and more commonly in the right than in the left side. Again, in only four out of the ninety-seven cases collected was the cyst situated in the cerebellum, or "the ratio of cerebral to cerebellar *echinococci* was about fourteen to one."

One naturally turns to the symptomatology, hoping for further practical guides, but the signs have been so various in different

cases as to give no very definite clue: Headache, blindness, and convulsions seem to be the symptoms which is most common to such cases.

Hydatids of the Liver.—The essential cause of the development of hydatids is the entrance into the stomach or intestines of the *tænia echinococcus*. If they remain in the intestines they become tape worms; when they pass into the liver they develop hydatids. They are chiefly met with between the ages of thirty and fifty, rare in children and the aged. They are most commonly met with among the poor, the filthy, and those that are surrounded by insanitary states. The percentage of people affected is quite large. Dogs, sheep, pigs, cats, rats, are victims to tape worms, and as the ova of those parasites are discharged in the excrements of those animals, they can only gain access to the human stomach through polluted drinking water, or uncooked food.

The method of growth is as follows: an ovum of *tænia echinococcus*, either during mastication, or from the action of the digestive juices, has the envelope containing the echinococcus removed, and then by its hooklets it bores its way from the stomach or intestine into the liver. It there becomes encysted; the cyst consists of an external laminated cuticular layer, and an internal parenchymatous lining. From the internal layer numerous little heads bud forth in the form of vesicles, and these in turn bud out into others, and so on, the mother-sac keeping enlarging to accommodate the young broods. Successive generations or broods of embryonic *tænia*, immature scolices, form upon the internal surface of the mother-sac, while the young crop cling to the mother, pushing the older ones forward into the fluid of the sac, which keeps on enlarging. Proliferation is excited by pressure of the surrounding tissue, which develops into a cyst.

During the process of enlargement, a hydatid tumor loses its spherical shape, and becomes indented, the fibrous capsule becomes thickened, rough, cartilaginous, and in some cases ossification takes place.

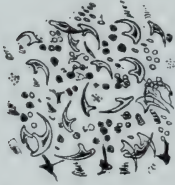
There are various contingencies that may arise that may destroy the echinococci, such as, bile may enter the cyst and destroy its living breeding contents; inflammation from numerous causes may arise, that may cause the disappearance of the mass. They may suffer fatty degeneration, or they may die from over-growth and other forms of degeneration.

They are liable to rupture in every direction, and cause grave organic changes, even death, consequently they are dangerous in proportion to their size and the direction of their growth.

The symptoms of hydatid tumor in the liver are those which

belong to liver disease. There is the presence of a tumor in the region of the liver, weight, dragging, difficulty of breathing, cough, bronchial catarrh; pain in the right shoulder; brown-coated tongue; constipation; jaundice; ascites; hemorrhoids.

Prophylactic measures consist in preventing the drinking of water contaminated by the evacuations of animals, and in not permitting dogs to feed upon the offal of sheep; chloride of sodium, resorcin, naphthaline, iodide of potass; aspiration if the tumor is superficial.



Hydatids of the lung; the appearance of the elements found in the sputum.

Hydatids are found in every organ of the body, and are to be seen in various microscopical conditions.

Hydatids of the Kidney.—Every disease germ, and nearly every parasite incidental to the human body is to be found occasionally in the kidneys.

As a rule, when the kidney becomes the seat of hydatids it becomes enormously distended or enlarged. A tumor is usually the first noticeable sign, and an examination of the urine may reveal echinococci hooklets.

If the case can be made out c'early, aspiration should be practiced, and iodine injected into the cyst.

✓ Dropsy of the scrotum may be a result of **Hydrocele.** inflammation, or disease, as enlargement of testis injuries, or dependent on general dropsy.

Symptoms.—The scrotum becomes gradually distended with serum, which forms a smooth, pear-shaped, elastic and translucent swelling. The spermatic cord can usually be detected free at its neck, and the testicles can be detected lower down. There is no impulse on coughing. To take patient into a dark room and hold the scrotum between you and a lighted candle is an absurd proceeding; for the serum in the scrotum is often grumous, turbid, and it may not be transparent, although in a good number of cases it is of a pale straw-color. In quantity, it averages about twelve ounces, less or more. If it is allowed to become chronic it may lose its pear shape, become thick, and almost invariably opaque. In some cases, instead of the water being in one mass or volume in the scrotum, it is found in cysts, resembling a honeycomb; it is then called *encysted*. Little boys may be born with this accumulation, and the communication between the peritoneal cavity and scrotum may not have been obliterated; it is called *congenital*.

Treatment.—In the early stages or in acute form, such as in scarlet fever or from testitis, try treatment for dropsy—diaphoretics, diuretics, hydragogue cathartics, preceded with digitalis, then iodide potass, and back on those remedies (*See Dropsy*), using the lotion of muriate of ammonia over scrotum. If medicinal means fail, then tap the scrotum about three-fourths of an inch from the median line at the base, boring gently in with trocar and canula until the serum appears between the fingers; then withdraw the trocar, leaving the canula in, through which the fluid oozes out. After it has been entirely drained away, insert the trocar again, and push it through the walls of the scrotum high up. After perforating, withdraw the trocar, and insert up through the canula a strand of seven threads of saddler's silk, and holding the upper end, withdraw the canula, and then tie the ends of the strand together; undo this knot every morning, and remove one thread every successive day till they are all withdrawn. By this method the secreting faculty of tunica vaginalis will be destroyed, and a perfect cure is the result. There is no deceiving the patient with this manner of dealing with the case, as the result is always most satisfactory. Some tap without using the seton; others tap, withdraw the fluid and inject tincture of iodine; while another class aspirate; all such measures are uncertain and inappropriate.



Tapping the scrotum for hydrocele.

In the encysted form each sac must be punctured, one by one, and their contents drained off, and then the seton. In the congenital form a truss must be worn, so as to irritate a little, and thus close up the vaginal process. Usually the muriate of ammonia lotion to scrotum is sufficient.

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Dropsy of the brain may be congenital, and associated with cerebral malformation.

Hydrocephalus. When it does not originate in that way it is a result of tubercular meningitis. It is rarely met with after two years of age.

In dropsy or effusion of serum from the membranes of the brain, the head often attains a large size; the unossified sutures yield readily to the pressure of the fluid. It may be equal all round, or one side may be larger than the other; bones thin and transparent; meninges thickened. Serum, in quantity, varies from a few ounces to as many pints; if in large amounts, the lateral ventricles are expanded in one large cavity.

The predisposing cause is tubercle bacilli irritating the membranes of the brain, causing the effusion. The exciting causes are falls, blows, cradle rocking, or reflected irritation, as teething, worms, cholera infantum, etc.

Symptoms.—General symptoms of tubercular meningitis to a greater or less degree, followed by extreme wasting of the body. Although the child may eat ravenously there is no nutrition. The appearance is remarkable; skin very white, body emaciated, face small, with a large globular cranium and overhanging forehead; head drops helplessly on one side. There may still exist a little inflammation; if so, there will be headache, irritability, restlessness sleeplessness, and a susceptibility to noise, light, motion. Intelligence very feeble; great prostration and muscular weakness; rolling movement of head, eyeballs, perhaps squinting and blindness; great liability to epileptic convulsions; nausea, constipation, with dark-colored, offensive stools; grinding of teeth, screams on awaking. As the case progresses there is more pallor of the surface, a great deal of stupor, very slow pulse, dilatation or contraction of pupils, picking of nose and lips. In favorable cases the headache and irritability subside; the skin assumes a better color, there is more energy, appetite becomes more natural and the body nourishes. If there is great prostration, rapid pulse, paralysis, coma or convulsions, it is very apt to end in death.

Treatment.—Infants of a tubercular diathesis, with a tendency to any irritation of the brain, should be well cared for, and their constitution strengthened by every possible means. Nourishing food, abundance of good milk, beef juice, country air; seaside in summer; daily bathing, followed by inunction of iodized oil; and when they become older, great precaution should be used, especially against any mental strain or irritation.

To get rid of the effusion, its cause must be removed, that is, all irritation. Then the principles of treatment are the same as effusion of serum or dropsy. Small doses of infusion of digitalis, with infusion of parsley or asparagus, with nitrate potassa.

Bowels to be opened freely with leptandra and compound licorice powder, given as often as necessary to keep the bowels free.

Other diuretics, if it is possible, should be crowded in, as hair-cap moss, squills, etc.

In the hospital for the treatment of children's diseases, lactose or sugar of milk is recognized as a standard and reliable diuretic, and so administered with great success in hydrocephalus.

Whatever remedies are administered to get rid of the effusion, they should invariably be alternated with two grains of the iodide potass in simple syrup thrice daily.

Warm alkaline baths invariably do good.

Hydrocephaloid Disease. A peculiar tubercular form of disease of the brain in children, under two years of age who suffer from insanitary states, overcrowding in cities, with meagre or insufficient or deleterious food. Often the result of reflex irritation, as teething, worms, summer diarrhea.

It has a close resemblance to tubercular meningitis, although pathologically different; the surface of the fontanelles are depressed, instead of being raised as in hydrocephalus.

There is great prostration, heaviness of head, drowsiness, languor, chop-spinach stools; wakes from sleep in alarm, screams, dread of strangers, freaks of temper, irregular breathing, no fever, skin white and cool.

The main point in treatment is to make an effort to destroy the tubercular bacilli by the administration of the glycerite of ozone, kephaline and avena internally; locally, into the scalp an ointment of soziodol should be rubbed daily.



Protusion of a hydrocephaloid brain.

Hydrothorax. An effusion of serum into the cavity of the chest may be either the effect of pleurisy or organic disease of the heart; in pleurisy, a result of the expectorant treatment; in organic disease, obstruction and exosmosis of the serum of the blood takes place.

The presence of serum in the cavity of the chest is usually easily recognized, by the history of the case: the great difficulty of breathing when the patient lies down, in which position if the lungs are clear, there will be resonance from top to bottom, as they float on the top of the water; then set the patient up, on percussion, dulness will extend up as far as the water level. If the patient is of a spare habit, a splashing sound will be detected by shaking the patient in the sitting posture.

This form of dropsy admits of removal without operation in the large percentage of cases when due to pleurisy.

Hydrophobia. The microbe of rabies is communicated to man by the inoculation of the saliva of a rabid animal. Period of latency or dormancy of the germ varies with the grade of vital force. With strong vital force it may remain quiescent indefi-

(*Rabies.*)

nately, whereas, in a weak and impaired constitution the germ may take on vigorous growth and use up vital force in a few days.

In the dog there can be little doubt that the degradation of living matter which gives us the germ rabies, may be due to filth, want of natural grasses and water, over-exhaustion, heat, and probably from other animals. The fact that a dog only perspires by its mouth may have something to do with it, in rendering it more obnoxious to its development. Licking the hand, bites, scratches are the ordinary forms of inoculation. As a latent germ or slightly active one in the human blood, it gives rise to a number of obscure nervous affections, as epilepsy, asthma, neuralgia, hysteria, special conditions of irritation of the brain, chiefly around the pons, spinal cord and great sympathetic.

If the germ becomes active, or, in other words, if hydrophobia is about to appear, there is great nervousness and irritability, a mental condition of profound despair, haggard appearance of countenance. If from an old bite or inoculation, the cicatrix becomes painful, sharp lancing pains radiate along the course of the nerves up the limb, and in a freshly bitten part the same sensations. Slight spasms come on, very light at first, and long intervals between, but they gradually become more violent, increase in length, and the interval between grows less and less with each occurrence. During these attacks the features become livid or purple, eyes protrude from their sockets; thick, viscid, ropy saliva is secreted, which keeps him constantly hawking and spitting; spasmodic action of the muscles of the throat and pharynx and diaphragm, and latterly, of the entire body. During these paroxysms the patient is wild and delirious. In the interval between, nervous impressibility is intense; thus, dread of movement so great that even the moving of a curtain or door, the undulation of water in a glass, will excite a spasm. Still, there is a real dread of fluids. They are more difficult to swallow than solids, as they bring all the rings of the œsophagus into active exercise. Great delirium, violent spasm, exhaustion, death.

It is a disease that is easily recognized by the great mental irritability, by a total absence of fever, by the character of the spasm, very light at first with long intervals, by the fits gradually becoming longer and more violent, with less time between; the face, during paroxysm, livid or purple, eyes protruding, hawking and spitting thick, viscid saliva; while paroxysm is off, conscious.

The Microbe of Rabies, "canine," consists of small globular cocci, single or united into characteristic colonies. They are not

met with in the blood, but are found literally swarming in the cerebral secretion, in and around the medulla oblongata and spinal cord.

One hundred and twenty drops of brain juice from about the medulla yields three-fourths of a grain of a distinct crystallizable (ptomaine) alkaloid, one thirty-second of a grain of which injected into a mule, gives rise to all the symptoms of hydrophobia, and in a short time collapse, convulsions and death.

The exceptional virulence of this microbe is due to its vital and reproductive energy, to the rapidity with which it multiplies, and the excessive amount of ptomaines excreted by the germ directly in the nerve centres.

The microbe is pathogenic of the disease, bears culture well in a neutral menstruum. Inoculations of the cultures, or better still the ptomaines, give rise to the disease.

From these cultivations new ones can be made, and carried on through successive generations, all cultures, behaving in the same manner, showing exactly the same changes as in the parent culture.

The most minute droplet of any of those cultivations produces the disease in animals.

Treatment.—After a bite ligate above the wound, then resort to free incision into it or apply wet cups over it; encourage free bleeding with fomentations of hot water; then either cauterize the wound freely with caustic potash or wood ashes, or if none of these are handy, chop a number of red onions very fine, and crush or beat into them pulverized muriate of ammonia, and apply for several hours; if a large wound, fresh application every hour, then poultice with lobelia and slippery elm. At once the patient should be placed on small doses of lobelia, and if indications of a spasm, larger doses, just enough to nauseate well, not to vomit. Keep on with it several days. Lobelia has a retrograding action on the germ rabies; it will not cure, but prevents its activity and development. The living germ will only die under a condition of quasi-suspension of the nervous system. This is to be obtained if commenced early, when the patient can swallow freely, by very large doses of fluid extract of sambul, a strong infusion of skull-cap and sesquicarbonate of ammonia. Administer often; repeat one after the other in as large doses as the stomach will tolerate, and not let up until a condition resembling general paralysis is induced, with a sleep like coma.

If this condition can be brought about the germ will die. The rate of growth of the germ rabies is determined solely by the debility of the affected person, and there is no way left, no time for anything but cutting off the pabulum by partially suspend-

ing nerve force. The power of growth is great, but if this quasi-suspension is induced, there seems to be no nutrient matter for the germ. It must be performed early. None of the remedies are in any way poisonous, so there is no danger from an over dose; and there must be no stopping until the most profound anesthesia is produced. Never be satisfied with a sensation of pins and needles over the entire body, that feeling must be followed by profound narcotism. Anesthetics, chloral hydrate, opium, bromide of potass, are no good, neither are the general run of acro-narcotics, as aconite, belladonna.

More recently practitioners of repute and trustworthiness in Asia have introduced hoang-nan (*strychnos gautheriana*) as a germicide which will destroy the microbe.

The effects and physiological action of this drug are, general indisposition, with extreme fatigue, vertigo, tingling of the hands and feet, with involuntary movement of the jaws, and a partial suspension of nerve power. If these symptoms are not present while the drug is being administered, it is a certain sign of the presence of a microbe imbibing the remedy. In such cases, the treatment must be continued, the remedy increased every dose, until the microbe is destroyed, which is known when the above symptoms appear.

If the remedy acts too violently, either because the microbe or its ptomaine is absent, or to the administration of too large a dose, it is easily counteracted by administering fluid extract licorice. Energetic, repeated doses, either in the stage of sprouting (incubation) or upon segmentation (violent rabid stage) should be the rule.

The passion of rage in any animal, even man, evolves a special living principle, a disease germ; for the bite of an angry man free from the anesthetic influence of alcohol, is highly dangerous and often fatal, causing bacterial poisoning, erysipelatous inflammation of cellular tissue, and death.

The principle might be carried further. Are not there living principles in all our emotions, desires, affections, passions, which render them contagious? Have we not special epidemics which are catching, religious excitement, suicidal mania, seasons when special crimes seem to be propagated?

Enormous enlargement of the breast is often met with in both single and married women; sometimes one gland, in other cases both glands slowly increase in size. It is not attended by inflammatory symptoms; no heat, pain, induration; nothing but progressive enlargement, which becomes burdensome and unsightly. The affected glands may

Hypertrophy of The Breast.

point right out, but more generally they hang, loose, flabby and pendulous, reaching, in some cases, well to the navel or knee.

Causes.—Rather obscure; in some cases we can see its connection with goitre; in another class with masturbation; while in still another, uterine and ovarian irritation, chiefly from imperfect sexual intercourse; impaired health, etc.

Treatment.—Alteratives and tonics; every possible means to improve the general health and activity of the uterine organs should be resorted to. As a rule, however, all means are very unsatisfactory and unavailing. Amputation of breasts is most invariably followed by tetanus.

Enlargement of the heart is much more
Hypertrophy common than atrophy. The weight of an
 of adult male heart is about nine and a half, and
The Heart. the female eight and a half ounces, but in enlargement it often weighs several pounds.

Hypertrophy may take place in various ways. It may be general, that is, its walls increased in size or thickness without any change in its cavity,—this is called simple hypertrophy; the walls may be thickened and the cavity enlarged,—called *eccentric hypertrophy*, or enlargement with dilatation; or the increase of thickness of its walls may be accompanied with diminution of cavity,—concentric hypertrophy. In cases of valvular disease and other forms of obstruction, hypertrophy is of utility in overcoming the impediment to a free flow of blood. Hypertrophy of left ventricle is usually due to aortic valvular disease, or to Bright's disease, in which there is resistance to the passage of the blood through the arteries and capillaries. Hypertrophy with dilatation of right ventricle generally due to disease in the mitral valve, causing obstruction to the pulmonary circulation, or to some chronic disease of the lungs.

Causes.—Enlargement of the heart may be predisposed to by the use of tobacco, tea, alcoholic stimulants, great mental strain, worry, disease of brain, blood, etc., although the common exciting causes are over-stimulation, excitement, violent muscular exercise, as running, jumping, rowing, hoisting, lifting; excess, use of malt liquors, sexual excitement.

Symptoms.—There is usually vertigo, *muscæ volitantes*, *tinnitus aurium*, redness of face or *plethora*; heat, respiration and pulse are up. The sounds of the heart are not only frequent but loud, audible at a distance; there is a fulness or bulging, often a wearing away of the ribs; instead of the area of dulness on percussion being four square inches, it is increased to more than

double; there is also numbness in left hand extending up the arm, caused by a distension or stretching of the recurrent branches of the subclavian nerve over the heart reflected to the brachial plexus, thence to the hand. There may be bleeding at the nose, cough, difficulty of breathing from enlarged heart pressing on lungs; often palpitations; difficulty in walking quickly; uneasiness, and sense of fulness and pain about cardiac region.

In the treatment of an enlarged heart, all mental and physical excitement must be rigidly avoided; strictly forbid the use of tobacco, tea, coffee, whiskey, ale, sexual congress. Diet very nutritious but as little animal food as possible, unless there is debility, warm flannel clothing, and abundance of fresh air.

The action of the heart must be carefully regulated with tincture of digitalis, alternated with strophanthus. Possibly it may be necessary to keep the patient upon those two drugs for two or three years, slightly lessening the dose all the time.

As the case improves, begin with a general massage of all the superficial muscles of the body, morning and night.

Then other drugs, as dioxide of hydrogen, comp. oxygen fucus vesiculosus, etc., could be administered with advantage. A visit for a month or more to some mountainous region is of great benefit.

There are a variety of forms of enlarged liver; it may be increased in size and weight in chronic inflammation, with effusion of lymph in fatty or starchy degeneration, and from the presence of tumors, but those are not conditions of true enlargement.

**Hypertrophy
of
The Liver.**

Hypertrophy of the liver proper is characterized by an increase in size as well as the number of the secreting cells, causing general enlargement of the gland. It is usually the result of long-continued congestion, such as takes place in all tropical climates from the irritation of malaria, and whiskey. It may be looked for in the indurated spleen, or leucocythæmia, in or after dysentery, and very common in the glucose diathesis, or diabetes. It is often met with in a lobe or portion of the liver. It is then said to be partial. It is brought about by the healthy portion having to do the work of a portion diseased; its cells become enlarged, new ones are developed, and in this way the developed part compensates for that which is diseased. It gives rise to gastric catarrh, etc. Treatment same as for chronic inflammation.

**Hypertrophy
of
Muscles.**

Muscles may suffer enlargement by excessive use. The muscles on the arm of a blacksmith or prize-fighter are enormously developed. In the former it is quite common for the right side to measure four or five inches more than the left. This can only go on to a certain extent—to a degree of growth in which there is an adequate nerve-supply; when that limit is reached, and exercise still continued or persisted in, fatty tissue will begin to take the place of muscular fibre, and the muscle will lose its contractility and become useless, because it has undergone fatty degeneration.

The treatment is rest and alteratives.

**Hypertrophy
of
The Prostate.**

About two-thirds of the male population of this country, about the middle period of life, suffer from some unsuspected urinary trouble, as well as partial or complete impotency, while the other third, from puberty up, are either victims of self-abuse, a perversion of the sexual act, or a neglected or imperfectly cured gonorrhœa, etc.

These are the most prolific sources of generative weakness, and in themselves are productive of irritation, inflammation, effusion of lymph, and enlargement of the prostate.

It is doubtful, when once this gland is damaged by masturbation, by dalliance in the sexual act; by withdrawal in the act of ejaculation; by the wearing of condoms; or by a gonorrhœa, if ever it regains its pristine condition of health; and those and other causes plant the foundation of future trouble.

Chronic inflammation, brought about by these and other like causes, invariably terminates in enlargement of the gland, with either tubercular or calcareous induration.

The degree of trouble from an enlarged or hypertrophied prostate varies greatly. For example, the lateral lobes may be considerably enlarged without causing much inconvenience; whereas, if the middle lobe, which forms the floor of the prostate urethra, is only slightly enlarged, there is difficulty in micturition.

The symptoms of hypertrophy of the prostate, even in the slightest degree, are in all cases well marked, and consist in some difficulty in emptying the bladder, dribbling after micturition; inability to pass water, which frequently proceeds along to a state in which he cannot hold his water at all; the irritability becomes intense, the desire to urinate imperative, and still withal partial retention of an ounce or two of urine; which speedily undergoes decomposition, and there is evolved in its ammonia-

cal products, the micrococcus urea, which gives rise to cystitis. The micrococcus migrates up the uterus to the kidneys, giving rise to grave anatomical changes in those glands. The sufferer from irritable, then enlarged prostate, is an incessant victim of pain, uneasiness, aching in the hips and thighs, a feeling of weight and heat in the perinæum, and all around; pains in the limbs, and extreme irritability; besides he is liable to severe complications, even from the slightest indiscretion in diet, or from cold, or wet, and the residual urine in the bladder loaded with the micrococcus urea, excreting ptomaines gives rise to pain and fever. The spasmodic contractions of the bladder to void its germ-laden contents are irresistible. In the early stages, nocturnal emissions, two or three in a night are not uncommon, with urine very cloudy, with a copious deposit of muco-purulent matter. A thin, transparent discharge at stool invariably present, or, if not present, a gluing of the lips. This moisture or discharge, if placed in the field of the microscope, will be found to be prostatic, often mistaken for semen.

A rectal examination in all such cases, reveals the prostate, large, hot, indurated, tender to the touch.

Enlarged prostate means complete physical and nervous bankruptcy, as is seen in the partial or complete impotency, in the wasted testes, in the blighted state of the organs, loose and patulous vesiculæ seminalis; in the gleet discharge, or weeping penis; in the cold, clammy state of the parts.

What does modern therapeutics offer for the alleviation of this affection, and anchoring its unhappy victim to the earth a little while longer?

One essential element in the treatment of such cases is, the bladder must be emptied; there must be no residual urine in it to give birth to the micrococcus urea and fungus; it must be evacuated daily, and either injected with a germicidal fluid like boric glyceride, or else a bougie of thallin or resorcin used to kill every microbe in the viscus.

An effort must be made to control and wipe out all irritation and inflammation of the prostate, and establish a renewal of life in it. For this purpose a selection of some of the following methods or modes of treatment should be tried, with some of the special remedies enumerated.

It is unnecessary to state that the appetite should be stimulated, the diet should be the best and abundant; daily bathing inculcated; the bowels regulated, so as to have one free motion after the morning meal, and an injection every evening, an hour or two before retiring to bed, this should consist either of witch hazel or infusion of uva ursi, or a like remedy, with occasional hip baths.

All cases of enlarged prostate are much benefited by a general alterative and tonic course of treatment. The best alteratives being saxifraga and phytolacca; and preparations of cinchona our best tonics. Then the attending physician will select some special remedy to meet the peculiar outcroppings of each particular case.

If there is great irritability in a chronically inflamed and enlarged prostate, with either continence or incontinence of urine, there should be no delay, but large doses of green root tincture of gelsemium should be administered, with belladonna suppositories.

The ozonized uric acid solvent is of inestimable value, it contains a large percentage of pichi, a most efficacious drug in breaking up fibrinous and calcareous deposits in this gland; its power of disintegration on this gland is immense, in effacing all conditions of hypertrophy.

Once the gland becomes soft, patulous, the action of ergot and damiana are of signal efficacy in inducing contraction.

Unquestionably, the most efficient drug in hypertrophy is the salix nigra, being a tonic, vitalizer, sedative and anesthetic. It entirely supersedes the different preparations of bromine upon the prostate, possessing all the good properties, with none of the bad. The ulterior action of a long continued persistent administration of the black willow has a most marvellous action in decreasing the size of an enlarged prostate.

The introduction daily or every other day of the salix nigra bougie will effectually get rid of all leakages or emissions. This is an important point gained. Besides the black willow bougie those composed of ergotine, quinine, damiana, papoid, iodol, have an excellent effect, their use rouses up the vital energy of the gland; they diminish its size; contract the ejaculatory ducts; change the whole sphere of morbid action. If the bougies fail, then suppositories of the same ingredients should be used. The cocaine suppository; one prepared from ergotine and cocaine; another composed of the glucosides of the black willow and stone crop.

All have an excellent action in contracting the motor cells in the vesiculæ seminalis and cord. This method of treatment is good, direct, energetic, often effective, but in all cases it must be aided with a course of medical treatment to increase their efficacy.

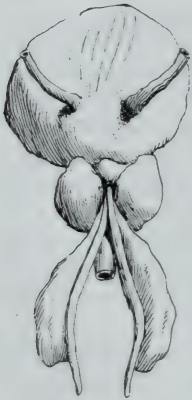
We attach the greatest importance in all cases to a careful rectal examination, as it determines the *status* of the case. When we feel the prostate soft, yielding to the touch, it indicates that muscle still prevails, that a complete restoration of function is possible under good treatment, aided by the stimulating absorbent action of electricity; again, when we feel a hard, modu-

lated prostate, and there is evidence to the touch, that fibrous tissue preponderates largely over the muscular; the power of the bladder seldom returns, unless electrolysis is resorted to.

Electrolysis of late years has been brought to bear upon such cases with wonderful success. The medical electricians of the United States are scientific men of rare culture, arduous study and extensive experience. The plan they adopt in electrolysis of the prostate is, they place the positive electrode in the form of a plate over the region of the bladder, and the index finger guides into the disinfected rectum the negative pole in the form an insulated needle, with its point clear for half an inch. This, by a gently rotary motion, is inserted into the prostate. The two electrodes are switched on and the current gradually increased to ten or twelve cells, for five minutes.

The needle is then withdrawn and reinserted the same way in another direction. This is repeated three times. Taking in all fifteen-minute sitting. The results in the hands of the following eminent savans have been pre-eminently satisfactory. No danger, no unfavorable symptom, and no doubts can be entertained of its wonderful efficacy.*

Every means failing, either to ameliorate or cure, and life being in imminent danger, suprapubic and perineal prostatectomy have been resorted to with great success.



There is no gland in the entire body, more frequently the seat of irritation; the tubercular, the syphilitic, the gouty, the lymphatic, the sensualist, the sedentary, the bicycler as well as the rider on horseback are its victims. No matter what the irritation be, it invariably gives rise to fibrous excoriation, calcareous deposits, ulcerations, fistulous openings, anterior and posterior, vesical thickening, catarrh, and necessitates special illustration.

This cut shows the external appearance of the middle lobe when the vesiculæ seminales and the vasa deferentia under which it is situated have been removed. Although it is connected firmly on each side with the lateral lobes, it is distinct from them at the posterior part, and evidently a separate lobe of a rounded form.

*We would enumerate the names of medical electricians who have met with brilliant success in electrolysis of the prostate and subsequently effecting a radical cure; C. S. Hastings, M. D., Los Angeles, Cal.; R. H. Randolph, M. D., Portland, Oregon; I. C. Hewes, M. D., Omaha, Nebraska; J. J. Jones, M. D., Philadelphia, Pa.; S. M. Platt, M. D., Waterbury, Conn.; Frank L. Tuttle, M. D., Springfield, Mass.; E. J. Skelton, M. D., Bloomfield, Iowa.

The prostate gland varies more in its size in different men, than many other parts of the human body; and this middle lobe is liable to do so in a still greater degree than the body of the gland, being frequently smaller than it is here represented, and sometimes of a larger size.

This illustration represents the middle lobe of the prostate gland in an incipient state of its enlargement, putting on a nipple-like appearance, and pushing the internal membrane of the bladder before it, which everywhere adheres to the projecting parts, and forms a covering to it. In this view the fundus of the urinary bladder is removed, so as to expose the orifice of the bladder.



This in a natural state resembles the narrow part of a funnel, but here the projecting middle lobe is so situated that whenever the bladder contracts to expel its contents, the middle lobe is pressed forwards directly upon the orifice; and although it could not completely shut it up, must form an obstruction to the passage of the urine.



This diagram is taken from the same parts, but the enlarged lobe is seen in relation both to the bladder and the urethra. The membrane covering it is put so much on the stretch, as to drag down the orifices of the ureters towards the tumor, so that the intermediate space forms a double projecting ridge, instead of a concave surface. In the opposite direction the loose membrane of the ure-

thra, as far as the verumontanum, is so much elevated as to form a bridle of some breadth and considerable strength, by which the enlarged lobe and the verumontanum are drawn nearly close to each other, and the hollow between them is rendered much deeper than it is in its natural state; this hollow is considerably increased by the lateral lobes having also become enlarged.

In this state of the parts, there is some difficulty in passing a catheter into the bladder, unless it is a large metallic one. The best instrument is a silver No. 12, which should be well warmed and oiled, introduced with the greatest care and gentleness; as it is being inserted it should press against the superior aspect of the urethra; it will thus readily slide into the bladder. With such a sized instrument there is no danger in making a false passage or doing any damage to the parts. It should be inserted at least thrice daily and retained a short time.

In this representation the bladder had been for many years disturbed by the passage of the urine being obstructed in consequence of strictures in the urethra ;



so that before the enlargement of the middle lobe took place, the muscular coats of the bladder had acquired great strength, and an uncommon degree of thickness ; the internal membrane had been formed into sacculi, and was so much thickened, that its fibres were unusually distinct. The opening of the ureters had become so patulous, as to admit of regurgitation of the urine. Under these circumstances many of the pathological effects had taken place.

The stretched state of the membrane of the bladder over the middle lobe is remarkably distinct.

In this illustration the middle lobe of the prostate is more prominent than the last.

The internal membrane of the bladder has a sacculated appearance ; at the fundus there is a sac formed by the internal membrane, protruding between the fasciculi of muscular fibres. There is a cavity behind the ridge formed by the enlarged lobe, and the transverse fold of the membrane ; and another on the opposite side between it and the verumontanum.

It is evident, that, when the disease has arrived at this stage, the bladder can never empty itself completely, since, before any urine can pass out, the cavity behind the ridge must be full ; and the pressure of the liquid which it contains must force the tumor forwards, so as to shut the orifice of the urethra ; but when a larger quantity of urine is collected in the bladder, the internal membrane being put upon the stretch, and the tumor pulled backwards from the orifice of the urethra, a certain portion is allowed to flow. The same ridge, which prevents the bladder from emptying itself, forms an obstacle to the point of the catheter when an attempt is made to pass it into the bladder to draw off the urine. In the middle line where the lobe itself is



situated, there must be great art in directing the end of the instrument over it; but laterally, where there is only a folded membrane which can be pressed before the instrument, and which does not rise so high, the catheter may be more easily directed into the bladder. The bridle extending from the verumontanum to the lobe being only a narrow band, the end of the catheter cannot rest upon it, but descends into the space on one side of it, and is conducted into the bottom of the cavity before the lobe, where it is very probably entangled, so as with difficulty to be extricated, unless the catheter is curved at the point.

The middle lobe is in this instance still larger than in the last; the lateral fold of the membrane on each side is very distinct, and as the prostate gland itself is increased to a great size, the cavity before the middle lobe is very deep, and the left portion of the gland having swelled more than the right, it has put on a convex form towards the urethra while the opposite surface is concave, so that the canal of the urethra through that part, instead of being straight, forms a curved line; wherever this is the case, there is great difficulty in conducting the point of the catheter into the bladder, for when it arrives at the prostate, the handle of the instrument is always turned round, and the point forced downwards and to one side, and goes on in that direction till it is entangled in the fold of the membrane close to the root of the projecting portion of the middle lobe. To counteract this it is difficult to insert a catheter.



In this cut the middle lobe is not very prominent, but it extends laterally, and the transverse fold of the membrane of the bladder is unusually thick, so that they form together a very complete valve to the orifice of the urethra; the lateral portions of the gland are not much elongated but are considerably swelled, so that the hollow between the middle lobe and the verumontanum is of unusual depth. The resistance to the passage of the urine was so great in this instance that not a drop could be passed, and the efforts

of the muscular coats of the bladder to expel the contents were so great, that they occasioned the inner membrane to protrude just between the openings of the ureters, and a large cavity or reservoir was formed there capable of containing above half a pint of urine, while the cavity of the bladder became preternaturally contracted. In this case every attempt to pass an instrument into the bladder was ineffectual.



In this representation, the middle lobe has acquired a larger size than the lateral lobes, so that it appeared at first to be a tumor of an irregular form belonging to the body of the gland taking this particular direction; but after having been examined more accurately, it was found to be an enlargement of the middle lobe only; the transverse folds of the inner membrane of the bladder connected with it were distinct when the parts were examined in a recent state. In this specimen, the increase in the size of the lateral lobes was more in the direction towards the bladder, which produced an effect the reverse of what has been met with in the former representations, since here the distance between the verumontanum and orifice of the bladder is increased, and the canal of the urethra is lengthened.

The appearance of the middle lobe in this illustration is quite hypertrophied and extremely difficult to introduce an instrument.



In such cases the use of papoid works in a marvellous manner as a digestive solvent. The difficulty has been to get it in contact with it. This has recently been overcome by mixing the papoid with butter of coca into a bougie.

An instrument made in all respects like Lallemand's porte caustice, size No. 12 catheter into this; after it is inserted right up against the prostate, this papoid bougie can be continuously pushed up as it melts; it dissolves the hypertrophied tissue and makes its way into the bladder.

Repeated several times it does most excellent work.

In this instance the middle lobe itself has not acquired so great a size as in some of the others, but the left lateral lobe is very much enlarged, and, what is unusual, forms a prominent tumor in the bladder, by which the middle lobe is thrown towards the right side. From the mode in which the enlargement has taken place, the orifice of the bladder and urethra is enlarged to an uncommon degree, as is also a portion of the urethra itself, so that instead of being a canal, it has at this part the appearance of an oval cavity. This is a very unusual appearance, and is principally produced by the left lobe in its enlargement having extended itself to the same length in the direction of the membranous part of the urethra, as it has done towards the bladder in the opposite direction, and also in an equal degree laterally.



This engraving exhibits great enlargement of the prostate in the middle and lateral lobes; the lateral lobe of the left side projecting into the urethra, and into the bladder, the middle lobe being pushed to the right side, and the left considerably more prominent.

In this case the retention of urine was complete, and was only relieved by the introduction of a very large-sized catheter and subsequently cured by the persistent use of a papoid bougie.



This represents the middle and left lobe of the prostate gland in a state of ulceration. This is of rare occurrence. In this instance the left lateral lobe forms so large a tumor, projecting into the bladder, that the middle lobe is pushed on one side, and forms a less complete valve over the orifice of the urethra, than it would otherwise have done, which probably is the reason that the patient was less



liable to retention of urine in the earlier periods of the disorder than in some other instances where the actual enlargement was less, and where there was less difficulty in the introduction of the catheter. The enlargement of the left lobe also extends further into the bladder.



This cut represents the substance of the lateral lobes of the prostate gland, in which suppuration and ulceration had taken place with little or no increase of their size, and no apparent affection of the middle lobe. This state of the prostate is very common when the microbe of syphilis localizes itself in the prostate, giving it that germ-eaten appearance.

In speaking of the operation for the removal of the hypertrophied prostate, we would say:

I. That prostatic enlargements which give rise to urinary symptoms are intravesical and not rectal.

It has been long recognized that the severity of the symptoms in a case of hypertrophy of the prostate bears little or no relation to its apparent size as felt through the rectum, and it is also well known that a considerable number of men, aged fifty-five and upwards, have prostates of an abnormally large size, though of these only a certain proportion, say fifty per cent., suffer from urinary symptoms. This strange difference depends on the position at which the organ is enlarged. Prostates of immense size which project towards the rectum and perinæum cause no urinary trouble, while severe symptoms may supervene when the prostate on rectal examination is apparently of normal dimensions. There are many varieties of the intravesical growth. We find (1) a projecting middle lobe, pedunculated or sessile, (2) a middle lobe with lateral lobes forming three distinct projections, (3) the lateral lobes alone, (4) a pedunculated growth springing from a lateral lobe, and (5) "a uniform circular projection surrounding the internal orifice of the urethra." This last variety, described by Brodie, has in recent years escaped notice; it is better seen *in situ* than in museum specimens, and is of not infrequent occurrence. It surrounds the urethra like a collar, and projects for a variable distance into the bladder.

II. That retention is caused by a valve-like action of the intravesical prostate, the urethral orifice being closed more or less completely by the contraction of the bladder on its contents.

When the bladder contracts on its contents the contained fluid

is forced on to the projecting prostate, and the urethral orifice is closed. The mechanism is the same, with one exception, whatever may be the variety of the enlargement. Whether there is a middle lobe or lateral lobes, or a collar, the same valve-action occurs; and the more violent contraction the more complete is the action of the valve. A patient finding that he is unable to relieve himself soon ceases his violent efforts; the pressure on the valve is then lessened, the urethral orifice is released, and the urine flows away in a feeble stream. If he attempt to expel it more quickly the outflow again stops, and it is only after several attempts that he is able to obtain an incomplete relief. A time comes when, though the bladder still contains urine, no more can be forced from it. This residual urine varies much in quantity in different cases, sometimes amounting to a pint or more. Its presence, and the consequent frequency of micturition, are accounted for by the fact that a more violent contraction of the wall is required to completely than to partially empty the bladder, and that its muscular coat acts to a greater advantage, and consequently with greater force, in its partially contracted than in its distended condition. This greater force, pressing on the outside of the valve, more completely closes the urethra, and the urine that remains is unable to escape. An exception to the general rule is found in cases with a small sessile middle lobe, situated partly in the bladder and partly occluding the prostatic urethra. When this is the case the passage is blocked by the projection, and no valve action occurs. The urine is expelled by a violent contraction, and the bladder wall is much hypertrophied, and its cavity contracted. The cuts show instances of this condition. The explanation I have given of the mechanism of the residual urine is not that generally received, but want of time prevents me from discussing the various hypotheses that have been advanced.

III. That in many cases self-catheterism is the only treatment required.

This proposition does not require discussion. We have all seen patients who with little discomfort have, by a passage of a catheter, kept themselves in good health, sometimes for years. We would none of us think under these circumstances of advising a patient to submit to a radical operation.

IV. That when the catheter treatment fails, or is unavailable, more radical measures are necessary.

I am unable to prove the assertion, but my belief is that a large proportion of the cases treated by the catheter sooner or later break down; in other words, that eventually the prostatic enlargement is the cause of death. The breakdown may come soon, or it may come late, but in many cases it ultimately supervenes.

The urine becomes thick and ammoniacal, the desire to micturate is continuous, the passage of a catheter relieves but for a few minutes, the suffering and discomfort are constant; day and night; life becomes a burden, and death a happy release. The greatest care cannot prevent this result, and the greatest carelessness does not always induce it. I have seen a patient who daily for years passed a gum-elastic catheter, which he carried in his hat, which he never washed; the urine was acid, and he was in robust health. I have also seen many in the last stage of prostatic cystitis who had previously taken every care. Not only does catheter treatment fail, but it is not infrequently, especially in hospital patients, unfavorable. The patient has suffered from frequency of, micturition and general discomfort for some years; he has probably consumed large quantities of herbs to cure a supposed attack of "the gravel," and has not sought surgical assistance till, from some cause or other, complete retention has occurred. The surgeon passes a catheter with difficulty, there is much hemorrhage, the bladder is full of blood, and the patient's life is in jeopardy. If he gets over the acute attack it is found that he cannot learn to catheterize himself. The constant attendance of a surgeon is impossible, and the catheter treatment cannot consequently be tried. Even in cases where there is apparently no difficulty it is sometimes impossible to teach a patient to pass a catheter for himself. In these various cases, cases of frequent occurrence, it is plain that a radical operation is required. It is, indeed, absolutely necessary.

V. That this treatment, to be effectual, should (1) for a time thoroughly drain the bladder, and (2) permanently remove the cause of the obstruction.

It is now some ten or twelve years since perineal drainage was introduced for the relief of cystitis in patients suffering from prostatic breakdown. The relief obtained in this way has been most marked, and the practice is well recognized and established. As soon as efficient drainage is effected the bladder ceases to be a receptacle, urine sweet from the kidneys flows through it, putrefactive changes are prevented, and acute symptoms cease. The relief is, however, only temporary. Either the patient must submit to the discomfort of permanently wearing a urinal, or the artificial fistulæ must be allowed to close, with the probable result of a recurrence of the symptoms. It is necessary, if we desire permanent relief, that our measures should be more radical. We have seen that the cause of the mischief in the intravesical prostatic outgrowth must consequently be removed. This can only be done by leaving a raw surface in the prostatic region of the bladder, and as mischief would undoubtedly result from stagnant

urine accumulating in this position, another and not less important reason for efficient drainage presents itself.

VI. That these two indications are best fulfilled by a suprapubic rather than by a urethral or perineal operation.

There are three ways in which it is possible to perform a radical operation for the removal of prostatic obstruction—the urethral, the perineal, and the suprapubic. Of these the urethral appear to be in every way unsatisfactory. It is founded on faulty anatomy; it is supposed that the cause of the retention of urine is a bar at the neck of the bladder, and that the division of this bar will effect relief.

We must next compare the perineal with the suprapubic operation. I prefer the latter, for the following reasons:—

1. It is more generally applicable.

2. It can be performed with greater precision, and completed with greater certainty. It is, I believe, impossible to diagnose the nature of the intravesical growth till the finger is in the bladder; we may suspect an enlarged middle lobe, but we cannot be sure that it exists alone. In no way can a bladder be explored with the same completeness as through a suprapubic wound. All projecting portions can be felt with ease, but often are removed with difficulty—a difficulty that has made me certain that attempts at removal through the perinæum must often of necessity fail.

3. It ensures complete and most efficient drainage. It may possibly be argued by some that the position of the suprapubic wound will prevent drainage, and that the urine will naturally escape more readily through a dependent perineal wound than through one above the pubes. Experience shows that this is not so. Drainage takes place more easily through the soft abdominal than through the hard perineal tissues. This was shown in a case already published. In a patient with fractured pelvis and ruptured urethra, I opened the bladder above the pubes, and also cut into the infiltrated tissues in the perinæum. A tube was passed through the bladder from above, and brought out below. On its removal all the urine escaped above, and continued to do so as long as the wound remained unhealed.

4. It is equally safe. While making this assertion it is right to draw attention to the fact that it is merely an opinion, and does not rest on a statistical foundation, there being no statistics available for the purpose. In looking over a few cases we shall find that the mortality of the suprapubic operation has been lower than might reasonably be expected. Of ten patients,

all old men, three were above sixty, while seven were upwards of seventy.

It is unnecessary to describe fully the operation of suprapubic prostatectomy, but a few special points about its technique, founded on an experience of thirty-seven suprapubic cystotomies of various kinds, may not be out of place.

1. The quantity of water injected into the rectal bag, especially in cases where the prostate is abnormally hard, should be smaller than is usually recommended. Profuse rectal hemorrhage may occur.

2. The bladder should be irrigated till the antiseptic boroglyceride solution used is perfectly clear. The quantity left in the bladder varies much from ten to twenty or more ounces. The hand placed on the hypogastrium will show when the distension is sufficient.

3. In cases where the bladder is contracted with thick non-distensible walls it will usually be inadvisable to perform this operation.

4. It is better to leave a catheter in the bladder till its cavity is opened, as it is a guide that expedites the operation. Care must be taken not to hook the peritoneal fold (superior false ligament) into the wound with the point of the instrument.

5. The linea alba is best divided by incising it immediately above the symphysis, and then dividing upwards on a director.

6. Care must be taken to secure the bladder before proceeding to remove the prostate. This is best done by inserting two sutures through each lip of the wound, and fastening it securely to the deeper part of the abdominal wall. When the operation is completed a third suture, passed through the lower angle of the wound, is an additional security against urinary extravasation into the retroperic space.

7. The prostate should be removed as far as possible by enucleation with the finger, and not by cutting. The mucous membrane over the projecting portion having been snipped through, the rest of the operation is completed with finger and forceps. In this way excessive hemorrhage is prevented. A pedunculated middle lobe can, however, be removed by cutting through its base. Hemorrhage is best arrested by irrigation with water so hot as to make it unpleasant for the hand.

8. A large tube should be inserted into the bladder, and the wound united above the tube, by a deep and superficial row of sutures. The tube is to be removed in forty-eight hours.

9. The after treatment consists in keeping the parts clean, and washing the bladder and the wound—in exceptional cases—with a boracic solution.

Enlargement of the testicle is comparatively rare, not by any means so frequent as atrophy. The same causes which cause the testes to wither and die, in two cases out of fifty, will cause them to enlarge; they are sexual excesses, masturbation, germs of syphilis, hæmatocele.

Enlargement without effusion of lymph is rare, still it may take place, owing to obstruction of the seminal or ejaculatory ducts.

The internal administration of iodide and bromide of potassa in some convenient vehicle will soon arrest this hypertrophy and diminish or reduce the size of the testes to a mere cypher. The bromide is invariably efficient in wilting the testes.

Dropsy of the pericardium is invariably a result of pericarditis. It is to be recognized by the history of the case; the cardiac expression of the features; difficulty of breathing, cough and general debility; also, by the increased area of dulness on percussion; by the sounds of the heart being muffled; negatively, by the skin of the face being pale; no numbness in left hand; by respiration, heart and pulse being low; usually œdema of feet and legs.

Treatment, same as for *Dropsy*, with the addition of the steady application of the irritating plaster over region of the heart, and the persistent use of the hair-cap moss in the form of an infusion.

The diet here should be very generous, consisting of articles that can be converted into good, rich blood.

A morbid state of the blood, caused by the introduction of the bacillus pyocyanes and other germs of the pus family into the blood.

It is called septicæmia, when it is fatal without any local formation of pus; and pyæmia, when secondary abscess follows.

If rigid antiseptic precautions are not enforced in all surgical cases, and among puerperal women, ichorrhæmia may appear.

It may manifest itself in a great variety of ways. In some cases where the bacillus pyocyanes enters the blood, it will excrete ptomaines so freely, in such great abundance, that he or she will die before any local phenomena are exhibited. In another class of cases, the ptomaine excretion is so prodigiously profuse, that both liver, kidneys, spleen, intestinal track, are saturated; in another class of cases, there is a copious flow of black bile, in

others, an attack of diarrhea or dysentery. In another class of cases, the serous membrane of the pleura, heart, peritoneal coat, or even the cellular tissue bear the brunt of the poison, so that pleurisy, pericarditis, peritonitis, erysipelas and boils may be present. Another class of cases exhibit themselves in profuse suppuration of liver, lungs, joints, glands, eyes and ears.

General symptoms are, rigors, sweating, rapid pulse, sallow look, sweet hay-like odor of the breath, diarrhea, dysentery, with inflammation of serous membranes, rapid wasting, feebleness, prostration.

The absorption of pus containing the living germs of disease is the most productive of septicæmia, as the lochial products, the punctured wounds in dissection, the streptococcus of erysipelas, bites of enraged men, rabid animals, venomous reptiles and insects, inoculations from scratches or abrasions from the secretions of those affected with contagious diseases. These living poisons multiply rapidly, when in the blood ptomaines are freely evolved. They are taken by the veins, the lymphatic system becomes involved, and the entire blood the field of a living deadly poison.

In the treatment of such cases, the powers of life should be well sustained, free incisions made into suspected parts, then washed out with dioxide of hydrogen, followed with poultices of yeast, charcoal, wild indigo.

These microbes must be destroyed in the blood; hence the treatment, besides being essentially constructive, must consist of the most powerful bactericides, peroxide of hydrogen; lactic acid; salicylate soda and acetate of ammonia; naphthaline; creolin, etc.; such a germicide as will destroy the living microbe in the blood.



Ichthyosis Xeroderma
(*Fish-Skin Disease.*)

Often hereditary and congenital. Frequently the abnormality escapes notice at birth, but its recognition is almost certain when the

child is about a year old.

The treatment is at first directed to the removal of the scales, accomplished by warm alkaline baths, with friction, followed with olive oil and resorcin.

Then a selection must be made from some of the following bactericides: sulphur ointment; creolin ointment; naphthaline ointment, etc.

Whichever is selected must be rubbed into the affected part, morning and night, for some months.

The internal remedies should consist of alteratives and tonics, as saxifraga, avena, cinchona.

Jaundice is always to be regarded as a symptom of hepatic disease, an evidence of either congestion, inflammation, irritation from poisons, microbes, degeneration, tumors, gall-stones, or acute or chronic atrophy, yellow fever and mental excitement. All forms of jaundice may therefore be classed under two heads: (1.) Those in which the functions of the liver are suppressed or will not work, and the coloring matter of bile and cholesterin accumulates in the blood. (2.) When the liver works, perhaps well, bile is secreted in abundance, but cannot get away; there is an obstruction to its exit in the duodenum by gall-stones, or by pressure, or something, and the bile is re-absorbed into the blood. This condition cannot last very long without the liver ceasing to work, for the bile, being dammed back on the gland, becomes a poison to its own structure. If due to disease of liver, there will be oppression, pain, over liver; if due to gall-stones, there will be the nausea and paroxysms of severe pains.

Symptoms.—Jaundice, then, a symptom of liver disorder, disease or depression, is characterized by yellowness of skin and conjunctiva, nausea, loathing of food, especially fatty substances, tongue coated brown, usually constipation; stools, if any, pale or clay, or white colored; urine very scanty, and of a saffron color, or dark mahogany color, according to the amount of bile pigment present. Drowsiness, giddiness and peevishness, dyspepsia, bitter or copper taste in mouth, slow pulse, weakness or exhaustion; itching in the skin. In very severe cases the aqueous and vitreous humor of the eye is so heavily tinged with bile that the patient sees everything yellow; very drowsy.

If it is severe and allowed to last long, there may be stupor, delirium, and great cerebral disturbance; extreme weakness from mal-nutrition; there may be hemorrhage into the skin, profuse bleeding from nose, gums, stomach or bowels.

The most successful treatment of jaundice, consists in the administration of an emetic of the wine of ipecac; followed by opening the bowels with salines; daily baths; diet to consist of soups or broths; raw eggs; white fish, boiled; oatmeal, with an abundance of ripe or cooked fruit. An external stimulant over the liver; this might consist in the application of concentrated ozone, followed either by hot packs or the irritating plaster.

Then a selection of one or two of the following remedies should be made, and administered persistently to the patient: comp. tincture cinchona, four ounces; nitro-muriatic acid, two drachms. Mix. Dose, one teaspoonful every three hours. With phosphate of soda a sufficient dose to move the bowels.

The case might be tried either upon sulphur water, or tincture

of lycopodium, with cascara sagrada lozenge, two after every meal, to move the bowels. Some of the vegetable cholagogues, such as leptandra, euonymine, chionanthus, might be tried.

If there be any presumptive evidence of syphilis microbe being the cause of the trouble, place patient upon saxifraga.

Impetigo. An eruptive skin disease, with hemispherical pustules surrounded by a red areola, contagious, and auto-inoculable, from the presence of a microscopical parasite.

The *treatment* embraces the removal of the crusts by repeated poulticing, and as soon as removed, keep the part encased in germicides; one selected from either of the following answers well: resorcin ointment, ointment of iodol, or creolin, or naphthaline, or any other good germicide.

Incontinence of Urine. In the treatment it is well to appreciate a condition of nervous debility as its origin, acidity of urine, worms, as exciting causes.

Bathing, good food, sleeping between blankets, emptying the bladder before retiring, etc.

The selection of remedies should be such as will soothe and tone the irritable sphincter muscle of the bladder, such as—

Tincture of iron in alternation with belladonna.

Rhus aromatica in alternation with fluid extract ergot.

Strychnine is excellent where there is atony of the walls of the bladder and paralysis of the sphincter.

Fluid extract of stone crop in alternation with tincture lycopodium.

As regards continence the same remedies are of utility, together with gelsemium, in alternation with creosote.

If the case does not yield after removal of causes, and the use of some of the above, then try cantharides.

All remedies failing, better to retrace, and of all remedies give belladonna another trial.

The peculiar and sedative action of belladonna upon the lumbar plexus of nerves and sphincter muscle of the bladder renders it of infinite value in all cases of continence or incontinence of urine. The method of administration is of great importance. A sufficient dose should be given every afternoon about four o'clock, and another at bedtime, so as to insure dilatation of the pupil. If the pupils are well dilated with the first dose, the bedtime dose may be omitted. The essential point is that the pupils

be well dilated during the sleeping hours, showing that the system is under its influence.

All exciting causes, as ascarides, acid urine, cold sheets, etc., should be removed. While thus holding the pathological condition, stone crop virginia should be administered in appropriate doses and persevered with for a sufficient length of time, until a cure is effected. Ozonized virginia stone crop fluid extract has a most remarkable vitalizing action upon both rectum and bladder, and is decidedly curative in all cases of incontinence of urine.

Imperforate Anus, signifies a closure of the rectum. It may exist in various degrees. The anal opening may be closed by a thin skin, which soon becomes distended with meconium, forming a round

swelling. In other cases again the bowel might terminate in a blind pouch, at any point from the sigmoid flexure downwards, and the anal aperture be altogether wanting; in other cases again, the anus may be open for an inch or two, with an obstruction beyond; or the rectum terminate in the bladder or urethra.

The defect is* congenital, often overlooked in the first cleansing of the child.

Treatment.—If the end of the intestine can be felt protruding when the child cries, make a free crucial incision into it without delay; if it cannot be felt, an incision of the same kind made, and the parts explored, and an effort made to reach the bowel, which, if reached, is to be pulled down and opened. Nature is very provident in those cases. Give her an opening, and she rapidly forms around the descending meconium a wall or tube, which becomes a rectum. The opening at the anus should be large enough to admit the finger—always made crucial. It is recommended, if no bowel can be tapped per anum, to make an artificial opening, or anus, in the left groin.



Anus and rectum deficient.



Anus absent; rectum ending high up.



Anus communicating with vagina.



Rectum opening by fistula, close to urethra.

Imperforate Hymen.

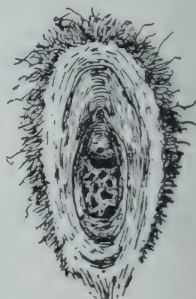
The hymen or guardian of virginity is differently located, in each particular race, affording distinct anatomical relations, to exhibit the non-unity of races. In the Caucasian, it is over the vaginal entrance, in the negro, it is not over, but from two to



Imperforate hymen.



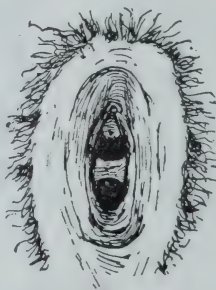
The hymen semilunaris, or normal hymen.



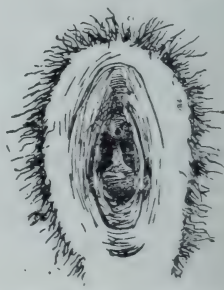
The hymen cribriformis, sieve-like.



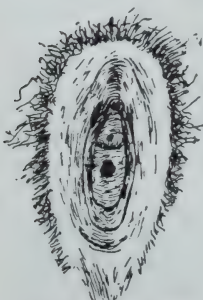
The hymen fimbriatus.



Upper and lower opening.



Opening divided into two parts.



Hymen circularis, with small central opening.

three inches up in the canal; in the Mongolian, from two to five inches up, etc.

We have also the hymen fimbriatus, similar to the fringe-like appendages of the ostium abdominale of the tubæ fallopianæ. This form is the most important in a forensic point of view, as it may be taken for the normal hymen which has been torn.

In some instances there is a variety in which there exists an upper or anterior and lower or posterior opening, with simply a band lying transversely across the vagina. In rare cases we also find a second hymen existing above the first. There are numerous other forms, named according to their fancied resemblance to things in nature, as the horseshoe hymen, bilobate hymen, etc.

In rare instances the opening of the hymen is found divided into two parts by a perpendicular bridge from the concave border of the hymen to the meatus urinarius, where it becomes fast.

The hymen imperforatus, in which we have a thickened, roughened state entirely blocking up the canal. This usually requires surgical procedure, on account of the retention of the menses, and its preventing copulation.

Impotence is a morbid condition in either sex that prevents the spermatozoa of the male from coming in contact with the female ovule; in other words it is an inability to consummate the sexual act. Sterility is a condition in which neither spermatozoa nor ovules are either secreted or elaborated; or, if evolved, their vitality is immediately destroyed or possesses no fertilizing power whatever—a perfect want of power to fecundate, or it may be defined an inability to copulate or perform the sexual act.

1. *Impotence in Man.*—Sexual impotence implies the existence of malformation, disease or derangement of the genital organs by which there is either an absence of sexual desire, or power of erection, or the capability of ejaculating the seminal fluid into the vagina, or experiencing pleasure during the act of copulation or emission of semen.

Impotence relates to the act of intercourse, and differs from sterility, an inability to beget offspring.

Impotency may be either due (1) to an absence of sexual desire; or (2) to an inability, owing to certain physical conditions to permit of the entrance of the penis into the vagina; or (3) to the absence of the ability to experience the sexual orgasm.

Absence of sexual desire may exist in individuals of apparent good health, who may never have experienced the least inclination for sexual congress. There are a very long array of circumstances or conditions which exert a governing influence in abolishing the natural sexual appetite, which is necessary for the perpetuation of the species and the happiness of the individual. The genital organs of both sexes in all highly civilized nations are very freely covered by branches of the great sympathetic, hence, depressing emotions, perverted desires, violent passions, and blighted affections, have a remarkable lowering effect on genital vigor, besides, add to these worry, care, struggle, sorrow, mental pre-occupation, a state in which the whole heart and soul are either engaged in scientific pursuits, or discoveries, or in study, or in engrossing business, or in exciting speculations.

Harassing toil, lack of rest, certain occupations, cause sexual indifference or cause.

Individuals suffering from neurasthenia often are temporarily impotent either through fear, or anxiety, want of confidence or great love or disgust, and often find it impossible to get an erection, the organ remaining flabby like an old rag. Some men in their eagerness to consummate the sexual act, not infrequently fail, ejaculate prematurely the first time; whereas the repetition of the act corrects the trouble, they acquiring more confidence.

Sexual desires may be extinguished, the natural sexual appetite depraved, withered, perverted, and the very soul atrophied by the practice of masturbation, which induces genital debility, impotence, and throws the finely-knit mechanism of the nervous system into chaos, with loss of power so great that even the greatest fascinations or lewd imaginations fail to excite libidinous desires, or the slightest power of erection, which, sooner or later, gives way to continued masturbatory excesses.

Onanism is degenerative; it destroys the exquisite sensibility of the organs and creates an insuperable aversion to women. Mental masturbation is usually caused by reading obscene books, scanning nude pictures of the opposite sex, witnessing sexually suggestive plays, etc., and, in the near future, gives rise to loss of virile power.

Sexual desire is often extinguished by perversion of the sexual act, by abnormal methods of sexual congress, as by the practice of withdrawal in the act of ejaculation, the wearing of condoms; dalliance in the act, what is vulgarly known as tasting, in a short time destroys every vestige of erectile power. If any of those or other abnormal methods are indulged in, or persisted in, the power of erection will become weaker, more feeble, until, at last, it is forever gone, leaving, as its legacy, diurnal and nocturnal leakages, with imbecility.

All abnormal methods cause natural desire to grow less, or become obliterated to such an extent as to render intercourse impossible.

Congress with women with large vaginas, loose, lax, or with those affected with leucorrhœa, where the sphincter muscle has become non-contractile, causes the erectile power of the male to dwindle, grow feeble; whereas, if the act is consummated in a normal manner with a fitting companion, not in excess, it is a tonic and sedative.

Sexual excesses give rise to nervous debility and loss of the power of erection. Erections consist in the augmentation of the volume, stiffness, and rigidity of the penis; due to an increased flow of blood in the organ, active dilatation of the arterioles of

the cavernous and spongy bodies. It is a law of the human organism that over-stimulation produces exhaustion; that any function overworked, or excited, before the organs producing it are fully matured, is certain to lead to derangement or even extinction of the function. Any titillating of the genital organs in infancy, or before or after puberty, often leads to complete impotence, or at least, to a loss of power or desire.

Young people are usually excessive in sexual matters, and, as a result of the great drain and loss of the nervo-vital fluid, become pale, weak, effeminate, exhausted, have roaring in the ears, specks and spots before the eyes, and are genitally weak. Young married people are given to excesses, and, if persisted in, become incapable of generative enjoyment. The earlier in life the excesses are initiated the greater the impotence in after life, for the generative act absorbs all the physical and moral qualities.

Impotence may be imaginary, or there may be at the origin of it a tissue-starved brain which gives rise to peculiarities and idiosyncrasies as to the capability of performing the sexual act. To one person who is really incapable of performing the sexual act, there are two who imagine themselves so. It is, nevertheless, too often a genuine disease, appearing as a slight deficiency of capacity, with increased desire; profound deficiency of both desire and capacity, with penis cold, benumbed, anesthetic, weeping; power of erection feeble, or erectile power may be increased with no discharge of seminal fluid, due to morbid idiosyncrasies, a tissue-starved brain, and the sexual appetite, the most powerful passion of the human mind, obliterated. Usually, in these cases, the great sympathetic is at fault. This nerve is intimately blended with sexual vigor. In such cases, an avoidance of mental care, worry, of sentimental ideas, of carnal thoughts and the like, which abolish the desire. Impotence may be due to imperfect erection, the erection so feeble that intromission is impossible, the power of erection is completely abolished.

There is a certain class of *impotent men*, with whom the main trouble seems to be a blunting of sensibility, a lack of tone and sensitiveness of the nerves of generation. These nerves come from and go to the spinal cord, ending in small bulbous, and (in health) exquisitely sensitive, points under the mucous membrane of the glans (head of the penis). Here may be found in this small space, some six thousand of these "sensitive bulbs," or "points," as they are called, and hence the acute sensitiveness of this part of the organ.

This peculiar arrangement of nerve points in the mucous membrane of the head of the organ has a distinct object. Both man and animal are almost wholly dependent upon this peculiar

sensitiveness of the glands to friction for the sensation that occurs during connection, and hence it can be plainly seen that if from any cause (former abuse, excesses, debility, overwork, etc.) the sensitiveness of these nerve points is blunted, sensation either before, during or after the act, cannot be natural.

Some men are *impotent* from this cause alone. In others, this is only a part of the difficulty, but requires as careful treatment as if it were the only cause, for it must be overcome before a perfect cure can be effected.

Sexual Paralysis, which means loss or decay of the erectile power, sensibility and size of the organs, is really a very advanced stage of *impotency*, and is usually the result of *blows or injuries* to the *spine*, *softening* of the *brain*, *neglect of ordinary impotency*, etc. It is more often found in men well advanced in years, but sometimes in young men and men of middle age. Enlargement of the prostate gland at the neck of the bladder, by pressure on the *sexual nerves*, sometimes produces it. So, also, does *varicocele* by destroying the testicles.

Spermatorrhœa is the most common of all causes. It is more usual in young and middle-aged men. It is usually, but not always, the result of self-abuse, neglected discharges, losses in the urine, and usually ends in *complete impotency*, shrinking or wasting of the organs, coldness of the parts, stringiness and flabbiness of the testicles, and sooner or later, nervous weakness, brain exhaustion, spinal irritability, and still later, if neglected, paralysis, St. Vitus's dance, insanity, brain softening, etc.

There are numerous other factors, besides the above, which are capable of producing a loss of virility, lessen or altogether abolish the power of erection and render the individual impotent, such as *obesity*, a defect of assimilation and elimination; or to emaciation, a derangement of the nutritive system. Certain shocks, concussions, jars, incidental to railroad travel. Shocks to the brain and spinal cord, or to the lumbar plexus of nerves, are liable to be followed by atrophy of the testicles and impotency.

Neuralgia of the testes, varicocele, circocele, scrotal hernia, hydrocele, lead to degenerative changes and irreparable impotency. Disease germs in the blood, localizing in the testes, give rise to wasting of the testes, imperfect development and atrophic changes with loss of virile power.

Horseback exercise, bicycle riding, roller skating, give rise to prostatic urethral irritation and exhaustion of spinal nerves, atrophic changes in the cord, with a shrunken penis, a withering of the erectile tissue, a pronounced state of sexual weakness, nervous exhaustion, with paralysis of the erector muscles of the penis.

Location influences the sexual appetite, highly oxygenized and rarefied conditions favor a loss of power.

Fevers and nervous diseases are most productive of sexual debility. Habits, as the use of alcohol, chloral, opium, arsenic, render the individual incapable of copulation, by sapping and dwarfing the springs of life.

Some drugs, as nitrate of potassa, tobacco, bromide, ergot, conium, digitalis, camphor, gelsemium, etc., when administered, cause loss of virile powers; even the operatives in certain chemicals, as those by photographers, become impotent.

Under one or other of these drugs, or a slave to any of those habits, the natural sexual appetite at the base of the brain becomes impaired, desire and power both diminish, or entirely fade away, but in a large number of cases desire remains without the ability to accomplish the sexual act, or either erections fail and intromission becomes impossible, or there are imperfect erections and premature emission.

A man may possess strong virile power, and still there may be an—

Absence of the power of ejaculating seminal fluid into the vagina.

This may be due to malformation, disease, other abnormal states of the penis and testes; also to a poverty of nervo-vital fluid.

It is a well demonstrated fact of men who have committed masturbation, or who have been the victim of sexual excesses, or abuse in early life, that prior to or about middle life (forty-five years of age), their semen becomes almost destitute of spermatozoa, poverty-stricken, and that instead we find in their so-called semi-

nal discharge, dwarfed, dead or infertile germs, the discharge loaded with spermatic crystals; that the presence of those crystals denote nervous bankruptcy, diminished spermatozoa, or their entire absence, degenerative changes, unproductive semen, decrepitude.

The penis may be either absent or a mere stump, or it may be excessively large, or it may suffer a bifurcation, or a suture, or the urethra may have an opening either above or below. There may be a stricture, real or spasmodic, or paralysis of the compressor



Spermatic crystals.

urethra, anomalies of the glands and prepuce which render copulation impossible.

The glans penis may be the seat of anæsthenia, chancres, warts. The testicles may be absent, or their development arrested by blows or falls on the back or head; atrophy caused by injuries to spine and brain; disease of the spinal cord; bodily deformity operate disastrously.

The essential parts of an act of sexual intercourse are the emission of semen and the experiencing of a pleasurable sensation before, during and after the act.

This sensation originates in the glans, being peripheral with an inhibitory action upon the central areas in the base of the brain and cord.

Inability to experience sexual pleasure may be due to the cicatrices of chancres, warts, tight prepuce and utter insensibility of the glans from abnormal methods of excitation.

The effects of impotency are most disastrous to the brain, inducing nervous bankruptcy, lunacy, idiocy, another class of cases are well physically, dead sexually.

The last fifty years has brought to the notice of physicians a peculiar condition of the sexual organs, confined chiefly to men past the age of thirty, and most common at from forty to fifty. This consists in a peculiar form of impotency, producing partial or total loss of power and sensibility in the organs, but accompanied by no very bad effects upon the general system. There seems to be a *blight* upon the sexual organs, while the general health remains good. There is oftentimes some little dyspepsia, and often great prostration during hot weather.

Treatment of Impotency.—The most hopeless cases are those in which organic changes have taken place in the brain or spinal cord, or in some malformation that cannot be rectified, or congenital deficiency, or degenerative change. Nearly all other cases admit of a complete or perfect cure under the improved method of treatment and new remedies. Impotency resulting from an inability to have an erection of the penis, without degenerative changes, is a curable affection, and the means to restore this function are numerous and reliable; positive and efficient. The general management of the case embraces attention to the general health, taking every means to build it up. A most important measure is rest, an absolute cessation of all sexual excitement; a freedom from all lascivious thoughts; the duration of sleep should be extended to eight or nine hours in the twenty-four hours; the bowels must be kept regular. Daily baths and douches must be resorted to, the ordinary tepid baths followed by the shower bath; a hip bath of cold water thrice daily. The

morning or evening bath, one or both to be followed by persistent massage for a suitable length of time, and this procedure followed by faradization of the whole body, but specially the brain, spinal cord and reproductive organs.

Look carefully over all the causes that give rise to impotency and remove them if possible; if it be due to imperfect development, retarded growth of the genital organs, that can be promoted by electricity; by causing a vacuum, and a determination of blood to the part, by the use of stimulating liniments. If it be due to fear, or rather a weakness of the great sympathetic, let indifference be practiced, let the heart and sympathetic system be braced up by sparteine; turn his back to his companion, wait, go to sleep, when probably by the early morning the difficulty will be overcome, confidence restored.

Disgust, complete incompatibility, requires a good deal of tact and skill, but with good judgment the patient can be tided into recovery.

The effects of masturbation, sexual excesses, perversion of the sexual appetite, are more tardy of recuperation.

Digestion and assimilation, all nutritive derangements must be rectified; all shocks, concussion avoided. There must be no study, no care, no worry, no scientific pursuits; avoid intense solar rays, and in all cases forbid the use of tobacco, alcoholic drinks, all acro-narcotic drugs, as digitalis, conium, camphor, gelsemium, chloral, potassa, horseback exercise, or the bicycle.

A most important indication in the management of all cases of impotency is perfect digestion and assimilation of food. The appetite must be stimulated with columbo and nux, or with hydrastis and stone root, and if necessary pepsin could be added to meals to hasten digestion.

The diet should be generous to a fault, and should consist as much as possible of articles that will nourish the brain. Animal food, chiefly of those animals nearest to man in the scale of creation, as broiled tenderloin steaks, roast beef, mutton, poultry, game, milk, cream, boiled white fish, oysters, eggs; and among the cereals oatmeal, corn bread.

Active bodily exercise should in all cases be inculcated, but never to fatigue.

A mild but efficient alterative and tonic course of remedies may be prescribed with advantage, having a tendency to improve the general health.

But it is by a special class of remedies that we obtain the most rapid and efficient results.

Phosphorus naturally attracts considerable attention, but it should not be prescribed in impotency either in pill or in water,

or infusion, or tincture, or even in the dilute acid, as when administered to such patients it predisposes the recipient to fatty degeneration of involuntary muscular fibre, and to a laxity of erectile tissue.

The best forms are either hypophosphorous acid dilute or in the form of phosphate of zinc.

Best administered in all cases immediately after eating.

Electricity, in the form of faradization, galvanism and franklinism is a genital stimulant and tonic of no mean order. Comparing the three forms, faradization is best adapted to the large proportion of cases, and when used in cases of impotency, the whole surface of the body from the crown of the head to the soles of the feet should be brought under the influence of the faradic current. Used in this way, the current acts as a powerful constitutional tonic to the nervous system, promotes appetite, improves digestion, gives rise to refreshing sleep, equalizes the circulation, develops the muscular tissue and increases strength. Above all it has an invigorating effect on the genital organs. It influences the whole periphery of nerves, whereas galvanization brings the entire central nervous system, brain, spinal cord and great sympathetic under its sway.

Local electrization by external and internal applications of both galvanic and faradic currents, are always of utility.

The glycerite of kephaline ozonized, being the natural phosphate of ox brain, barley, oats, wheat, is a true nervo-vital essence, and can be administered in all cases of impotency with the best success.

Neurasthenia, poverty of nerve force, cerebral anæmia, or softening, or paralysis and other states of nervous shock, are too frequently the result of excesses, and thus by draining off the cerebral essence, leave that organ in a state termed starved.

A brain in that state soon has its typical fissures of thought obliterated, and granular deposits appear on the arachnoid; adhesion of its membranes to the surface of the convolutions; crystalline granulations in the living membrane of the ventricles, with an unusual amount of fluid in the sac of the arachnoid. Besides, a tissue-starved brain gives rise to inflammation of the cortical portion, terminating in degeneration of the nerve cells of the hemispheres, and these changes give rise to structural change in the organic cell.

The brain of man, his brilliancy of thought, his energy, his force of character, are due to the quantity of phosphorus contained in the cerebrum. If this is economized, it might sustain him to a good old age in full genital vigor, but let overwork or excess drain it off, health fails, the vital forces can supply no

more; then, unless kephaline or oats can be administered, degenerative changes will take place in the gray matter of the brain and spinal cord, simply because the phosphorus in the brain is exhausted.

Brain workers, mechanics, professional men, the libertine in his excesses, feel this in their languor, want of energy—victims of excessive brain exhaustion. Nothing can invalidate the assertion that unless our present race obtain more phosphorus, impotency will prevail.

Kephaline is an excellent brain food, a reconstructor of shattered nerve force, refreshing to the nerves, repairs lost sexual power. Kephaline gives intellectual capacity, a higher stratum of life.

It is a stimulant to the molecular growth of the brain, with a special action on the lymphatics and pink marrow and other blood-forming and blood-raising glands, and above all an active energizer of the seat of sexual power of the brain.

The phosphated tincture of Scotch oats (Avena sativa) is a remedy of very rare value, great efficacy in all cases, and in every form of impotency, especially when it depends upon a tissue-starved brain.

From among all the cereals, oats give us the best stratum of brain growth, one of the greatest vigor; barley, wheat, rye, give us mental delicacy. Oats having a large per cent. of phosphorus in a most assimilable form, renders its use of national importance. The amount of brain matter it contains is immense, and renders it of the greatest value whenever there is a deficiency of life in nerve tissue, in mental depression, insomnia, loss of sexual power.

It not only supplies the brain with its own constituents, but aids blood formation, rebuilds, recruits tissues and forces lost in the destructive march of sexual degeneration.

This preparation of oats is the most valuable for all cases of nervous exhaustion, nerve tire, debility, excesses, reconstructs the most delicate, it aids the growth of the brain, the bones, the teeth, the skin, the nails of children, imparts to them a vigorous constitution, it gives to the old the vivacity of youth, and that part of the nervous organism—the sexual appetite in the brain—it rejuvenates it. It is an excellent stimulant to the motor cells, a life-giving tonic. In order to get the full benefit of a phrenic pabulum of the phosphated tincture of oats, sleep should be prolonged to at least nine or ten hours in the twenty-four.

This is the remedy when the entire system is sapped and exhausted, the blood acid, nerves prostrated, appetite and digestion gone. It is food to the nerves, brain; also a muscle-strengthening remedy.

The fluid extract of the saw palmetto (Sabal serrulata) is of great utility indirectly in impotency. Its great property is the promotion of glandular growth in the testes, prostate, ovaries, mammæ. It is a most appropriate and active remedy when impotency is associated with degenerative changes in the testes due to sexual excesses, perversion and masturbation.

It is a nutritive remedy of much value and of a peculiar kind, especially when there is a deficiency of the nervo-vital fluid. The brain and the important net-work of glands connected with the genito-urinary organs wear out fast in these days of high civilization, and this remedy fills a vacuum long desired to promote glandular growth, restore the testes and prostate, if they happen to be shrivelled or shrunken, to their pristine condition and even to an increased size. Atrophy of the testes is very frequently associated with impotency and varicocele. Atrophy of the prostate is also a prominent symptom of genital debility from the opium habit and sexual perversion, a state the reflex effect of which gives rise to a sense of goneness and suicidal despair. A much greater calamity than enlargement, for with the latter, he may go through the act of coition, but neither semen nor prostatic secretion can be ejaculated if the prostate is withered and atrophied.

The exhibition of the fluid extract or wine of the erythroxyton coca is attended with excellent results. Its best form is the coca et celerina. It arrests the active metamorphosis of the brain, promotes cohesion of the cerebral faculty of thought and vitalizes the central areas of the sexual appetite.

This is a remedy of intrinsic value in all cases of impotency on account of its peculiar action as a powerful nerve excitant, giving great vigor to mind as well as to body.

The combination with the celerina acts energetically upon the cineritious substance, and has a most invigorating action upon the sexual sense. There is no doubt that it rejuvenates that sense and wipes out genital and phrenal incapacity.

Cocaine Suppositories are of great efficacy in cases of impotency caused by masturbation or excess. Onanism, the modern vice, the bankruptcy of the soul, degrades primary nerve elements into a germ of auto-infection. Millions of vibrios, the signal of brain wreckage, are to be found in all parts of the body, and with it a germ-laden rectum, which gives rise to irritation and leakage. These suppositories are of great utility, soothing the motor, sensual and urinary centre in the spinal cord, and vitalizing the atonic condition of the prostatic ducts.

It is a well-known fact that disease in any part, or even a non-use, causes a decrease in the size and a diminution of its strength,

This is a result of mal-nutrition, an insufficient supply of nerve force and blood to the organ. Tie up a limb, deprive its muscles of exercise, of a full supply of blood or nerve force; it wastes, shrinks to an indefinite degree; so with the genital organs when they suffer disease, excesses, congenital defect or abuse, they are deprived of a full amount of nerve force and blood—they shrink to a degree which renders them totally useless for the important function designed for them by nature, and the sequel is either partial or total impotency and incapacity.

Various electrical apparatuses and other instruments, lotions, ointments have been suggested to remove these defects and restore the sexual organs to their full size and vigor. All such contrivances are both dangerous and useless.

What is wanted is something that will supply or impart more vital force and blood, increase nutrition of the marasmic, atrophied, wasted or shrunken parts.

The cocaine suppository acts specifically on the muscular tissue, nerves, arteries, veins and lymph canals of the organ, augmenting the supply or nerve force and rich arterial blood, increasing their nutrition, growth, and restoring to them their natural size, energy and power. They act gently, according to a natural method, and accomplish a natural result. Besides, if the impotency is in any way blended with prostatic trouble, it is a most excellent remedy to relieve vesical tenesmus, senile hypertrophy. It enables him to sleep at night without disturbance.

Damiana is a remedy introduced from Mexico, in which country it is used as a powerful aphrodisiac, of the greatest utility in all cases of sexual atony or lethargy. It is a capital tonic to the nerve centres which preside over erection, it increases the flow of blood to the spinal cord and the genitalia. The greatest trouble to be apprehended is in getting the proper plant, the true or genuine damiana, as there are several spurious articles in the market. The true damiana is beyond a doubt a most reliable, useful, and permanent tonic to the genital organs of both sexes. Acting as it does, directly upon the nervous system, it restores, as it were, the debilitated functions of the generative system; besides, it is an unsurpassed nervine. Its merits are well established, if the proper article is used. A good tincture or fluid extract is the most eligible form, and all nostrums, such as the so-called wafers or tablets, should be avoided.

The fluid extract, in medium doses of fifteen to thirty drops, added to water, administered thrice daily, rouses up the vital functions, thoroughly invigorates the brain, and energizes the nerves of the lumbar plexus. It is well adapted to all cases of impotency, but especially those in which the sympathetic system

is at fault; consequently, under its use, there is intellectual brightness, courage strengthened, mental and physical vigor increased.

Muirapuama fl. ext. in very many cases excels the damiana in its action.

Apiol is a remedy of considerable power in functional impotency, when the erections are feeble, seminal fluid watery, testes soft. It acts speedily.

The leaves of the ruta graveolus increases the flow of blood to the genital organs.

Gelatine caps, made of *avenine*, are most efficient in increasing the peripheral sensibility of the nerve fibrils in the corona glandis.

Medicated caps act to increase the sensitiveness of the glans. Laid on the part for a short time the effect is marvellous, and by using one or two a day for a few weeks, many *weak and impotent men* have been restored to full power, vigor and sensibility. In cases where this is not the only cause of impotence the use of the *medicated tissues* with the *urethral treatment* is certain to result in success. It is by neglecting to restore this part of the organ to the healthy condition that so many cases of impotence and debility have failed to be cured. *Middle-aged and old men*, and *men about to marry*, whose organs are weak and debilitated, and whose sexual sensibility is blunted or lost, will find in these cleanly little films a speedy means of relief. They are cut of proper size to fit the glans perfectly, and have simply to be laid on and left for from five minutes to five hours, according to the severity of the case. *Wasted and dwindled*, as well as misshapen organs, are wonderfully improved by the use of these *films*. As the nerve sensibility and power improve, so does the strength of the muscles and the circulation, and in nine cases out of ten, weak, wasted and puny organs increase in both size and strength, and erections become firm and satisfactory.

Erectile power and sensitiveness are results that quickly follow their use.

They are perfectly *cleanly*, produce no *soreness*, and are so made that they can be worn beneath the foreskin, and will not *fall off or slip out*. The gelatinous film that holds the remedies rapidly dissolves and brings them into direct contact with the membrane of the glans, where they act directly on the nerve ends.

By their use, too slow or too rapid ejaculation is properly regulated, for these things are directly dependent upon the sensibility on non-sensibility of the glans.

Of the use of the damiana ozonized soluble gelatine bougies there can be no doubt; the remedy is good, the mode of appli-

cation unexcelled in energizing the glands and stimulating the erectile fibres. The application is a modern idea to heal a defect of our present civilization and a gap in our nation's health.

For the growth, vigor and future prosperity of a nation depends upon the strength and energy of its young men, and if the places of the robust and healthy are to be filled by effeminate, weakened, nervous and physically drained youths, such as the vice of masturbation and sexual excesses is yearly giving us, the result cannot be otherwise than nationally disastrous.

Every man suffering from impotency or from disease or disorder or a leakage should use those bougies once, twice or more frequently weekly.

To some, these may be inconveniences or annoyances, but the result is invariably a brilliant success.

The value of ozone as a therapeutic agent and of ozonized remedies in the modern treatment of impotency is thoroughly appreciated by every liberal-minded practitioner. It makes little difference whether it be ozone water, peroxide of hydrogen, or comp. oxygen, as the three are analogous as therapeutic agents.

Either of these excites a perfect renovation of the sexual appetite, removes the lethargy or sexual inability.

In administering these remedies it is important to understand that they are the most powerful of all microbe killers; that the blood-discs take up the ozone and are deperated by it without undergoing any change themselves.

In any deviation from health there is no fluid or solid in the body exempt from the presence of disease germs. But so long as a metamorphosis is active, and renewal normal, germs are passive or dormant; but when vital action is depressed they become active.

The use of ozonized remedies in disease is a step forward, as they are not only death to microscopic life, but to all animated existence, life, vitality.

The source of supply of ozone is unquestionably electrical, unceasingly going on in nature, aided by geographical position, as rocks, waves, hill-tops, billows. Its presence or absence modifies the denizens of towns, gives rise to peculiar idioms of speech, vigor or weakness of the sexual appetite.

Look at the highly vitalized American race, the prototype of the ancient Roman, who inhabit the Eastern States, with their brain clear, perception keen, full of practical utility and magnanimity, the result of ozone. Compare them with the Jerseyman, the Marylander or Virginian on their sandy beach and malarial swamps, where no ozone can exist. Compare the gigantic

achievements of the one with the proverbial meanness of the other, and say what ozone does for race and location. Another urgent reason why ozone or ozonized remedies should be administered in impotency is, there is a *contagium vivum* in all diseases; for example, introduce three or four confirmed masturbators into a village where the act is unknown, in six months every young man will be a victim of the habit. So with the genital debility or impotency or effeminacy.

II. Impotency in the female may be due to a want of development of ovaries and uterus, and absolute want of sexual desire; inability by reason of malformation, or other physical conditions to obtain the entrance of the penis into the vagina, such as vagina occlusion, with an excessively developed and ligamentous hymen; obliteration of the vagina; double vagina, or a normal vagina and no uterus; absence of the ability to experience the sexual orgasm. The entire absence of all sexual desire may be the result of abuse or excesses, or arrest of development of the clitoris, or an impairment of the sexual sense by falls or blows on back or head. Inability to permit an entrance into the vagina by a neurosis, as vaginismus, or super-sensitiveness of the surrounding tissues of the vagina, involving its sphincter muscle, forming a complete barrier to coition; tumors, involving the vagina, uterus or ovaries, may mechanically prevent copulation; cancer may or may not be a cause of impotency; hydrocele of the labia, warts, hernial protrusions, hypertrophy of the clitoris, or vagina, catarrh of the uterus, masturbation, as well as sexual excesses, render a woman impotent.

The same cases that exist in men; disease of the brain, cord, and certain disease germs in the blood; the use of tobacco, alcohol, opium, chloral, coca, arsenic, belladonna, conium, gelsemium, the bromides, render women callous and often impotent. The want of ardency or callousness or icicle coldness of some women is not always to be attributed to impotency, but rather to incompatibility.

The interruption of the procreative faculty of the female may be due to many other conditions. This is most apparent when we consider the anatomy of the genital organs of both sexes.

They consist chiefly of erectile tissue, a loose, elastic substance, intimately interwoven with nerves, and divided into multitudinous cells, into which, under excitement, blood is forced, filling or congesting them to their utmost capacity. The penis and glans penis of the male, and the clitoris, nymphæ, internal labia and a portion of the vagina of the female are largely made up of this tissue, and the nerves in those parts are numerous, and in a healthy state highly impressible.

The fallopian tubes of the female, which convey the egg from the ovaries to the uterus, are also composed of erectile tissue, like the penis and clitoris.

During coition, if the female is not impotent, the fallopian tubes are erect at climax of the act, the fimbriæ grasp the ovaries; if the egg is mature, it is sucked up by them and carried forward to meet the spermatozoa of the male for impregnation.

III. Sterility in either Sex.—In order to thoroughly grasp the subject of sterility, it is necessary to have a clear idea of the physiology of conception. Several factors are concerned in conception, and these should act in harmony. The woman must produce healthy ovules, and the man must secrete healthy spermatozoa. There must exist no condition in either sex to destroy the vitality of the ovule or spermatozoa before they come in contact, and this union or junction must take place under proper conditions, to produce impregnation. There must be no condition existing which prevents the fastening the impregnated ovule within the uterus. Conception depends upon the combined matter of two individuals, male and female.

Sterility is very prevalent among modern men, due to excesses, perversion of the sexual appetite, to gonorrhœa, epididymitis, which causes destruction of the vas deferens. A very large percentage of sterile women are married to men who have had gonorrhœa before or after marriage. Spermatozoa may be secreted, yet in copulation not ejaculated, on account of some congenital or acquired defect, or their vitality may be destroyed by an inflammatory process with its acid secretions. When secreted or ejaculated, they may be prevented from entering the uterus by contraction of the external or internal os, flexion, or conoid cervix, or their vitality may be destroyed by unhealthy conditions of the mucous membrane lining the uterus, cervical canal or vagina, as intra-uterine catarrh, tumors, preventing fixation or conception of the impregnated ovule.

Healthy ovules may not be produced on account of feeble health; sudden or profound shock to the nervous system, causing ovarian incapacity, or from any disease in or about the ovaries, as chronic ovaritis; cystic, sarcomatous, cancerous, or inflammatory degeneration, or from peritonitis, or cellulitis. Of course there are no ovules in absence of the ovaries.

They may be secreted in a healthy condition, and their entrance into the uterus may be prevented by displacements, detachment or absence of the fallopian tubes, or by any condition which obstructs or contracts, or obliterates their cavity.

All forms of dysmenorrhœa are causes of sterility.

Some women, while potentially fertile, are actually sterile or may have relative sterility. This is seen in women who marry two or more men, and have children by only one of them, or when a man marries two or more childless widows and has children by each of them. This may be termed sterility from incompatibility. Sedentary habits, monotony, confinement, absence of sunlight, certain climates, all acro-narcotic drugs, all habits of opium, alcohol, chloral, arsenic, obesity, syphilis, like temperaments, in-and-in breeding, are causes of absolute and relative sterility.

Most fertile women experience pleasure in sexual congress, and may have strong passions or desire, but women may conceive who have neither desire nor pleasure; while others who have both desire and pleasure remain sterile.

No woman should be pronounced sterile unless she has some defect to prevent conception, until the semen of her husband is examined to ascertain if it contains living, healthy spermatozoa.

One of the greatest wants of the age

Infantile Diseases. is health—"a sound mind in a sound body." Without it our national future—the future of families, of races, becomes more a matter of chance than a certainty. Physical degeneracy has blotted out many names from the face of the earth that ought to have been perpetuated to bless and take part in civilization and progress. Many parents bring into the world feeble children, because the laws of life and growth were not understood. Many more have consigned their loved ones to an early grave, or had them afflicted with disease, feebleness, deformity, through a want of a knowledge of the natural laws of life. It is a true maxim, that a large and healthy population is the life and strength of a nation, as well as the source of its success in sciences, arts, agriculture, commerce; so that it is a point of momentous importance to secure to the child a perfect state of health. It is true that pure air, cleanliness, suitable clothing, plain, natural food, will do much in preventing disease and prolonging life. Marriage should be prohibited among persons of like temperaments, or diseased, as they produce a diseased offspring. Neither should there be any incompatibility of ages, of blood affinity, or disposition. In order to do her duty to herself, to her country, to her offspring, a pregnant mother should sustain her health in its highest perfection. This she will accomplish by attention to diet, clothing, cleanliness, exercise, and moral discipline.

Her diet should be simple, light, nutritious, with abundance of

brain, bone, and flesh-forming elements, adapted to the requirements of the individual and the condition of the digestive organs. The clothing should be warm, comfortable; all tight lacing, corsets, etc., should be avoided. Keeping the skin in the best of order, by daily tepid sponging, is very conducive to good health during gestation. Gentle, moderate exercise is to be recommended, and all violent movements avoided. She should live in well-ventilated rooms, so as to breathe pure air at all times. There should be a perfect state of mental and bodily equilibrium on the part of the mother on all occasions; a well-balanced state of all her emotions, desires, affections, passions; her mind calm, cheerful; there should be no strain either on the intellectual or physical, especially on the former. She should entertain a high sense of her social duties, of her eminent status in nature as the mother of our race, and have implicit trust in Him whose name is honored in His marvellous works. The mother is all in all; her mental condition stamps the character, the calibre of the future man, the future mental condition, sex, and capacity of an immortal being; so that every precaution should be taken to look well to the mother.

At the moment of impregnation, both parents, to a certain extent, transmit their qualities to the offspring; and either parent may transmit, to a greater or less degree, their constitutional peculiarities, thus occasioning the greater or less resemblance to one or other parent. But from the moment of conception until birth, and even during lactation, the influences of the mother are constant. She is specially present; to her we owe all, even the determination of the sex. The natural tendency of a healthy mother is to breed a great excess of male births. This she can only do under certain conditions, to wit: saving her mental forces for perfect production. One would naturally think that by education and improvement of mothers in the sciences and arts, that we would improve the stock, and further increase male births, which is true, if the mother does not exercise, or exhaust, or overwork her intellectual powers during the breeding period of life. If a woman, before and during the child-bearing period of married life becomes an astronomer, teacher, preacher, physician, attorney, she exhausts her manhood, and cannot bear male children at all, or if she is capable of giving birth to boys, they will have small heads, weak brains, feeble or meagre intellectual capacity; in other words, they are deteriorated and effeminate. So that if married women crowd the avenues of scientific life, before and during the child-bearing period, we run the risk of becoming a nation of girls.

Anything that affects the mother injuriously or depressingly,

to the same extent damages the child. Let the mother partake of gross food, and there is a strong probability that the child will be tubercular; if she is of sedentary habits, it will be weak and flabby; if she has been dosed with drugs, they will impair the constitution of the child. And so with mental influences—if she has contemplated feticide, the future child will have suicidal mania; if she reads trashy novels, they will react on the offspring in some vice; if she is passionate, has an unhappy home, or bad husband, each one, or all, will give rise to some deterioration in the child. So that if we want healthy, buoyant children, free from all diseases or immoral taint, we must have happy, comfortable mothers.

To have healthy children, parents should be free from disease, either inherited or acquired; should exercise no deleterious trade, nor should they use alcohol or tobacco—both productive of imbecility and nervous disease in the child—and should have healthy organizations, and conform to all the requirements of hygiene.

A most important condition to our having healthy children, is to give them abundance of pure air to breathe. Respiration is the first act of independent life; air is a vital necessity. Shut a child up in a close room, or in a crowded city, every breath he takes changes the quality of the atmosphere; it loses oxygen, becomes loaded with carbonic acid gas; besides, there are the emanations from skin and lungs, which are poisonous. Pure air is essential to life, to the blood, and to all the tissues.

Next to air comes exercise; the activity of every organ and function. There is not an organ, muscle, faculty, gland, but what was made for use, for movement, exercise. Exercise is necessary to development; without it, anæmia and disease. Good health requires, nay, demands, the regular performance of all the organic and animal functions, secretions, excretions, and all muscular, nervous, intellectual, moral and passional activities. It *demand*s for the entire body, bathing once or twice a day; it *demand*s a temperature neither too warm nor too cold, and easy clothing, so as not to impede motion, aeration and perspiration. As destruction is rapid, and renewal very active, everything about a child should be scrupulously clean.

Rest and sleep are important factors in growth. Sleep, during which the brain picks up its pabulum from the blood; the brain must rest for fresh supplies. The child, the microcosm of Deity, with its dawning intelligence, sleeps nearly all the time. Nothing so withers and blasts incipient vitality as want of sleep. In childhood, ten to twelve hours in the twenty-four should be devoted to sleep; in maturity, eight hours is sufficient; and in old age we do with less.

Management of the Infant at Birth.—The most striking picture of utter helplessness that can be imagined is that of an infant at birth; for if assistance be not speedily afforded it will perish. The first thing to be attended to is the umbilical cord, which should be tied with saddler's silk, about three-fourths or one inch from the abdomen; then another ligature about an inch further on, and the cord divided between the two with clean-cutting scissors. Any mucus should be removed from the mouth, or ears, and it should be examined to see that it is a perfect child. After the function of respiration is established, the infant should be wrapped up in a blanket and kept very warm, protected from cold, and the nurse, or other attendant, should bathe it at the earliest opportunity, after the mother has been duly cared for. The first bathing of the infant is of much importance, and it should be performed with the greatest care and precision. All children, to a greater or less extent, are covered, either partially or wholly, with a thin or thick sebaceous secretion, which will not unite with soap, but readily unites with fat or oil. So, after the nurse has been provided with a low stool, a basin of tepid water, castile soap, and some olive oil, or lard deprived of its salt, she sits down and first freely anoints the scalp of the little stranger, rubbing it in gently, efficiently, causing it to unite with the sebaceous secretion, and then takes the soap and washes off; then she goes over the face, ears, and in the same manner, being most careful that not a particle of this matter enters the eye, ear, vagina, axillæ, as it causes inflammation; and being very careful that not a particle of it remains about an ear-lobe, angle of nose, a fold or crevice of the skin. Then she manipulates each arm in the same manner, washing the arms, and watching the armpits and fingers, then the limbs, and looking after the corrugations about anus, folds of vagina, groin. The utmost care should be exercised, and if it has been heavily covered, it might not hurt to bathe it in the same manner again in a few hours, lest the smallest particle or patch may have escaped observation. The perfect removal of this sebaceous secretion is all-important, and should receive the most careful attention and scrutiny, so as to prevent ophthalmia and other inflammations.

After the child is thus not only bathed but thoroughly cleansed and well dried, a double piece of fine old linen, four inches square, with a hole in the centre to permit the passage of the cord, slightly scorched, should be applied over the navel, bringing the cord through the orifice, and the linen laid flat on the belly. Then another piece of linen the same size, with a hole in the centre, should be applied, into which the end of the

cord should be wrapped up and turned over to the right side; and over and above all, a roller or bandage of finest flannel, reaching from the breasts to the groin, should be evenly and neatly pinned; and then the general clothing of the child, which should be easy and warm—flannel or silk. If the mother has been properly cared for, and the labor not too exhausting, she will have milk; and it is the best plan to put the child to the breast pretty soon, as the mother's milk is the true nourishment for the infant, that which nature has provided, a perfect combination for the due elaboration of every tissue in the body. Still, there are cases in which this cannot be done, and the child must be nourished with a little milk and water, or sugar and water. We are, however, most partial to mother's milk, as it cleanses out the bowels of the meconium, gives the nipple a better shape, facilitates a better flow of milk, induces contractions of the uterus by its reflex action, and diminishes all risk of secondary hemorrhages.

The child, for the first fifteen months, should be bathed morning and night—a thorough ablution—followed by gentle friction, and clean, soft clothing, to maintain an active condition of the skin. Tepid bathing for infants is always to be preferred. Very great cleanliness should be observed, diapers changed the moment they are damp; soiled, and moistened parts sponged off.

About the fourth month a child should have sufficient exercise in the open air, be occasionally placed in a sitting posture, and be allowed to roll round and kick at its pleasure. All these movements not only afford amusement, but act beneficially, by calling the different muscles of the body into action, and so increase their strength. A child should be exercised during the day, so that it may enjoy undisturbed repose at night.

The child should be weaned between twelve and fifteen months, provided it has teeth, and the season of the year warrants. No child should be weaned at the approach of summer, not unless the mother be pregnant, then it should not be kept an hour at the breast, irrespective of season or age. In weaning, it should be gradual, less and less daily, gradually substituting milk-food and ordinary solid nourishment. In all cases avoid starchy food, as rice, arrowroot, corn-starch, farinas, as they contain neither brain nor bone; not food for a Caucasian child; besides, the child has no saliva to digest starch. In order to be brief, we shall next direct attention to various peculiarities of the infant, and then to special diseases.

Peculiarities of the Infant.—Infancy may be said to extend from birth to the second year, or completion of dentition; and childhood to the age of puberty.

The general appearance of a new-born infant is as follows: It usually measures twenty inches, more or less, and weighs about six or seven pounds, more or less. The skin is very vascular, sensitive, and delicate; of a deep red color. All the prominent parts of the body are well protected by fat and cellular tissue; the tendons and ligaments are imperfect; the muscles soft and gelatinous; the bones are small, chiefly cartilaginous, deficient in earthy matter; the lower extremities are less developed than the upper; the pelvis is small and looks contracted; the thorax small, flattened at the sides, prominent in front; the head and abdomen large.

The digestive organs are perfectly adapted for producing rapid changes in the food introduced into them; indeed, they afford room for a continual supply of the materials for nourishment and growth. The mouth is beautifully adapted for extracting the food prepared by the mother, and conveying it to the pharynx. The stomach is small and long, which shows that it is not suited for receiving much food at a time, or for retaining it long. The intestines are smaller and shorter than in the adult; their peristaltic action is rapid, so that all excrementitious matters are quickly got rid of, the infant having an evacuation every four or five hours. The mucous membrane of the whole alimentary tract is thick, soft, villous, very vascular, and sensitive, and easily irritated by improper food; the salivary glands, the pancreas, the lacteal vessels, the mesenteric glands, are largely developed; the kidneys are large, the suprarenal capsules of considerable size; the spleen is small, liver very large, occupying one-third of the abdominal cavity, but becomes smaller by changes that take place in its circulation. The respiratory organs undergo a great change; the lungs, on being permeated with air, increase in size, become light, vesicular in structure, and of a deep rose red; the respirations are nearly double those of an adult. The action of the heart is quick, varying from 120 to 130 beats in a minute. In looking at the nervous system, we find the brain large, soft, imperfect in structure, and weighing about ten ounces; the convolutions are imperfectly marked; intelligence is in direct proportion to their extent, while the gray portion scarcely differs from the white, in color. The meninges are more vascular than in the adult. The structure of the spinal cord and nerves is more perfect than that of the brain; those parts being devoted to functions of sensation and voluntary motion. The organs of the external senses are all present at birth, and the nerves distributed to them are large.

Peculiarities of Disease in Children.—During childhood little boys are very delicate, susceptible to disease, whereas little girls

are tough and wiry, and resist morbid action. After puberty, the young man is vigorous, and the young lady delicate or tender, thus reversing the conditions. In childhood, in both sexes, there is a predisposition to disease on account of inherent weakness of organization, and the ease with which impressions are made, and disease at that period of life is very apt to be insidious, and run a very rapid course into some organic change. The activity of the vital force, the quick metamorphosis of tissue, predisposes to inflammatory disorders, and the great susceptibility of the nervous system to impressions causes any affection to be keenly felt by the whole system. Hence, the slightest disease, or indisposition in a child should never be regarded with indifference. It is also true that the same activity of the vascular and nervous system imparts an energetic, reparative power in the child, and essentially aids recovery from some severe affections which would be fatal in advanced life.

The skin and the mucous membrane of the respiratory and digestive organs are the principal points upon which morbid impressions exhibit themselves, although they originate in the stomach, or from outside influences. The mucous membrane of the larynx, trachea, bronchial tubes, is liable to inflammation of various grades, mostly of an acute character. The gastro-intestinal mucous membrane is another source of disease in early life, and owing to irritation of these parts, so abundantly supplied with the sympathetic nerve, and the increased sensibility of the reflex centres in modern children, give rise to innumerable brain affections. Hence, the frequency of fits, convulsions and cerebral disease. The early growth of the lymph canals, or lymphatics, render them obnoxious to morbid action. Diseases of the urinary organs are not frequent or severe.

The diseases of children present many interesting and remarkable features, the peculiarities decreasing as age advances. All affections of children, even the process of dentition, are attended with fever of a remittent type, having exacerbations towards evening or during the night.

In all cases of disease in the infant the causes are the same as at other periods of life, though they react upon the child with greater severity than the adult. Errors in diet, impure air, inattention to the laws of health, intense cold, heat, damp, filth, meagre or improper food, insufficient clothing, disease-germs, poison; reflex states, as dentition, worms, accidents, act energetically upon the feeble constitution. Again, many disorders that exist in early life may not exist at birth: Thus, some are unfortunately born with the germs of syphilis, tubercle, in their blood. The chief causes of death among our children are

cholera infantum ; disease of the brain, superinduced by indigestion ; acidity, worms, teething, bad food and the like.

Diagnosis of Infantile Diseases.—A little good sense is all that is necessary to form a correct diagnosis of the diseases of the child. The chief sources from which our information is derived are the countenance, the gestures, attitude, the sleep, the cry, the mouth and breath, the respiration, circulation, etc.

Countenance.—The human face divine is the most interesting and intelligible page in the book of nature. In its calm and smile, we read health, ease, happiness of mind and body ; in pain and suffering we discover disease.

In general uneasiness, excitement, and fever, the whole expression of the countenance is altered, a flushed and wrinkled condition alternately being remarkable.

In affections of the brain and nervous system, the expression of the upper portion of the face, as the forehead, brows and eyes, is especially changed ; the skin white, the forehead contracted and heavy ; the brows are knit ; the eyes wild and vacant, or fixed and staring, partially open ; rolling of head ; squinting ; dropping of eyelids.

Morbid conditions of the organs of respiration and circulation affect the features of the middle of the face ; the nostrils, in pneumonia, are dilated ; tip of the cheeks red ; sharp, dark circle round the mouth. In cardiac irritation, features are contracted.

In diseases of the abdomen a peculiar expression is given to the face : cheeks sallow, sunken ; the mouth retracted or drawn ; the lips colorless. In irritation of the bowels from worms, the nose and upper lip are tumid, a dark ring below the eyes and round the mouth, and the white of the eye has a pearl-like look. In the exhaustion from diarrhea, the face is alternately flushed and pale, hot and cold ; in extreme cases, pallid, cold, glistening ; the eyelids half closed. In jaundice, the countenance is yellow. In measles, the running from eyes and nose, redness of the eye, swelling of eyelids, never can be mistaken. The features are emaciated, and present an appearance of decrepitude, in tabes mesenterica. The peculiar feverish look, sharp features, sunken eyes, pallor, of cerebro-spinal irritation never can be mistaken. Pain in the head causes the brows to contract ; in the belly, the upper lip is elevated ; in the chest, sharpness of nostrils. Before convulsions come on, the face becomes convulsive ; the upper lip is drawn, there is squinting. Suffusion of the face denotes fever ; flushes of heat and coldness denote exhaustion.

Gestures and Attitude.—The beginning of disease in a child is made apparent by inattention to surrounding objects, by their

listlessness and dislike to movement. They then become restless, languid. Inflammatory pain may make a child still. In abdominal inflammation the child lies quiet; the knees bent, drawn up; twisting about; uttering loud cries on the sudden accession of pain. Acute spasmodic pain induces immediate contraction of all the muscles, and the infant starts in terror. In convulsions, the head is drawn back, and becomes rigid, or a leg is drawn upwards, and the child cries violently from pain or fear; the breathing is spasmodically affected; the thumbs and fingers are drawn into the palms of the hands; the toes are firmly flexed downwards. In irritation of the brain, the little hand is frequently raised to the head, attempts made to tear off its cap, and perform other movements with the hands, while the head is rolled from side to side on its pillow. In disorders of the mouth, as difficult teething, the child presses its fingers into the mouth, or seizes and presses the nipple roughly and greedily, or rubs the gums with anything it can get hold of. In croup and other diseases producing difficulty of breathing, it pulls or grasps at the larynx, and tries to compress it laterally, and by its cries indicates the seat of suffering, which is relieved by the sitting posture. During dentition, throwing back the head, grinding of the jaws, or irritation of digestive tract, indicates convulsions.

The Sleep.—The sleep of a healthy child is deep, tranquil, prolonged; the countenance is calm and happy; the breathing slow and easy; its limbs relaxed; on awakening, it is lively, and seeks the breast. In disease, the rest is disturbed, broken; the respiration is loud, labored; the brow contracted, or the mouth drawn; there is grinding of the teeth, or gums; sudden startings; the child is fretful, irritable, peevish. Any irritation anywhere, but especially in the brain or bowels, lessens the ability to rest. Rigid extension of the limbs, with a turning in of the great toes and thumbs, is indicative of convulsive movements. In jaundice, there may be deep sleep or coma.

The Cry.—The first indication that a new-born infant gives of life is to cry, and the more loudly and lustily it does so, the better, as it thereby inflates the lungs more perfectly, and demonstrates the fact that the vital organs are well and vigorously formed, and the child in good health. But after being bathed, clothed, and warmed, and otherwise seen to, the well-cared for infant cries but little; the act of crying being reserved to express pain, distress, hunger. Pain is productive of crying. In affections of the lungs, the cry is more of a groan; in croup, hoarse, muffled, crowing; in cerebral disease, screams, with great irritability at intervals; in diseases of the abdomen, the cry is prolonged, low, moaning. The sympathetic nerve and lachrymal

gland being rudimentary until three or four months; the little sufferer does not shed tears in crying until after that period. After four months, if a child shed tears in the act of crying, it is a most favorable sign; but if the eyes are dry, sunk in the orbit, great danger to life exists.

The Mouth and Breath.—In health, the mouth is moist and pale, the tongue smooth, and partially covered with a layer of whitish mucus; the gums red, the breath sweet, free from smell or odor, only that of the mother's milk. This is altered by very slight causes; the mouth may become hot, dry, red; the tongue coated, and the mouth sour, acrid. This is the case in fevers, acute affections of the chest and abdomen, and in retarded, difficult dentition. In the eruptive fevers, tongue often swells, or its papillæ project. In scarlet fever, with its strawberry papillæ, it sometimes presents a swollen, hot condition. In sore mouth, or aphthæ, due to bad milk, indigestion, teething, overcrowding, the breath is fetid, tongue excoriated, and there may be ulceration on various parts. (See *Aphthæ*.)

The Skin and Temperature.—In a healthy skin of an infant we should find it firm, elastic, smooth, of a rosy flesh-color, neither hot nor pale, but moist and cool. A hot skin is present in all febrile diseases; a cold, moist skin in feebleness and prostration. Great redness indicates inflammation, or the eruptive fevers; a pale, doughy skin warns us against tuberculæ; intense blueness, to cyanosis, a mixture of the arterial and venous blood, or some interference with the oxygenation of the blood; a yellow skin, to some affection of the liver; a dirty, sallow hue, to diarrhea. Rigors are not common in young children, even suffering from malarial fever, the usual symptoms being a paleness of the face, a discoloration of the lips, a bluish tint beneath the nails.

Respiration.—An infant breathes instinctively, without method, but with regularity. All diseases of the air-passages are attended with noisy, rattling respiration and cough, which is hoarse and spasmodic in inflammation of the glottis; ringing in laryngitis; crowing in croup. In catarrh, bronchitis, pleurisy, and pneumonia, the breathing is merely hurried, the cough hacking and dry, and the expectoration, as it comes up, is swallowed by the child. As the inflammation increases, the rapidity of the breathing becomes great, so that in lung congestion it is often panting: at the same time there is rapid dilatation and contraction of the nostrils. In pleurisy, the respiration is restrained; in peritonitis, the inspirations are short, jerking, difficult.

The Circulation.—The heart's action is more variable in infancy than at any other period, and impressions of every kind quicken the pulsations. Pulse, in health, ranging about 130.

Discharges by Vomiting and Stool.—The first stools after birth are of a black, or dark-green color, called the meconium. Subsequently they become brown, or of a yellow hue, of a curdy consistence. The bowels move frequently in health—about every four hours. Heated milk, or anything that disturbs the digestive organs, may cause vomiting and diarrhea, and reflexly act on the brain. A great many diseases of childhood are ushered in by vomiting, or diarrhea, as cholera infantum, hooping-cough; and the expectoration swallowed in diseases of the chest is often vomited, or causes diarrhea. Frothy, acid stools, with undigested milk, indicate disorder of the stomach and pancreas; green, or chop-spinach stools, irritation of liver and brain; slimy stools, common in difficult dentition, or when worms are present in bowels; thin, fetid, dark-brown stools indicate chronic diarrhea. Constipation is rare among children when they are fed on milk diet, until teeth are present for mastication.

The Urine.—Scanty and high-colored in all fevers and inflammations; of an intense uriniferous odor in difficult dentition and marasmus; scanty, almost suppressed, in disease of the brain; complete suppression may follow a fall, shock, jar; in disordered liver, stains diaper a deep orange color.

It will be impossible to notice the disease, accidents, deformities, nutrition, dentition, of infants, in anything like order, so we shall isolate them and enumerate singly.

Inflammation of the Umbilicus.—Many ignorant medical attendants, self-conceited nurses, and meddling old women, insist upon various applications to the navel, especially rancid and trichinous lard, which softens, irritates, and causes ulceration at this point. The scorched linen rag, which we have recommended, is the best application: it is absorbent and antiseptic, and always procurable. The period of time that elapses before the cord separates is about four days, and in cold weather, perhaps five or six. When it has not been tampered with, a slight oozing of serum takes place, and the part heals; but owing to some condition of irritation, that instead of healing, it may become inflamed and ulcerated, suppuration takes place, and very serious hemorrhage may occur. When this takes place resort at once to germicide washes, for in the ulcer the streptococcus pyogenes is abundant, and must be immediately destroyed. So bathe it with the boroglyceride or creolin lotion weakened down to suit age, and then dress with vaseline or ozone ointment.

Swelling, or Milk in the Breasts.—The breasts of the infant often swell after birth, and become engorged with serum and milk. The best plan is to open the bowels freely with oil; give a little sweet spirits of nitre, and apply over the breasts a lotion

of muriate of ammonia, and if it does not disappear quickly, belladonna in tincture form, or put on the iodide of potass, muriate of ammonia, and belladonna ointment. If still stubborn, iodide of potass, in grain doses, internally, thrice daily.

Retention of the Meconium.—The black, or dark-green, viscid matter known by the name of meconium is sometimes retained in the bowels after birth, instead of being discharged freely the first day or so. Its evacuation is promoted by the first milk secreted by the mother, which is of a slightly aperient nature.

As a rule, this is sufficient to bring away the meconium, but if it does not, then it should be aided by medicine; a little castor-oil might be tried; that not proving satisfactory, a few drops of fluid extract of leptandra in water, in which one or two grains of bicarbonate of potassa has been dissolved.

The Yellow Gum.—If the meconium is not discharged promptly, its presence seems to give rise to irritation and obstruction of the biliary ducts, forcing the bile back into the liver; the meconium becomes impacted in the intestines, and a condition of jaundice supervenes; or the jaundice may be due to the disturbance of the hepatic circulation, on the transfer of its chief blood-supply from the umbilical vein; or, owing to some condition of congestion, there may be difficulty in the bile finding its way into the duodenum.

This causes languor, indolence, yellow skin, bilious urine, a tendency to deep sleep, which keeps child from nursing, and may prove fatal. In some cases it assumes the condition of true jaundice.

Treatment.—Cleanse out the bowels with oil; follow with a solution of phosphate of soda, one grain every two hours. A few drops of the fluid extract of leptandra, in the neutralizing mixture, should be given morning and night. If liver does not act very promptly, better to put one grain of calomel on the tongue, follow with the breast, and in an hour with a teaspoonful of oil. This may be repeated and followed with bicarbonate of potassa in a little water, the idea being to rouse up the liver, and free the gall-duct from all viscid secretion.

Asphyxia, or Still-Born.—The apparent or real cessation of life in a new-born infant may be due to a variety of causes, such as inherent weakness of the vital powers; peculiar conformations; collections of glairy matter in the bronchi and air-vesicles of the lung; the introduction of a quantity of amnii into the trachea, and congestion of the lungs, arising either from the neck of the child having been tightly encircled by the os uteri, or vulva, or navel string; or from its being long detained in the passage, from pressure of the cord in breech presentation, or where the

cord is prolapsed, or where the mother has been dosed with ergot. From the exhibition of this latter during labor, we have asphyxia, or still-born of a peculiar kind; the blood is coagulated in brain, heart; the child bloodless, and rarely manifests a sign of life; its blood dried up, mummified; and no method of reanimation can restore it to life. When unusual weakness of vital power seems to be the cause, and there are active pulsations in the cord, lay the child on right side, keep it warm, rub it gently; but do not slap it on either back or side, and do not ligate the cord as long as pulsations are good; artificial respiration should be tried; but blowing in the nose, and trying to inflate the lungs are very unsatisfactory, as the air is frequently blown down into the stomach as well as the lungs. If pulsations have ceased, ligate cord at once, and try the usual means for suspended animation. Then cleanse thoroughly; wrap in flannel; rub gently; use tincture of capsicum down the spine; sprinkle alternately hot and cold water on the chest, so as to get to sigh, and thereby inflate the lungs; blow on face. Try artificial respiration, warm bath; and be careful while pursuing these or all those means, that the child does not lose its heat; keep it in flannel, and rub with tincture of capsicum and whiskey. If there is an electro-galvanic machine about, set it at work, applying the positive pole to spine, negative over stomach and diaphragm. This is often effectual. If respiration can be established, give a few drops of brandy in sweetened water, and repeat at intervals.

When a portion of the liquor amnii gets into the trachea, and produces asphyxia, or the mouth of the infant is discovered to be filled with glairy matter, rendering the respiration difficult, sonorous, rattling, we must wash out the mouth and throat; place child over on its belly on the nurse's lap, which will facilitate the discharge of the liquor. Having done that, we must endeavor to reanimate the child in the usual manner.

If a congestion of the lungs be the cause, or if you suspect the nurse or physician has been dosing the mother with forcing-powders (ergot), then it is a good plan to untie the cord, and let from a teaspoonful to a tablespoonful or more of blood escape; then follow with warm mustard-bath, friction to surface. Slapping the infant is always reprehensible, as its lungs, liver, spleen, kidneys, and other organs, are so soft that they are liable to laceration. In all cases adhere to the rules laid down for *suspended animation*.

Medical men are often called upon to give evidence in cases of supposed infanticide; it seems proper to mention that much careful observation and experience is required to discriminate

between a child that is still-born, and one that has lived only a short time after its birth. Various appearances, both internal and external, may be mistaken for marks of violence. Even the floating of the lungs in water, a test on which much reliance is placed, is found on many occasions to be fallacious; for they will float if a putrefactive process has commenced, as well as when filled with air by respiration. It may also happen that an unmarried woman, on arriving at the full period, and having concealed her condition, may be taken ill alone and be delivered of a live child; but that, either from syncope ensuing speedily, or from a convulsion, or from loss of reason, or a distracted state of mind, or some other cause, she may be so far overcome as to be rendered incapable of assisting herself or child, and it may have been suffocated by the bed-clothes. In other instances it may happen that the child is born alive, still, from some injury in the birth, or inherent weakness, or some other obscure cause, it may cease to breathe without receiving any injury from the mother. No doubt cases of this nature are of daily occurrence, and they point out the impropriety of placing any reliance on the floating of the lungs in water as a test of infanticide.

The dictates of humanity and reason require a radical change of this method of evidence, as it has been often injudiciously used.

Excoriations, Chafing, Ulcerations.—From a want of care, neglect of proper cleanliness, children are very liable to chafe, or excoriate, in the folds of the neck, behind the ears, in the groin, and around the arms. To prevent this, there should be a removal of all damp or soiled linen promptly, the parts dried and exposed to the air. It is a good plan to bathe all excoriated parts in warm milk and water twice or thrice daily, or an infusion of sage tea and boroglyceride, and afterwards dust with pulverized starch, or anti-microbe powder, or rub over with vaseline. If the excoriations are of considerable extent and depth, use a solution of boroglyceride for a wash, and apply the ozone ointment for a dressing; this will heal them rapidly. In obviating excoriations, it should be our aim to prevent the secretions of the body from mingling with them.

In tubercular children, about the time of teething, when the child suffers from malnutrition, bacteria are very abundant in alimentary canal, blood, and they find their way about the skin of the ears and other parts, which gives rise to sores, the secretions from which are highly contagious. In these cases, an effort must be made to correct the malassimilation, by sulphate of cinchona and elixir cinchona. The sores should be bathed with a decoction of poppies, and either kept dry by dusting on anti-microbe powder, or applying ozone ointment.

If the case is stubborn, push better food; pure air; and alteratives, as iodide of potass; and use stronger antiseptic washes locally.

Non-expansion of the Air-cells of the Lungs.—It often happens from a weakness, or from a long, tedious labor, or from severe compression of the head, or from the little one's blood being coagulated by ergot administered to the mother, that it is unable to inflate its lungs perfectly; that there is a non-expansion of the air-cells, and the infant looks as if about to die. It soon becomes jaundiced; cry consists of a mere whimper; inability to nurse; drowsiness, exhaustion, are great; surface cold and livid; chest but partially dilated by imperfect respiratory movements; the lung condensed, but the consolidation will give way as strength is gained; and good health may be attained, or death may occur from exhaustion and convulsions. To prevent this, bathe the child, wrap up in warm flannel in a room 80° F.; hot bath twice every twenty-four hours; massage gently with sweet olive oil, especially about the chest and abdomen; nourish every two hours with juice of raw beef, or milk and lime-water; open bowels with magnesia.

Cephalæmatoma.—If the labor has been long, tedious, or the head large and pelvis small, or the presentation a difficult one, it is very apt to so compress, or stagnate, or rupture vessels on the scalp as to cause the formation of a bloody tumor after birth between the bones of the skull and pericranium. Long-continued pressure is the cause.

Symptoms.—Tumor varies in size from a hen's egg to that of a large orange. It is generally formed on one of the parietal bones; on right more frequently than left, and occasionally on both. Swelling is soft, fluctuating, and circumscribed; its base often becomes encircled with a hard ring, caused by the coagulation of the plasma exudation.

Treatment.—Never incise, nor apply compression; administer a gentle purge, and apply a solution of muriate of ammonia, not very strong. If anxious regarding it, a solution of iodide of potass, five grains to the ounce of lime-water, and apply.

Convulsions of Infancy.—There is a very rare form of convulsions occasionally met with in infants, which is epileptic in its character, and leads to impairment of the intellectual faculties.

It consists in a peculiar, involuntary, rapid bowing forward of the head, and in some cases the whole body. The bowings are repeated in quick succession, one following the other, occurring every day, or less frequent; usually worse in the morning, or when awaking from sleep. After child grows old, regular epi-

leptic attacks take their place; pure epilepsy, or convulsions, or paralysis, and wasting may follow. By attention to bowels, skin, and administration of alteratives, the symptoms will subside, and the health be completely restored.

Treatment same as for *Epilepsy and Convulsions*.

Nine-day Fits.—There is a peculiar form of tetanus, or lock-jaw, that occurs in infants about two weeks after birth, and is very fatal. It is supposed by some to be due to cutting the navel-string or cord with blunt scissors, or to the application of irritating agents about the navel.

Others imagine it to be due to cold, foul air, improper feeding, imperfect bathing, retention of meconium, ergot to mother. Precautions ought to be taken in the dividing of the cord that it be done by clean-cutting scissors; that no irritants be applied to navel; that the child be properly seen to by proper bathing, pure air, cleansing out its bowels with oil.

Hide-Bound; or, Sclerema.—A peculiar disease of new-born infants, consisting of an induration of the skin and subcutaneous tissue, with serous effusion, occurring at birth, or within ten days subsequently. It seems to depend on the latent elements of syphilis.

Symptoms.—The skin, at first is dry, stiff, withered; then assumes a waxy, yellowish appearance, and gradually becomes distended and unyielding; so the babe is said to be skin-bound. It grows cold, prostrated, unhealthy, and often jaundiced. Indications of distress in restless, whining cries; refuses the breast; feeble pulse and laborious respiration. Gastric and intestinal disturbance sets in, and death is ushered in with prostration and asphyxia.

Treatment.—Use warm bath; inunction of oil; flannel; solution of raw beef, and one-grain doses of iodide of potass; milk and lime-water; keep bowels open with neutralizing mixture, and see that kidneys act well. Death is almost inevitable.

Hiccoughs.—Some infants are greatly incommoded by hiccoughs. They usually arise from some acidity of the stomach, or from some nervous irritation.

If due to *acidity*, try a few drops of lime-water in milk; a grain of bicarbonate of potassa, in milk, or the neutralizing mixture.

If due to *nervous irritation*, try one drop of chloroform, in water, sweetened, or tincture of aconite, or belladonna; or a few drops of aromatic spirits of ammonia in water; or some aromatic tea, as catnip, anise-seed, caraway. In some cases a few drops of vinegar prove very effectual. If persistent, and not relieved, then some stimulant to spine and over stomach, as soap liniment and lobelia.

Our Infantile Mortality.—Our country, noted for every practical improvement, every species of philanthropy, everything capable of ameliorating human toil and suffering, suffers the greatest infantile mortality in the world. Much of this is due to solar heat, city life, insanitary conditions, special diseases, but the greatest causes are bad feeding and improper drugging. The practice of not nursing, or weaning early, is now becoming more common, as the struggle for existence becomes greater, so as to enable the mother to work. As a result, the babe is fed on starch, farina, corn-flour, boiled bread, sour, or swill milk; articles it cannot digest; so that it starves—takes marasmus; because it has lost the main factor of nutrition, mother's milk, it sickens, dwindles and dies. Parents cannot be too frequently informed of the unsuitability of farinaceous food for children. The practice of an American mother in this land of freedom and wealth being compelled to work during pregnancy and nursing drains away the life and vigor of both mother and child. It makes the mother prematurely old, and stunts the growth and destroys the vitality of the child. A mother's labor, a mother's worry and strain should be minimized by every possible means, and work avoided.

As for drugging babes, it is a great wrong, and the immediate and remote cause of much mortality. Think of the millions of bottles of soothing syrups that are annually consumed, all loaded with opium, which whittles down and mummifies our new growth. Introduce a better system of feeding; milk-food free from starch; abolish drugging, and we will save this element of national greatness that is now lost.

Infantile Syphilis.—Parents, either father or mother, affected with the syphilitic germ, are liable to transmit it to their offspring. In the case of a father affected, and the mother free from the disease, the healthy uterus of the mother is likely to repel the diseased fœtus at four or seven months, and cause an abortion; but in some cases the mother may carry her pregnancy through, and the child may be born, apparently free from disease. But in a period of time, usually inside of six weeks after birth, the original pock of the father will appear on the skin of the child in the shape of blisters about ears, nose, face, body, arms and legs, forming a regular rash, copper-colored. Very soon there is a general shrinkage, or shrivelling of the skin, with general syphilitic ulceration of mouth and throat, and other parts. In other cases, the infant may be born with the withering effects of syphilis visible all over its entire body; its hair may drop off, and general ulceration may occur.

In still another class of cases there may be no visible appear-

ance on skin, but the disease may exhibit itself in the bones, in a separation of the growing extremities of the ends of the long bones, which leads to the separation of their epiphysis.

This affection of the growing bones seems to be painless, and even more amenable to treatment than the skin eruption.

Same treatment as for *Adult Syphilis*.

Physicians meeting those cases in every-day practice, see the imperative need of legislative enactment to prevent the marriage of parties afflicted with this malady, entailing disease and death upon their offspring. Syphilis is a *contagium vivum* just as much as small-pox, and some gigantic effort is necessary to prevent its wide-spread dissemination.

Teething.—Of all the occurrences to which children are liable not one is attended with such grievous and distressing symptoms as difficult dentition. With regard to the time of their cutting their teeth, no fixed or exact period can be laid down; as in rare cases, some are born with teeth, others have them soon, others very late, and others extremely late.

As a general rule, dentition commences, in the large majority of children, between the fourth and eighth month, and the process continues until the seventeenth month, and often later. The two front teeth of the lower jaw are those that usually appear first, and shortly after these are observed two more come out in the upper jaw, exactly opposite the two former. These are succeeded by the four molars, then the canine, and, last of all those of an infant's first teeth, the eye-teeth, make their appearance, making sixteen in all. This is the ordinary number of a child's first teeth, as they are called, but some infants cut four double teeth in each jaw instead of only two, making the number twenty.

In children who are healthy and strong, who have a good mother and abundance of milk—a mother who eats a wholesome diet, with daily meal of oatmeal porridge and cream, corn-bread, and boiled fish, the process of dentition goes on with perfect regularity, and the teeth are cut early, and without a particle of trouble or pain; but in the unhealthy and weak infant, who has a mother reckless of her diet, the process of dentition is slow, tardy, uncertain, painful and difficult. So that we meet with children cutting their teeth in a very irregular way; perhaps the teeth appearing in the upper jaw at intervals apart, or overlapping, and the same in the under jaw, and various other conditions, which are attendant on tardy, difficult, or painful dentition. The first two teeth give a pretty good index of what is to follow, the succeeding ones generally making their way in a corresponding manner. This first set is called the milk-teeth,

and are generally shed when the child becomes six or seven years old, according to their diet and health.

At six or seven years of age, when the shedding begins, it is followed, in a gradual manner, by a fresh set; and about the age of twenty-one they get one more in the corner of each jaw, which, from their appearance at that period of life, have been named their wisdom-teeth.

The following table exhibits a fair average of the eruption of the teeth:

DECIDUOUS TEETH.

(The lower generally precede the upper by two or three months.)

Central incisors	5 to 8 months.
Lateral "	7 to 10 "
1st molars	12 to 16 "
Canines	15 to 20 "
2d molars	20 to 36 "

PERMANENT TEETH.

1st molars	5 to 6 years.
Central incisors	6 to 8 "
Lateral incisors	7 to 9 "
1st bicuspsids	9 to 10 "
2d "	10 to 11 "
Canines	11 to 12 "
2d molars	12 to 14 "
3d "	17 to 21 "

Difficult Dentition.—Permature decay of the teeth is in a great measure due to the want of vegetable phosphates in the mother's blood; to her neglect of the daily use of oatmeal, corn-bread and boiled fresh fish; and the use of bakers' bread as diet. This also predisposes the mother to nervous diseases, which correlate to the deterioration of the teeth, each influencing, and, in a measure, causing the other; besides, the modern system of overstimulating the nervous system by early precocity, causing a defective process of assimilation and tissue-formation, especially in teeth.

Symptoms.—Difficult teething exhibits itself in a variety of ways, but the great bulk of the symptoms are reflex—irritation transmitted to a weakened bulb and cord. The child becomes fretful, its skin white; nutrition is impaired; the gums swell, spread, become hot, tender; the child is continually working with its mouth, desiring to bite something; irritable, restless, peevish; some fever; increased heat in the head, or pallor, with dilatation of pupils; there is often a hectic flush on the cheeks, with eruption on the skin, especially on face and scalp; a looseness of the bowels, with griping stools, of a green, pale or leaden hue,

sometimes mucus; and the child becomes very peevish; starts in its sleep; eyes partially open; rolls head, and throws its arms about, and seems convulsed in particular parts of the body. It exhibits great indications of brain-irritation; in some cases screaming, throwing head back, thrusting its fingers into mouth; in other cases there is cough, difficulty of breathing, emaciation, marasmus, great fever, thirst, convulsions and a bad train of symptoms.

When the child is properly cared for, its secretions and excretions kept natural, and elements supplied in its milk from which nature can make teeth, very few of the violent symptoms attendant on such a condition occur, and we need not apprehend any bad symptoms from teething. Infants cut their teeth more easily and readily in winter than in summer; boys more difficult than girls. What is to be apprehended is the reflex condition, which affects all children to a greater or less degree.

Treatment.—The irritation of teething causes the gums to swell and become tender to the touch; there is fever, with irritation of nervous system, with occasional convulsions. In such cases, where the gums are considerably swollen, and the child seems to suffer much from the irritation of the tooth in working its way out, and when the tooth is near the surface, it will be exposed by the retraction of the gum, then it may be advisable to relieve it with a lancet; when no such appearances present themselves, and the child is very restless and uneasy, we can do little more than attend to the different symptoms. In the mildest forms of dentition, sedation is very useful; bathing twice daily; put thirty drops of tincture of aconite in half a tumbler of water, and give a teaspoonful every one or two hours; if there be strong nervous symptoms, with a tendency to convulsions, add a few drops of tincture green root gelsemium. If the breath is very acid, lime-water and milk, or the neutralizing mixture, or ozone-water; if there seems to be griping, open the bowels with cascara, and follow with infusion of anise-seed. The above also will relieve the bowels if constipated. In some cases a grain of leptandra rubbed up in pulverized licorice is very efficient. If there is restlessness, violent startings, with screamings and twitchings—precursors of convulsions; bromide of potass and ammonia in lavender or cinnamon-water.

Opium, or laudanum, or paregoric, should not be administered to teething infants for the purpose of keeping them quiet. It is a most injurious practice; dries up their secretions, and whittles down their vital force. Mothers, and especially nurses, are prone to resort to that drug in some soothing syrup, so as to have their own rest undisturbed. The only drugs of real merit are lime-

water in milk, compound hypophosphites of lime and soda in juice of raw meat, and ozone-water; two of which could be given at alternate periods, say, every two hours; otherwise the treatment must be upon general principles. If there is fever, aconite and asclepias should be given; urine scanty and high-colored, parsley-root tea and sweet spirits of nitre. Watch convulsions; let mother have tincture of lobelia on hand, and if she sees twitchings or throwing head back, alternate pallor and redness, administer a few drops as occasion demands. A free action of the bowels during dentition should not be stopped; not unless the motions are very frequent, and then guardedly. Any other symptom that arises should be managed upon general principles. The practice adopted of giving infants toys made of hard rubber or ivory to suck and hold in the mouth, upon which they can press their gums during teething, is highly improper, as it has a tendency to harden the gums.

Aphthæ, or Nursing Sore Mouth, is most common in ill-fed children, and the parasite present often makes destructive ulceration of the gums. (See *Aphthæ*.) Pure air, proper exercise, wholesome, nutritious milk; flannel clothing, regular bathing, secretions, and everything that is calculated to promote good health, will greatly contribute to the safety of dentition. At the same time guard the reflex centres, by keeping them well stimulated by proper means.

In all cases of tardy, difficult, or painful dentition, we must never ignore the main defect—a want of histo-genetic material in the blood; provide in all cases material from which the system can elaborate teeth.

Weaning Brash is a term applied by mothers and nurses to a disorder that takes place upon being suddenly deprived of the mother's milk by disease, pregnancy, or death, or where children are reared artificially with bad milk. The use of the milk-food has stamped this disorder out. It consisted in derangement of the stomach, vomiting and purging, with green stools; and if it occurred during the hot weather, speedily merged into that fatal disease, cholera infantum, with its sequel, tabes mesenterica. A quick transition from one kind of food to another should never take place; it should be progressive, and adapted to the age and condition of the child.

Malformations and Deformities.—Some attribute them to impressions made upon the mother during pregnancy, and there is no doubt but this is a fruitful source; others attribute them to defects, or deficiencies, or absence of certain histo-genetic material in the body; and others, to a variety of causes. But there can be little doubt that by far the most prolific causes of deformi-

ties are incompatibility of temperament, close consanguinity, in-and-in breeding. Although this is the main source of the trouble, it would be well in our present state of civilization, where the nervous system is developed at the expense of the physical, where the brain is alive, vivid to external impressions, to guard pregnant mothers from theatre scenes, deformities, animal or fowl killing, choreaic movements, fits, appalling accidents, death, or anything of an unfavorable nature that would be likely to impress her keenly or acutely. Defects or mutilations may also be classed under the same causes. Imbecility, an abrogation of the facial angle of forty-five, or idiocy, is likely to be due to the use of whiskey and tobacco by the father, the former causing true imbecility, the latter wiping out the typical convolutions of the brain.

As a rule, all extra fingers, and toes, and other malformations, should be rectified at birth.

Tongue-Tie.—The tongue may be unnaturally adherent to the sides, or to the under surface of the mouth, so that nursing may be prevented. The adhesions must be carefully and cautiously divided with a bistoury and the bleeding controlled by the perchloride of iron. Genuine tongue-tie is when the bridle of the tongue is so short as to reach nearly to its tip and interfere with its motions. This is to be remedied by dividing the edge of the bridle with the scissors.

Hare-Lip.—The simplest degree of this deformity is single hare-lip, in which the lip is fissured on one side; it may be complicated, with partial or complete fissure of the palate. The greatest malformation of this kind is double hare-lip and fissure of the palate. The arrest of development occurs only in the



Different forms of hair-lip.

upper lip; the fissure never occurs in the median line, but always under one or both nostrils, and the deformity may vary from a notch to a complete fissure, extending into the nostrils. The only point of interest is the treatment. The operation for the relief of this difficulty should be performed immediately after birth. The child, after being properly nourished, should be wrapped up in a sheet; the edges of the cleft should be liberally pared, and then hare-lip-pins inserted two-thirds the thickness of the lips, from its anterior face. A sufficient number of pins should be used, and over each the figure 8, formed of lead wire, which should have the preference to silk.

Cleft Palate is often associated with hare-lip, and frequently closes when the lips are healed. The operation for this has generally to be delayed till patient becomes ten or fourteen years of age, or even older.

Wry-Neck.—A distortion in which the head is drawn to one side, and the face to the opposite; due to contraction of one sterno-mastoid muscle. Paralysis of one muscle allows the other to overpower its fellow.

Causes.—Blows on neck; caries of cervical vertebræ; enlargement of cervical glands on one side; to the cicatrix of a burn or ulcer; rheumatism; gout.

Treatment varies much, generally embraces alteratives and tonics, with shampooing, friction, electricity of the paralyzed side. Try every means to improve general health; all failing, the muscle on sound side to be divided.

Knock-knees, due to a relaxation of the internal lateral ligaments of the knee-joints, allowing femur and tibia to become separated, so that an angular obliquity of the bones results. It is common in tubercular children; may be noticed before beginning to walk. The best plan is to treat for tuberculæ, and resort to every means to build up the general health. Massage, locally, twice daily.

Bow-legs belong essentially to rickets, and is generally due to starch-feeding of infants. It can be overcome by a better diet, one containing vegetable phosphates, as corn and oatmeal mush, boiled white-fish, animal food, etc.; keeping patient off his feet, and in addition, using locally, massage, salt-water baths, and general treatment for tuberculæ. Perseverance is essential, as many months are indispensable for a cure.

Club-Foot.—A gradual change in form and positions of tarsal bones, chiefly owing to undue action, or paralysis of certain muscles, or their atrophy, or want of development, or to contraction of tendons. Usually congenital, and dependent on same causes as other malformations; or it can be acquired by conditions affecting either the circulation of nerves, or growth of muscles. There are quite a number of varieties, but for all practical purposes they may be embraced under four principal heads.

(1.) *Talipes Equinus*: This is the most common form, and consists either in a rigid contraction of the tendo-achillis, of the muscles of the calf of the leg, so that the heel cannot be brought to the ground, and the patient walks on the metatarsal bones. When this is not congenital, it is liable to occur during dentition, from worms, acidity and other reflex causes of irritation. The patient, either from incompatibility or other causes, is very tubercular; and the slightest irritation in the body is transmitted to

the weakened nerves. A cure is easily effected by a division of the tendo-achillis under the skin.

(2.) *Talipes Varus*: The heel is raised, the inner edge of the foot is drawn upwards, and the outer edge rests on the ground. In extreme cases, patient walks on dorsum of foot and outer ankle. There is contraction of the muscles of the calf and 'ad-ductors of the foot. Every tendon that aids in producing the deformity should be freely divided under the skin, and, last of all, the tendo-achillis.

(3.) *Talipes Valgus*: This is the direct reverse of the talipes varus. The outer edge of foot drawn upwards, so that patient rests on inside of instep and inner ankle. All the tendons that are concerned in producing the deformity are to be cut under the skin.

(4.) *Talipes Calcaneus*: Elevation of the toes and falling on the heel, so that the patient walks on the latter. This is usually brought about by loss of nerve-power, or degeneration of the muscles of the calf, which affords the opposing muscles a chance of drawing the foot into the abnormal position.

Every tendon to be divided subcutaneously, so as to bring the foot into its proper position.

The principle upon which the tendons of the various muscles are divided is very simple: A cut, or incision, is made under the skin, so as to prevent any suppuration; the cut surfaces, or ends, although stretched apart quite a space, heal by connective tissue or lymph, which lengthens the tendon the amount desired. It is necessary to wear a boot if performed at birth, as it ought to be, or a week after.

When not congenital, but coming on during childhood, many cases can be cured without operation by the removal of the source of the irritation, by good food, fresh air, sea-bathing, tonics and by shampooing, friction or massage, with oil, and a proper use of bandages, splints, boots, adhesive plasters and the like. Rheumatism and gout should be carefully guarded against. We cannot too strongly insist upon a most constructive treatment as the best means of overcoming the true cause of the difficulty.

Flat Foot.—A sinking of the sole of the foot from relaxation of the supporting ligaments. Walking is rendered awkward, slow, painful, and in bad cases, lameness and deformity. It is usually the result of debility, and can be remedied by the mother when the child is quite young, by bathing, friction and good nutrition.

Webbed Fingers and Toes.—In rectifying this malformation, the best plan is to make a small incision at the junction of fingers

or toes, through which introduce a piece of lead ribbon which should be permitted to remain about ten days, so as to give ample time for healing. Then remove and slit up the web its entire length, and dress with the lead ribbon, or otherwise. If the above method is not observed the webbing often returns.

The Nutrition of the Infant.—Milk is the natural food of the infant up to the period when it is supplied with teeth for mastication. Its stomach is adapted solely for its digestion, and it is the only proper element for building up the body. Milk, if healthy, supplies everything for the whole organism, from which bone, muscle, brain, gland, etc., can be constructed, repaired and renovated. Milk is pre-eminently suited for the rapid oxidation, increased temperature, accelerated respiration and circulation, the only diet for building up infant organization. The milk taken by the child represents so much potential energy; but before that energy can assume a vital form, the food must be converted into tissue, and in that conversion a large amount of energy must be expended. All the constructing and repairing powers in the infant are more active than in the adult. The infant requires, over and above the wants of the man, not only food for flesh laid on, but also for the energy used in making up that living, sculptured flesh out of materials that serve for food. In the growing organism there is a greater instability in the nutritive process, and this instability must be guarded against by having good milk, else we will have defects in blood formation. American mothers have been accused of being bad nurses. Now, this is both true and false; *true*, she is highly civilized, quick, excitable, and often, in the act of nursing, allows care, worry, to distract her attention; will hastily lay her little one down before it has even partially emptied the breast, which act of all others causes the milk to dry up; *true*, she is absorbed in lectures, theatres, balls and other frivolities, which engender late hours and irregularity, which has a depressing effect upon her; and her literature is not good; *true*, her diet is not the proper kind or quality for a nursing mother, her ices, ice-cream, iced drinks, candies, pastry, etc., are pernicious and highly detrimental to the secretion of milk; but let her remove these and other defects, she is as good a nurse as any other mothers of her race. Take the American mother, free from toil, care, struggle for existence; free from the vices and depressing influences of city life, with a good diet of beef, mutton, poultry, game, eggs, milk, oatmeal porridge, corn-bread, carrots, parsnips, fruit and other vegetables, she is a good nurse. Excess of feeding, alcoholic or malt liquors, wines and sloppy food, never should be recommended; neither is tea nor coffee of any utility.

The nutrition of the child is of the greatest importance, be-

cause in all our large cities we lose two-thirds of our entire infantile population during the first two years of existence, chiefly by bad milk, careless or improper nursing, insufficient food, and insanitary conditions. The mother's milk is too often deteriorated by fashion, theatres, improper food, worry, work, and other causes, and the want never can be supplied by artificial means, for there is no substitute for the life-giving mother's milk. If we could only teach mothers how much suffering they could save, how many valuable lives they could prolong, by seeing that their children have proper food, it would be a holy task. Many modern mothers can only nurse their children partially, or not at all. Their milk is often deficient through improper diet, and not emptying the breast properly; besides, the secretion decreases by care, worry, struggle, work, or her health may be feeble or delicate; or her vital energies taxed by some latent condition, that she may have no milk.

In this condition the infant must have nourishment; if rich, a wet-nurse could be provided; if poor, the cow's milk, or milk-food.

As regards wet-nurses, there is always great danger to be apprehended from them in a moral and physical point of view. They are generally unfortunate women, women with hidden vices, uneducated, full of prejudices and disease, and the irregularity of their past life has a bad influence on the milk and moral well-being of the child; and it is doubtful, rather than run risks of moral and physical degradation, whether artificial nutrition, administered by its own mother, or some other intelligent person, properly adapted to its age and development, is not the best. Artificial nourishment is often better than run the risk of wet-nursing. The great trouble of late years, in this particular, has been that parties, by advertisements and certificates of ignorant physicians, have foisted upon the people an immense array of infant food, all chiefly composed of starch. Indeed, starch-food is forced upon the mother wherever she goes, as a diet for her child. Now, our infants cannot digest starch, their stomachs are not made for it, neither have they the means of converting it into sugar, like an adult; so children fed upon starch, as rice-flour, farina, Liebig's food, arrowroot, starve; they have no teeth; their bones and brain are destitute of phosphates. God never made a Caucasian infant to eat starch; there is not a trace of it in the white mother's milk. A Mongolian or Negro, without cerebral convolutions, may thrive on it, but never the white race. So, if there must be artificial feeding, let us have cow's milk or milk-food; and with greater care, more fresh air, rigid cleanliness, abundance of sleep, an avoidance of insanitary states and contagious diseases, we may be able to raise the child.

The proper food, then, of all infants, is milk. That gives everything wanted—development and growth; on it they are healthy and thrive. The first two months of life, cow's milk, two-thirds, water, one-third, with very little sugar, comes very near that of mother's milk. There is still a difficulty here: if a cow is fed on pasture alone the milk is very poor; but if they are fed with corn-meal and bran, in addition to abundance of good pasture, the milk is excellent; and besides, it must be seen that the cow is free from foot-disease, or tuberculosis, and the milker not affected by syphilis. In all our large cities there is much impure milk—milk loaded with diseased germs; besides, nearly all the high-bred cows are affected with tubercle; so if matters are not of the purest kind, condensed milk should be used: for in the process of manufacturing, the diseased germs are destroyed.

About the third month nourishment should be more substantial; for that is the period for true, rational nourishment to be given for the future welfare of the child. The Racine Malted Milk Co., Wis., has placed before the American parents a nourishment for children at this period that is unsurpassed, and satisfies all the physiological and chemical demands. It consists of the best milk, the wheaten phosphates, no starch, best cane-sugar, and a normal quantity of saline matter. The combination is perfect, and the most appropriate for infant-food, and of immense value as an article of general nutrition. It is highly nourishing, its composition is pure, fresh, superior to anything ever introduced; it is very easily digested; keeps well, never ferments or sours; and is better than city milk, because it is free from all diseased germs. Besides, it nourishes brain and bone well, consequently teething is easy; excellent for debility; children and invalids never tire of it, but rapidly increase in flesh and strength upon it. It is so excellent in teething that they come easy, regular, without suffering; no diarrhea, or vomiting, or skin eruptions. It supplies a long-felt want, to wit: a perfect form of artificial nutrition—the best that has ever been offered in the world. The milk-food is intended to be used when the infant is about from two to three months old. Its superiority consists in its containing no starch, which has been so detrimental to the digestion of children; and to the fact that bone and brain elements in it are abundant.

As soon as the child has completed its dentition, the mouth, salivary glands, stomach, and pancreas become gradually adapted to digest solid food, and a change or transition from milk-food should be very progressively made. Modern children are permitted by both parents to take the ordinary course of the house,

which is a great wrong on the part of the parents. For example, the use of tea and coffee by children is very injurious, as it overstimulates and exhausts their nervous systems; gives rise to catarrh of the stomach in their period of infancy, and predisposes them to dyspepsia and cancer of stomach in more mature years. The use of sweets, ice-cream, pastry, dumplings, is also improper food, because the gastric juices are not strong enough for their dissolution; so also with pork, veal, cabbage, nuts, salt fish, and corned beef, totally unfit for the diet of a child. Children should be early taught the injurious effects of drinking at meals. Whatever fluids are necessary should consist of milk or water. A new system of dietetics should be inculcated, or rather, an old method revived, among the children. All, irrespective of sex, or condition in life, should, from weaning, up till twenty-one years of age, have a special diet—one of brain and bone-elements; one hearty meal daily of oatmeal porridge and milk or cream. This should be a daily meal from September 1st to May 1st; during the very hot months of the summer, better to discontinue its use, as it is somewhat heating. Corn-bread, made without baking-powder, should be a daily and staple article of diet; boiled white-fish and home-made bread. Bakers' bread, with its noxious compounds of soda, tartaric acid, alum, sulphuric acid, etc., is unfit for child-food, as the phosphates are destroyed in the process of whitening. The oatmeal, corn, and fish diet should be insisted on, as calculated to promote the nutrition of brain and bone. No baking-powders should be tolerated in the culinary department of any family, as their use is destructive to the phosphates in all our cereals. To the toothless babe starch diet is starvation, but after dentition is completed they can digest starch; but in our climate, with its highly oxygenized atmosphere, our children do not require much starch-food, such as potatoes, arrowroot, tapioca, rice; there are no brain elements in them—not of thought; they are converted into sugar, and thus into calorification—a process not very essential to the precocious American; so, as a rule, they should be sparingly fed. Carrots, parsnips, onions, vegetables, and ripe fruit generally are conducive to health and longevity in the child.

The Child—its care and culture, warding off and curing its diseases, must be carried out on physiological principles. In looking at the dawning intellect, we must remember that *mind* is brain-function, just as locomotion is one form of muscle-function. The brain, as it matures, acts, thinks, reasons, judges, and forms purposes. As the size, weight, form, and development of the bony skeleton, with its muscular apparatus, determine the limits and nature of physical power and activity, so do the size, weight,

form and development of the brain, with its apparatus of sense-organs, determine the limit and nature of intellectual power and activity. Its personal characteristics are passed down from the parents; so that there are mental and moral qualities offering themselves for care and culture. The aggregate qualities of the parents, embodied in the child, are subject to surrounding influences. It is essential to recognize this initial fact, so as to develop the good, and repress the evil elements of its nature. Every child is charged with potential energies that need to be stimulated for good, trained and taught in a manner and upon a principle peculiar to her or himself; the influences brought to bear upon it; the tasks imposed; the exercise of its body and mind—its *regime*, selected and graduated to its undetermined nature, and its special needs.

A partial death of a portion of the body, **Inflammation.** and involves a condition of vital depression, and degradation of the bioplasm of the part.

The causes are very numerous, and embrace everything that diminishes, damages, or tends to destroy any part of the body, such as heat, cold, wet, poisons, depressing passions, mechanical violence, etc.

The permanent symptoms of inflammation are *pain, heat, redness, swelling.*

Pain is a symptom of partial death, of deficient vitality, or vital depression. It differs in structures and tissues according to their physiological function, chemical composition and anatomical structure.

The nerve-tissue being intrinsically the most valuable, most highly organized, and vital, is the most resisting, the most difficult to depress, and when once devitalized the most tardy of all structures to regain its vitality. The pain also, when it suffers a partial death, is out of proportion to all other pain, especially so if the brain has suffered the shock; here it is frontal, and aggravated by noise, light, heat and motion.

If the skin suffers a partial death or inflammation, the *pain* is *burning, tingling*; if the cellular tissue, *throbbing*; if the serous membranes, like pleura, *sharp, lancinating*; if the mucous membranes, *sore, raw*; if in bone, *dull, deep seated*; if in cartilage, more intense. Pain may not be experienced in the inflamed part, but reflected by recurrent nerves to a part at a distance, as for instance, in inflammation of the *liver* the pain is in the shoulder; of the *kidney*, at the orifice of the urethra; of the ovary, in the

front of the thigh ; of the uterus, in the sacrum ; of the hip-joint, at the knee.

The heat of inflammation is caused by the semi-vital chemical change, the passage of organic into inorganic matter, the perversion of nutrition, rapid oxidation, molecular excitement and general metamorphosis of structure.

The congestion and redness are due to the lost contractility of the walls of the blood-vessels, whereby their walls become loose and lax ; the blood rushes in and the minute capillaries being also relaxed, *red* blood circulates where *white* only passed through, and the walls being so relaxed the more watery portion passes through their walls. The blood-vessels owe their contractility to the nerves that supply them, so the vitality of the part or its nerves being so weakened permits of the changes ; indeed, its chemical character is altered ; in health neutral or alkaline, it is in inflammation intensely acid.

Besides a change in secretion, there are important changes in the structure of the part, as degradation of living matter into disease-germs which cause it to spread.

Inflammation has but one genuine termination ; resolution or recovery ; the subsidence of the inflammation and the restoration of the part to its original condition ; but besides this legitimate termination, there may take place from various causes the following effects, viz.: *Effusion* of serum, *effusion* of blood or hemorrhage ; *effusion* of lymph ; the breaking of lymph and *formation* of pus ; ulceration ; gangrene, or mortification.

Inflammation may be either acute or active, sub-acute or passive, and chronic. It is called acute when it sets in and runs its course rapidly, when the symptoms are all well defined and are accompanied with rigors and fever ; sub-acute, same as the acute, with the exception that there is no fever. Chronic may be either a sequel of an acute or sub-acute attack, or it may come on *per se*. It is liable to occur in patients of low vitality. It usually progresses slowly, insidiously ; symptoms not well defined ; no fever, and has a tendency to terminate in effusion of serum or thickening.

Each form of inflammation is characterized by a special microbe of its own, which renders all inflammations to a degree contagious and infectious.

The permanency of the pain, heat, redness and swelling is the best point by which to recognize inflammation.

The correct treatment of all inflammation is powerful local and internal stimulation. A stimulation so powerful and so effective that will run the case in resolution. The local stimulants should be of such a character that they will stimulate to the point de-

sired and still not impair or destroy in any way the future integrity of the tissues; induce contractility of the blood vessels and overcome partial death. The class of internal stimulants of most utility are exalgin, aconite, veratrum; these tend to lower temperature by checking the chemical metamorphosis, vivifying and toning the vessels. No case of inflammation can be treated with success without the use of bactericides; even ordinary bacteria of malnutrition require to be killed.

If the largest dose of an arterial sedative, warranted by the nature of the case and good judgment of the physician, does not ameliorate the pain, then the impressibility of the sensorium must be blunted by anodynes to secure an entire freedom from pain.

General attention should be directed to hygiene, rest, diet, sponging and secretions.

If it is impossible to secure resolution by these means, then the case will terminate in either one or other of its *six terminations or effects*.

Effusion of serum may occur during inflammation of any tissue, but by preference from serous membranes, as the periosteum, membranes of the brain, the pleura and peritoneum; the cellular tissue is also obnoxious to serous effusions. When effusion of serum takes place, whether it be from membranes of the brain, pleura, peritoneum, or cellular tissue or other structures, it constitutes what we term dropsy, not a disease, a mere mechanical effect. Serous effusion, however, often gives rise to much trouble, especially if within the cranium, chest, or abdomen; in the extremities it constitutes what we term œdema or dropsy, pitting upon pressure. Although not a disease, its presence is liable to bring about grave complications, and it must be got rid of at the very earliest moment the inflammation can be overcome.

The serum effused in the process of inflammation is a fluid of pathogenic microbes, of which neither the origin, kind, nor quantity can be accurately ascertained. These microbes exercise a morbid effect on the adjacent tissues, and constitute a febrile element in the body.

To get rid of serous effusion, the appetite should be stimulated with tonics, as teaspoonful doses of compound tincture of cinchona, before meals, and the very best of blood-elaborating diet given. Before making any decided attempt at the removal of the dropsy, place the patient upon an infusion of digitalis for a few days. To half a pint of water, boiling briskly, add one or two grains of fresh pulverized digitalis, boil for five minutes, then cool and administer one wineglassful every two or three hours; continue from day to day till the patient becomes quite

melancholy or despondent, then administer less frequently and in smaller doses. Now is the opportune moment to commence with diaphoretics, diuretics, and hydragogue cathartics, just as the digitalis has unlocked the flood-gates of the body. Then take of

Pulverized mandrake, thirty grains; pulverized nitrate of potash, one drachm; cream of tartar, one ounce. Mix.

Make ten powders, and let the patient take two or more daily, so as to cause at least three watery evacuations from the bowels in the twenty-four hours. In addition, a teaspoonful of the following mixture should be taken thrice daily, in a glass of water:

Camphor water, four ounces; nitrate of potash, half an ounce; muriated tincture of iron, one ounce. Mix.

At the same time an alcoholic vapor bath should be given every other day. As a drink, to encourage free sweating, an infusion of jaborandi or pleurisy-root. Patient kept moderately warm and clothed in flannel.

If the above means fail, discontinue the mandrake mixture and substitute a pill, one-twelfth of a grain of elaterium. If the patient is unable to bear such active remedies, five-grain doses of iodide of potassium should be given in a tablespoonful of fluid extract of saxifraga. Other remedies, as infusion of hair-cap moss, buchu.

Treat effusion or dropsy in the extremities in the same manner, with the addition of rest, elevation, compression by rollers, friction, shampooing, steaming with medicated vapors, electricity. (See *Dropsy*.)

Effusion of Blood.—Hemorrhage, as a result of inflammation, may take place prior to or during its activity; or the inflammation may so terminate.

Organs that are freely supplied with blood-vessels, when they suffer a partial death are more liable to have hemorrhage occur in them than others, as the lungs, stomach, bowels, kidneys, bladder, urethra, uterus.

In the treatment of hemorrhage as a result of inflammation, the main point is more thorough arterial sedation, more active local stimulation.

If from the lungs, large doses of veratrum viride; if from the stomach, rectum, kidneys, or uterus, the green root tincture of gelsemium, and digitalis.

If the hemorrhage is violent, styptics may be resorted to, but the true principles of treatment of inflammation should never be lost sight of. Salt, iron, gallic acid, digitalis, matico are useful if from the lungs; capsicum, salt, gelsemium, if from the stomach;

erigeron, gallic acid, ergot, corn smut, if from the kidneys or uterus.

In surgical operations, the vessels should be ligated; still there are often minute capillaries that bleed. Then carbolic acid spray, exposure of the bleeding surface to the air, pressure by bandages, cold, perchloride of iron, matico, spider web.

Effusion of Lymph.—This is a very common termination of chronic inflammation, still there can be little doubt but that it is present in all forms. When it takes place, it causes induration, thickening, adhesions, mechanical obstructions.

In surgical practice, the greatest ingenuity has been exercised to procure effusion of lymph for the purpose of cementing or joining parts. For this purpose all foreign bodies are removed. Catgut ligatures are used. An antiseptic spray flows upon the wound to destroy degraded matter or bacteria. Metallic sutures and antiseptic dressing are extensively employed. Effusion of lymph for the purpose of repair can only take place when there is total absence of pain, and when the vital forces are normal.

Lymph is often effused in general inflammations; in pleurisy, where it forms adhesions; in inflammation of stomach, thickening; in canals, forming strictures; in glands and tissues, forming swellings.

It is highly desirable to get rid of effused lymph, because if permitted to remain it is liable to break down at any time the vital forces of the individual become impaired, and form an abscess.

To cause an absorption of effused lymph our best internal remedies are iodide of potassium, iodol, bromide of potassium, saxifraga, phytolacca, blue flag, mandrake.

Our local remedies are green plantain leaves, phytolacca, stramonium, belladonna, ozonized clay, iodide of potassium, iodoform, potassa, ammonia. Shampooing, friction, and electricity are very doubtful in their utility. When adhesions have taken place, the continuous application of the irritating plaster is a powerful resolvent, and aids in the breaking down or absorption of the adhesions.

The effused lymph, like the serum, contains the spores of the pathogenic microbe of pus. The presence of these spores in the effused lymph may for many years be innocuous, but when softening comes they are capable of provoking septicæmia, which may prove fatal.

The Formation of Pus.—Lymph or plasma from the blood is effused to a greater or less extent in all forms of inflammation, but especially in the chronic, and is liable, at any moment there

is the slightest nervous depression, to break down and become pus—become the bacillus pyocyaneus. This event is invariably ushered in with rigors, but when it occurs during acute inflammation, simultaneously with the rigors the pain changes to a throbbing or beating, the heat diminishes, congestion and redness disappear. When it occurs during chronic inflammation or after inflammation has ceased, it is also invariably preceded by a rigor. The broken-down lymph constitutes pus, an active living deadly microbe, and a collection of pus anywhere forms an abscess. The precursor or rigor is followed by the lymph breaking down in the centre and gradually enlarging, perhaps pointing, and a sense of fluctuation is experienced to the touch. There are numerous varieties of pus, as, healthy or laudable, when it is thick and creamy; serous, when it contains water; sanious, when it contains blood; curd-like or cheesy, when it contains tubercle; muco-purulent, when it contains mucus mixed with purulent matter; lardaceous, if like lard; specific, when it contains a special living germ or poison; and putrid, when dark or offensive.

The division of abscess into acute and chronic, superficial and deep-seated, explains itself.

The moment pus has formed, there should be an assiduous effort made to aid the vital forces of the part in its further progress by the application of heat and moisture in the form of a well-made poultice, which should be continued until the lymph has entirely broken, when a free opening should be made into the part and the poultices continued for a day or two, then dressed with an ointment of vaseline.

Simultaneously with the evacuation of the pus and breaking down of the entire amount of lymph effused, nature begins to throw out lymph anew at the bottom of the abscess or cavity; this is at once permeated by blood-vessels and nerves; then another layer which becomes similarly organized, and so on until she reaches the surface, when around its edges can be seen a white milky scum, which gradually covers the entire surface. The process of effusion of lymph, its organization or permeation with blood-vessels and nerves, is called the process of cicatrization; when it is covered over with a new skin or cutis it is called a cicatrix. In order that the effused lymph may exhibit vital elements, the process may be devoid of pain, the pus laudable, and the granulations neither pale nor red. During such a process of repair the vital stamina of the patient should be well sustained with good food.

Gangrene, or Incipient Mortification.—When the vital forces of a part are so shattered that the salutary effort of nature fails in

obtaining resolution, then the process of dying is liable to set in. If it is an internal vital organ, the sudden cessation of pain following a high intensity of symptoms, with a typhoid condition supervening, features becoming small and contracted, breath and extremities cold, intermitting wiry pulse, indicate the approach of mortification or complete death.

If the inflammation occurs in an extremity and it is about to terminate in gangrene, pain suddenly ceases, the redness becomes of a livid color, the congestion soft and flaccid. It crepitates when pressed upon, from the fact that it contains gases, the productions of putrefaction and a train of typhoid symptoms.

In gangrene, when the parts yet retain a certain degree of vitality, the object should be to arrest the occurrence of mortification. Internal stimulants and antiseptics, as brandy and quinine, yeast; and locally poultices of charcoal, yeast, capsicum, wild indigo weed with carbolic acid, changed frequently. If this poultice does nothing in arresting the condition it will at least stimulate a line of demarcation between the living and dying part. Such a line usually makes its appearance in the form of a red blush, which soon rises into a blister; this soon ruptures, forming a line of ulceration with a furrow.

In the treatment of all forms of inflammation, the most decided and energetic measures should be resorted to; internal and local stimulation should be the rule, in order to prevent the process of dying (gangrene) or complete death (mortification) from taking place.

Partial death of bone may arise from injuries;
Inflammation of Bone. poisons, as phosphorus; from the microbes of rheumatism, syphilis and the tubercular bacilli, etc.

The usual termination is effusion of lymph, in which we find the spores or seed of the saprogenes blended with other germs. Spores may be absorbed or break down, giving us caries and necrosis—ulceration of bone.

Symptoms.—There is a deep-seated, severe, dull pain, with swelling of the soft parts, rigors and fever; if acute, the parts slowly enlarge, tenderness increases, with weight and pain. If it proceed to ulceration (caries or necrosis), there are rigors, and pain changes to a throbbing.

The treatment embraces rest; control fever with exalgine, keep bowels open, and skin active; local stimulants in the form of hot packs during the day, and the chloroform liniment at night. As soon as fever is controlled, iodide of potass in compound syrup

stillingia ; keep patient under it for some months. If rigors and a throbbing have taken place, poultice, and as soon as indications of pus formation are clear, free openings. If an opening, or several openings, have taken place, run them into one, so as to give nature as little work to do as possible. Inject with various solutions of peroxide of hydrogen. Abscess is rare, the condition being a breaking down of lymph in the substances of the bone, giving us caries or necrosis. Either of these conditions can be easily detected by a gritty or sandy feel of the pus. In all cases general alteratives and tonics ; best of diet, with an excess of phosphates, as oatmeal porridge, cream and boiled white-fish.

**Inflammation of the
Covering of Bone.**
(*Periostitis.*)

The periosteum being fibrous tissue is liable to suffer a partial death from various microbes, as bacillus of syphilis, tubercle, rheumatism, and from injuries. Whether it be of microbial

origin or not, there is invariably a disease germ present.

It is easily recognized by the history of the case, and the sharp, lancinating pain present.

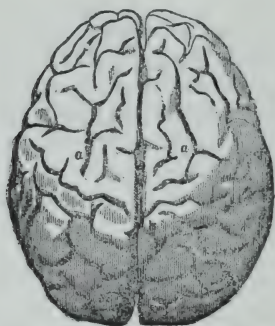
By killing the microbe, resolution may be effected before the streptococcus pyogenes appears. Any powerful germicide, which will not destroy the tissues, should be applied, as the oil or fluid extract of lobelia ; resorcin in ozone ointment ; iodol.

**Inflammation
of the Brain,
Acute.**

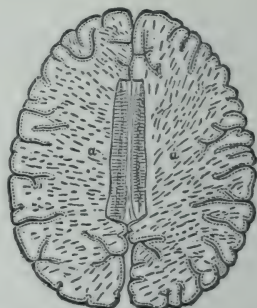
No class of diseases are so interesting as the various affections of the brain. The fact that the brain wears out sooner than it used to do, under what is termed civilization, and that its health and vigor, and even the production of disease in it, depends on the development and healthy condition of the great sympathetic, are highly suggestive. In women, children and all races outside of the Caucasian, the absence to a great extent of cerebral disease can only be accounted for by the rudimentary condition of the sympathetic. The effects of isolation and sameness, or monotony, in causing contraction of its convolutions, thus causing epilepsy and insanity, and the action of blood poisons, are also of great moment in reducing the angle of longevity of our race. The study of brain diseases is not sufficiently advanced to enable us to elucidate all the points clearly ; neither are we yet able to distinguish correctly between inflammation of the substance of the brain and that of its membranes.

Indeed, they cannot be really separated, although it has been attempted.

A partial death of the substance of the brain may depend upon two general conditions. It may be due to causes within the body, such as depressing emotions, desires, affections, passions, the struggle for existence, or excessive mental strain, religious excitement, blood poisons, or it may be due to blows, falls, shocks, concussion of the brain or fracture of the skull. In the former case it is said to be idiopathic; in the latter, traumatic. As brain substance is intrinsically the most valuable tissue in the body, it is the most difficult to depress and the hardest to establish a renewal of life in; so that in the idiopathic form, the stage of



The brain: upper surface of the brain of man, showing its subdivision by the longitudinal fissure into two lateral hemispheres, right and left, also the chief sulci and convolutions. The fissures of Rolando are the oblique fissures which commence near the middle line and proceed outwards and forwards, marking off the frontal lobes, *a, a*, from the parietal lobes, which lie behind those fissures. The occipital lobes forming the posterior extremity of the hemispheres completely conceal the cerebellum.



Section of brain: horizontal section through the brain to show the mode in which the two hemispheres, *a, a*, are joined together by the transverse band of white matter called the Corpus Callosum. In front and behind this the longitudinal fissure *b* separates the two hemispheres; *b, b*, is the section of the cortical substance; *a, a*, of the medullary; the section also shows the depth of the sulci between the convolutions.

shock or incubation is often for a number of years, and in the traumatic form, quite a good while; even in bad fracture, with compression, a week or more often elapses before active symptoms of inflammation set in.

After the brain has received the shock, there is then an intervening period before the rigor and active inflammation, and during that time the patient is irritable, restless, peevish, sleepless, complains of heats and colds, burning in the skin, secretions are arrested, great lassitude, peculiar idiosyncrasies, great disturbance of the mental faculties, and there is a characteristic pain in the head, usually frontal, aggravated by noise, light, heat and motion. There is also intolerance of light, slow pulse, want of appetite, tongue dry, with white and brown coat, skin white.

These premonitory symptoms become more intense daily, when, if the inflammation is about to take place, the patient is seized with the most violent rigors and a high fever; pulse hard and frequent, strong pulsations of the carotid and temporal arteries, headache intolerable and throbbing, eyes suffused, face congested, tongue dry and brown, bowels obstinately constipated; stomach rejects everything, secretion and excretion arrested; besides, there is apt to be violent delirium, coma, convulsions, paralysis, pupils contracted to a pin's point, articulation difficult or indistinct. If not relieved at this point, then pupils become dilated, the eyelids drop (ptosis or squinting), or paralysis of muscles of eyelids, frequent twitching of muscles, ghastly countenance, sordes on gums and teeth, cold sweats, relaxation of sphincters, convulsive paroxysms, paralysis, profound coma, which usually soon ends in death.

In some cases, the first symptom of an attack is convulsions, preceded by very slight premonitory symptoms that are often unnoticed. Convulsions, strong and severe, may be followed by coma, which is soon fatal; or it may recur frequently at short intervals, and pass into coma at the end of twenty-four hours. When nausea and vomiting are the earliest symptoms, inflammation has its origination in the cerebral pulp. When attacks begin with convulsions, the affection has started from the arachnoid or pia mater; or, to be more explicit, if the inflammation involves the cortical substance and membranes, early derangement of the intellectual faculties, irritability, constant agitation; if the medullary substance, chills, headaches, convulsions, great lassitude.

The medullary substance of the brain is merely the passive servant of the cineritious substance, the conductor of its demands to the muscles. The gray presides over intellect; the white, over movements.

Rigors taking place during the active inflammatory stage, with squinting or dropping of the eyelids, palsy; contraction of one pupil and dilatation of the other, indicate extravasation of blood into the brain and an unfavorable termination. Acute inflammation of the brain may terminate in any of the ordinary results of inflammation, but its common termination is effusion of blood or extravasation of blood on or in its substance, or recovery by the slow process of chronic inflammation. The hemorrhage is termed red ramollissement.

In the recognition of acute inflammation of the brain, its history, all the symptoms prior to and after rigor, the fever, intellectual condition, eyes, face, arrested secretions, and especially the headache, must be noted. True, there may exist compli-

cated phenomena during life, according to what extent the various structures are involved, but the leading symptoms are a good land-mark.

Treatment.—At the earliest possible moment energetic treatment should be resorted to, to aid a renewal of life in the brain. For this purpose the patient should be placed in the recumbent posture in bed, head and shoulders well elevated, and in an apartment away from noise, heat, and pretty well darkened; head to be shaved and towels kept constantly wet with hot water to be wrapped around it. The back and sides of the neck, down the back and over the shoulders should be dry cupped; a roller, eight yards long and three inches wide, saturated with mustard of the consistency of cream, should be applied from the great toes to the knees, wet occasionally with fresh mustard and re-applied. Two to three drops of tincture *veratrum viride* should be given every fifteen or thirty minutes until pulse is seventy, and then continued at longer intervals of one, two or three hours, as indicated. Free purgation must be resorted to. For this purpose, twenty grains of compound powder of jalap and senna, with one drop of croton oil rubbed into it, should be given, and the same dose repeated every one or two hours, or often enough to keep the bowels open twice or three times a day—the croton oil to be left out after the third dose. Another important indication is sleep. It is very likely the patient has not slept for a long time. Then take twenty grains of the solid English extract of *hyoscyamus* with three grains of pulverized opium, and rub both up in a mortar until a fine powder is procured, then add a drachm of sugar of milk; mix well and divide into twenty powders, and give one every hour until the patient sleeps. If, after three or four are administered, there is no sleep, double the dose for three times, and if that fails, increase still, but very carefully, never to exceed five to one dose. If this fails, try sulphonal in twenty-grain doses and increase. If sleep and a pulse of seventy can be reached, by further good management, the patient is safe. On no account resort to chloral hydrate, opium, hypodermic injections, as they are totally contra-indicated. If arterial sedation and sleep can be procured, still persevere for some time with the above. Give little or no diet for several weeks; barley or cracker water; oatmeal gruel and the like will suffice.

As the patient improves, other remedies to aid the salutary effort of nature may be tried, as bromide of potass, aconite, belladonna, lobelia.

The bromide does good work given in the following manner: Camphor water, four ounces; bromide of potass, one ounce;

bromide of ammonium, two drachms; bicarbonate potass, three drachms. Mix. Dose, one teaspoonful thrice daily.

Just as the fever subsides is the best time to commence with the aconite and belladonna. A teaspoonful of the tincture of each in half a tumblerful of water; a teaspoonful every one or two hours.

Belladonna, like bromide of potass, has an anesthetic action upon the cortical substance, the quadrigemina tubercula and the membranes which aid in the removal of congestion. It will also be found advantageous in many cases to alternate them with lobelia in full form, as often as every two or three hours. Pills of pulverized green lobelia are slower in absorption, and less likely to induce nausea. Lobelia is a depressant and sedative, has a decided influence in all cerebral engorgements; it diminishes respiration, heat, pulse, and abates inflammation. With these and other means that the peculiarities of the case will suggest, we try to aid nature in controlling inflammation of this vital organ. The general principles of treatment of fever must be carried out, as to bathing, recumbent posture, heat to feet, great quietness, etc., and run the case into one of chronic inflammation in which our remedies are more numerous, and embrace alteratives and tonics, rest, change of air and a very cautious use of food.

**Inflammation
of The Brain,
Chronic.**

Is a condition in which we have a low grade of irritation. It is apt to follow an acute attack, but more frequently it is an independent primary disorder.

Its causes are very various: shocks, jars, concussions, blows, falls, railroad traveling, action of the sun, mental strain, worry, struggle for existence, study, depressing passions, as grief, sexual excesses, whiskey, tea, coffee, tobacco, quinine, opium, chloral and other drugs; besides, the blood poisons, as rheumatism, gout, syphilis, tuberculæ, may, with numerous other conditions, be enumerated as causes. The vices or defects of civilization operate disastrously upon the brain, as well as insanitary states and diet.

Its symptoms are much diversified: pain in the head, aggravated by noise, light, heat, motion, with irritability, restlessness, sleeplessness, with heats and colds, with mental depression, disturbance or idiosyncrasy, pallor or whiteness of the skin, anxious expression of countenance, arrest of secretions. There is often vertigo, specks or spots before the eyes, ringing or noises in the ears, unsteadiness of gait, hesitation in speech, stammering, stiffness of muscles, loss of appetite, irregularity of pulse, delu-

sions; subsequently symptoms become more marked; memory fails, senses become impaired, paralysis, general breaking down of health. Its duration is very indefinite and it has a marked resemblance to insanity, once fairly established.

In the treatment we must insist upon rest, freedom from care and worry, and an avoidance of all the causes, such as jars, mental work, sexual indulgence, the use of tea, coffee, tobacco, alcohol, opium. The secretions should be stimulated, bowels moved twice daily with mild but efficient remedies, as cascara, neutralizing mixture, daily tepid bathing, followed with the shower-bath; hair short, head cool, feet warm. Bitter tonics to promote an appetite and ameliorate the more prominent symptoms. Sleep should be procured, and, if possible, prolonged to ten or twelve hours in the twenty-four, by the repeated and persistent use of hyoscyamus, thus:

Solid extract hyoscyamus, English, thirty grains; powdered opium, five grains; powdered licorice, sixty grains. Mix. Make twenty powders. At least three or more daily, beginning in the afternoon and continuing on one or two hours apart until profound sleep is induced. Three times per week two small fly blisters, size of an ordinary visiting card, should be applied below nape of neck, top of each shoulder blade, for six hours at a time; or the irritating plaster or tartarized antimony in basilicon ointment. The idea being, as our people are affected with tuberculæ to the extent of seventy-five per cent., and syphilis to the degree of fifty per cent. of our entire population, to attract or draw those two germs from feeding on the brain. There can be little doubt but that tuberculæ and syphilis are at the source of at least seventy-five per cent. of all cases of chronic inflammation of the brain and insanity. An invaluable remedy here is the bromine, as already laid down. But the best plan is, to keep the patient upon a general alterative course with bitter tonics until all vestige of inflammation ceases, such as compound syrup phytolacca ozonized, or saxifraga, glycerite of ozone, and when pain has ceased and natural repose is obtained, then such remedies as ozone-water, preparations of cinchona, compound hypophosphites of lime; soda should be given in small doses.

The diet should consist, as much as possible, of the chemical elements of the brain, as oatmeal, boiled fish, rare beef-steak, etc. Change of air of utility. *Other remedies sometimes used with advantage.*

After the pain in the head is relieved, and the patient sleeping for ten or twelve hours every night, appetite returning, then the glycerite of ozone or kephaline should be administered persis-

tently. Those two preparations promptly relieve the prominent symptoms, as the dizziness, mental depression, loss of memory and impaired intellectual faculties. They invigorate rapidly and remove that feeling of nerve-tire or exhaustion which is so distressing.

Induration of the Brain.—Effusion of lymph—one of the effects of chronic inflammation. The indurated portion of small extent presents the appearance of wax, or white of egg boiled hard.

The symptoms are often obscure, but it causes loss of memory, confusion of thought, derangement of mental powers, loss of appetite, desires, affections, passions, and paralysis.

Abscess of the Brain.—May be the result of the induration or some injury or disease of the ear and temporal bone. It may be *acute*, and severe cerebritis may be present, pain in the head, vomiting, fever, delirium and coma; or *chronic*, with insidious headache, dulness of intellect, sometimes hemiplegia, which comes on gradually; it may end in convulsions and death, abscess bursting into ventricles of brain.

The treatment is general alteratives and iodide of potassa.

Softening of the Brain, Red and White Ramollissement—the word *ramollir* meaning to make soft. During acute inflammation an extravasation of blood taking place in or on the brain is called red ramollissement, and if it amounts to three or four ounces is usually fatal. From obstruction, calcareous disease of vessels, embolism and other causes, it may take place, and be absorbed, or the portion of brain in which it took place may be reduced to the consistency of cream.

The most common form is the anæmic or white, that caused by imperfect nutrition or blood supply, due either to wearing out of the brain by overwork or excess, or arterial or other forms of degeneration. There may or may not be pain in the head; likely to be sudden and occasional attacks of vertigo; diminution of intellectual power, slow and hesitating speech, embarrassment in answering questions, depression of spirits, tendency to shed tears on any excitement. Pricking and twitching in limbs, perhaps pain or numbness; tendency to sleep, especially after meals; more or less impairment of senses, mental faculties impaired, appetite often good, even greedy; limbs become the seat of painful cramps, stiffness or contractions; paralysis with spasm not uncommon, general sensibility more acute. In a large percentage of cases paralysis of one-half the body coming on suddenly without the loss of consciousness. Patient easily confused, has great difficulty in answering questions or in making himself understood. Great feebleness, weak and intermitting pulse.

vomiting and constipation, difficulty in emptying the bladder, often retention of urine with uriniferous odor, involuntary escape of stools; respiration labored, at last becomes stertorous, coma, ending in death.

The portions of the brain affected are often of the consistence of cream. In all cases white softening is the opposite of that due to congestion. It is due to a want of nourishment or an insufficient amount of blood in the brain.

Softening of the Cerebellum is attended with fixed pain at the back of the head, impairment of sight, hemiplegia or paraplegia, tottering gait, vertigo, convulsive agitation, dulness of hearing, aphonia, eccentricities of conduct.

Tumors, Tubercular Deposits, syphilitic growths, hydatids, tape worm; cysticera are often found in the brain, and their existence is very obscure; headache, sickness, giddiness, mental depression, confusion, partial paralysis, epileptic convulsions.

As to the location of softening, it is thought that the corpus callosum, septum lucidum, fornix and cerebral substance around the ventricles are more frequently affected with red softening; whereas, white softening attacks the gray matter of the convolutions at base, optic thalami, corpora striata.

Treatment.—It is useless to disguise the fact that we have little to hope for in any kind of treatment; still, some cases are greatly ameliorated or their progress is arrested by judicious use of means.

The treatment is very similar to chronic inflammation of the brain: daily bathing, flannel clothing, abundance of sleep, feet and extremities kept warm, blisters or plasters to nape of neck, bowels and kidneys cared for, diet pre-eminently of phosphates, oatmeal, boiled fish, wheaten grits, otherwise generous. Alteratives and tonics. There are two remedies of undoubted utility—iodide of potassa and ozone water. We must never shut our eyes to the fact that by far the greater number of cases are due to affections of the blood; hence the very remarkable success of those two preparations. Indeed, so convinced am I of the fact of their great efficacy in softening, that I could fill this volume with cases that have made wonderful improvement; memory, good judgment and the senses being washed, as it were, free from germs of tuberculæ, syphilis, etc. The alterative saxifraga is the best as the case progresses; glycerite of ozone and kepheline alternately will effect a good cure.

We have in sulphonal an invaluable remedy; by its use in all damaged states of the brain we can regulate sleep—an important factor in the treatment; besides, it is a germicide of some power.

**Inflammation
of the Membranes
of the Brain.**

(*Acute Simple Meningitis.*)

Inflammation of the membranes of the brain may arise in children from a very trifling cause, as a blow or fall on the head, or extension of disease from the ear or nose, or by exposure to the sun.

The fact that children have only one table in the bones of the skull, no middle or diploetic structure to resist shocks, renders them, up to puberty, very susceptible to irritation of the membranes from falls or concussions. Independent of violence, it may be caused by rheumatism, gout, syphilis, tuberculæ.

Symptoms.—The ordinary symptoms of languor, mental irritability, sleeplessness, headache aggravated by noise, light, heat, motion; intolerance of light; rigors and a fever; pain in the head becomes aggravated, irritability increases, delirium, frequent flushings of the face, followed by pallor, rapid pulse, muscular twitchings, prostration, coma.

In distinguishing its locality in children observe carefully the following:

Membranes covering the convexity of the brain.—In the child, first a rigor, then a convulsion, fever, skin hot, dry; pulse hard and rapid, vomiting, bowels constipated, intense headache, aggravated by movement, light, etc., face alternately flushed and pallid, eyes injected and staring, noisy and violent delirium sets in early, great restlessness, muscular twitching, squinting; after three or four days a remission; the pulse fags, tongue becomes heavily coated and dry, pupils sluggish, dilated; the delirium passes into coma, and in a few days more intense prostration. If treatment be successful, improvement is very gradual but progressive.

Membranes confined to base of brain.—Convulsions at commencement, fever, contracted pupils, frequent pulse, clenching of teeth and retraction of head, coma. In other cases, pain in temples, vomiting, constipation, wry neck, loss of appetite, a desire for repose; after a few days, vacant look, dejection, intelligence clear, pulse and skin natural. Headache unrelieved by remedies, coma, death.

Inflammation of dura mater.—Often the result of violence, of disease of the cranial bones, chronic affections of the ears and nose in children, regarded as trifling, may end fatally by an extension of morbid action to dura mater.

Treatment.—In the treatment of this affection in children, it must ever be borne in mind that the law of reflex impressibility is strong in those born of highly civilized parents, so that the active measures used in adult cases must be laid aside when we have a delicate, unimpressible child to deal with. We want a quiet

room, free from noise, and heat and light excluded; no cradle; the hair on the head should be cut close, and cloths wet with either of the following applied:

Liquor acetate ammonia, one ounce; alcohol, two ounces; camphor water, eight ounces. Mix. Or, camphor water, ten ounces; muriate of ammonia, one ounce; nitrate of potassa, half an ounce; chloride of sodium, half an ounce. Mix. Strength varied to age.

To the feet, dry mustard in socks. Bowels opened gently with compound licorice powder or one or two grains of leptandra rubbed up in pulverized licorice or cascara. To control the circulation, tinctures of aconite and belladonna should be given in a tea of asclepias, and sleep procured with suitable doses of the bromide of potass, as under inflammation in adults; and if not powerful enough, give the hyoscyamus, but in smaller doses. No cupping, blisters, or other counter-irritants on account of the reflex impressibility. In case of wandering pains, bryonia is often of great value. As soon as the fever is controlled, iodide of potass is of great utility, otherwise it must be treated according to the cause, taking the greatest care to procure a large amount of sleep, if possible ten or twelve hours out of the twenty-four. The diet here must be more generous, milk and lime-water, and beef tea. Convalescence established upon cinchona and aromatic sulphuric acid, ozone-water, more nutritious food and change of air.

**Inflammation of the Brain
and its Membranes
in Children.**

(Tubercular Meningitis.)

An acute form of inflammation of the brain and its membranes, with effusion of tubercle from the blood in and on the membranes and superficial surface of the brain proper.

Common among tubercular children under two years of age, and seldom met with over that period of life; is, next to cholera infantum, one of the most fatal maladies among city children during the summer months.

The mortality from this source is very great, and were mothers and health care-takers more efficient in their duties, infant mortality might be reduced to a minimum.

The predisposing cause is tuberculæ. This may be an hereditary condition in the child, or the child may be entirely free from tuberculæ at birth but acquire that cachexia by bad food, insanitary conditions, drugging with soothing cordials, retarded dentition, hence irritation of the gums,

stomach, bowels, acidity, cholera infantum, etc., which irritation is transmitted to the seat of reflex action; the centres of life are depressed, and in consequence normal living matter is changed into the living germ tuberculæ.

Cradle-rocking, blows, slaps, falls, jars, shocks are simply exciting causes. City life and solar heat act as powerful depressants, and in some cases the irritation of dentition, cholera infantum, burns, etc., are sufficient in themselves to cause tuberculæ and give rise to the inflammation.

It usually comes on slowly and insidiously, marked by debility and whiteness of skin, mal-nutrition, loss of flesh and other signs of a tubercular diathesis; short, dry cough, great peevishness, restlessness, irritability, attacks of headache aggravated by movement, light, noise; giddiness, skin often hot or cold, pale or flushed, appetite capricious, tongue furred and breath offensive; sickness and constipation, child drowsy, yet restless; rubs head with hand, rolls head in sleep with eyes partially open; wakes in alarm and screams, and other warnings of cerebral congestion. These symptoms may last for weeks; if they occur in early summer, before the hot weather sets in, they may last the entire season; if late in the fall, they will disappear on the approach of cool weather, or if the patient have proper treatment applied, it may disappear at any time.

But suppose the case progresses onwards, all the above symptoms become aggravated and the child lies very quiet, its countenance expressive of anxiety and alternately flushed and pale, the eyes listless, eyebrows knit, pupils contracted, and is greatly annoyed with light and noise; retching, bowels variable. If old enough, will complain of head; often delirium. Fever high, pulse, 180; temperature, 107°. After a few days the pulse becomes irregular and diminishes, although the slightest exertion will cause its increase. Stupor and heaviness may come on, squinting, patient lies on back, head and heels thrown back, insensible, probably picking his nose and lips with tremulous fingers, convulsions, paralysis, urine and fæces passed involuntary.

If there is no effort at recovery, the drowsiness passes into profound coma, from which it is impossible to rouse the child. Pupils are dilated and insensible, pulse becomes very feeble and frequent, extremities become cold, a clammy sweat breaks out over the entire body. Paralysis and convulsions follow, which soon end the scene. If the case is complicated with cholera infantum, these symptoms become modified to a greater or less degree by that condition.

As to its duration little can be said. Some children will suc-

cumb in two or three weeks ; others, again, will struggle on the entire summer and finally terminate in hydrocephalus, from which they will recover in a few months.

The growth of tubercle on membranes or brain, carefully scraped off after death, seldom amounts to from three to five ounces. There is always a great quantity of fluid in ventricles and frequently softening of brain substance.

In the treatment, the highest possible medical skill, nice discrimination, and good management are required.

The little patient is literally crowded out with the tubercular bacilli, and no depleting plan of treatment is at all admissible. The child should be placed in a large airy room, away from noise, heat, light, motion. It should be bathed thrice daily, beginning with tepid water, and gradually permitting it to be colder and colder. Dry mustard in socks should be constantly worn. One grain of euonymine and one of salol, well triturated in sugar of milk should be administered at bedtime. The hair cut close, and lotions of ammonia, and potassa in camphor-water kept applied. Nourishment, either mother's milk or juice of raw beef, or sterilized malted milk.

Aconite is the best drug for fever to lower temperature and soothe the patient.

The nature of the prevailing symptoms will indicate the best bactericide to administer to kill or sterilize the tubercular bacilli. For example, if there be diarrhea, creosote or naphthaline in mucilage acacia, does splendid work. Resorcin in syrup of tolu ; glycerite of ozone and iodol ; if there be convulsions, bromide of potassa with pyridin.

Sulphonal must be administered in sufficient doses to insure sleep.

We can lay down no definite rules to follow, the great point is to nurse it along, keep up nutrition, and push germicides.

Partial death or inflammation of the

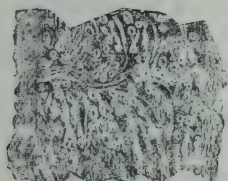
Inflammation of The Bowels. small intestines may be caused by both local and internal irritation, and varies much in its severity, in some cases being very slight, in others very active.

(*Enteritis.*)

Symptoms begin with pain around the umbilicus, aggravated by pressure ; nausea, vomiting, rigors, and a fever ; great headache, features pinched, tongue buff-leather coated, heat high, pulse wiry ; great restlessness, prostration, anxiety of countenance. If the mucous coat alone is involved, there will be a muco-enteritis, or acute intestinal catarrh, and diarrhea, with

mucous, bilious, or serous stools. When the peritoneal and muscular coat is involved, there is obstinate constipation. The patient assumes the position on back, with knees drawn up so as to relax the abdominal muscles; often delirium; vomiting becomes more persistent, and vomited matter highly offensive, sometimes stercoraceous.

In the treatment, perfect rest in bed, stimulants applied over entire abdomen, as either turpentine or con. ozone, followed by compresses of hot bran. Aqua, four ounces; tincture of aconite, thirty drops; tincture white bryonia, one drachm. Mix. One teaspoonful every hour until relieved. If these fail, substitute tincture of the green root gelsemium, in alternation with opium. It is a good plan to empty the rectum with copious warm water enemata, medicated with tincture of opium. Drinks, infusions of



Enteritis: colon laid open.



Acute enteritis: small intestine, very heavily loaded with microbes.



Deep-perforating ulcers of the ileum, following chronic enteritis.

collinsonia, or stone crop. Later on, aromatic sulphuric acid and quinine; simple liquid animal food, malted sterilized milk, raw eggs.

A chronic form of Enteritis corresponds exactly to intestinal catarrh, has the same sarcinæ in the mucus of the stools. When chronic it has very limited areas of distribution in most cases.

It can usually be localized by the soreness, and if near the duodenum, by some jaundice; if near the rectum, by the tenesmus or bearing down, while the pain or soreness enables us to locate it in some particular spot. The significance of the stool is of great value—mucus. Pure mucus indicates a disease of the sigmoid flexure; scybala or hardened lumps of fæces in mucus, an affection of the colon. The stools may be large and covered with mucus, and no pain; or the stools may be soft, and incorporated with mucus of a pulpy, thick consistence, or full of mucus. If there be unaltered food in the stools, fat or starch, the pancreas is at fault.

In the treatment of the chronic form, a flannel roller should be worn around the abdomen. The best of all remedies is the virginia stone crop, which should be administered persistently for several weeks, in alternation with aromatic sulphuric acid and comp. tincture cinchona.

Collinsonia is also of great utility.

Inflammation of the Bladder.

(*Acute Cystitis.*)

A partial death of the bladder may arise from the use of such drugs as cantharides, turpentine; from mechanical irritation, as calculi; introduction of instruments; or by ignorant use of forceps during parturition; external injuries, or blows, falls, concussions; from diseases of the rectum, vagina, uterus, prostate, especially inflammation of those organs; to gonorrhœa and other microbes; to the use of injections.

Symptoms.—Commences with rigors and a fever; heat, pulse and respiration greatly increased; wiry pulse; pain over region of bladder; intense heat of urethra and base of the bladder, where inflammation is most intense; constant desire to make water, which comes away in little dribs; great mental depression, and constitutional disturbance becomes greater; nausea; vomiting. Bladder can be felt as a small, rounded, tender tumor. Severe pain, extending to perinæum and down the thighs; increased by pressure, rectal or vaginal examination. Tenesmus, unless patient is relieved pain becomes unbearable. The calls to micturate become constant; urine is expelled drop by drop, or there is retention; urine becomes fetid and alkaline, containing shreds of lymph, fibrine, entangling pus, and blood-corpuscles; great prostration; cold, clammy sweats; cadaverous appearance; low muttering delirium; fatal exhaustion.

Its duration is from one to two weeks. Gangrene of bladder liable to occur. When well managed the symptoms subside, and the inflammation terminates in resolution or recovery.

Treatment.—Patient is usually found on back with knees drawn up—a most convenient position for the application of stimulants; apply over region of bladder, first mustard, and then hot linseed meal poultices, made with glycerine. If possible, empty bowels with oil; if not, with enemata of infusion of marsh-mallow and opium. If vomiting is persistent, apply mustard over stomach, and begin at once with pretty large doses of tincture of green root of gelsemium and pulverized opium; administer in small doses until there is a perfect alleviation of pain, and if necessary push to narcotism. If that takes place, patient

must be turned over on right side. Incorporate tincture of opium in poultice, and introduce suppositories of opium and belladonna per rectum. Drinks to consist of infusion of linseed or marsh-mallow, with nitrate of potassa and cream of tartar, enough to keep urine alkaline. If indications are bad, dissolve one or two grains of sulphate of morphia in one ounce of tepid water, and inject into bladder. If exhaustion is predominant, cream, raw eggs, essence of beef, etc.

As soon as symptoms of inflammation have subsided, put patient upon compound tincture cinchona and nitric acid, or aromatic sulphuric acid and quinine, with an infusion of one or other of the astringent diuretics, as buchu, uva ursi, queen of the meadow, pareira brava, cleavers, pipsissewa, as a drink; the idea being to restore the tone and vigor of the bladder. If convalescence is slow, alteratives. The greatest possible attention should be paid to diet; let it be most nutritious, avoiding fat, sugar, starch, malt or spirituous liquors, or anything likely to cause acidity. The skin should be well stimulated by alkaline sponging daily, and the constant use of flannel.

Chronic inflammation of the bladder is the most common form met with. Some term it catarrh of the bladder. It may be the sequel of an acute attack; but most generally it is due to the crystals of gout; the amylobacta of rheumatism, the microbe of syphilis, and other germs; venereal excesses, disease of the prostate, damp, cold, exposure; foreign bodies, as calculi in the bladder; ammoniacal urine; uric acid crystals; excessive beer drinking; certain drugs, as the indiscriminate use of balsam copaiba, cantharides, turpentine; to the metastasis of inflammation from other parts, as rectum, prostate, uterus; to the natural decay of old age.

The symptoms which are most prominent are a general feeling of languor, lassitude, debility, with an urgent, irresistible desire to void urine frequently, with pain in the urethra. Great tension, and increased sensibility of the walls of the bladder, after distension from an accumulation of urine; mucus in urine greatly augmented, and of an unnatural color; first it is gray, then yellowish, or greenish (owing to the predominance of each species of microbe present), thick, viscid, ropy, often streaked with blood.

When decided ulceration sets in, urine becomes loaded with pus, the quantity of this being immense, owing to the fact that the bacillus pyogenes has such room and nutrition for growth, often averaging several pints daily.

If there is no treatment resorted to, or but an inefficient one, the case may progress onwards to a fatal termination; whereas, under a thorough bactericide treatment, a good recovery will take place in the large proportion of cases.

Indispensable to a successful medical treatment, the patient should partake of the best of food, of the most nourishing kind; daily bathing; flannel clothing; external warmth; bowels to be regulated to one motion per day.

An alterative and tonic course all through the treatment, such as compound saxifraga, phytolacca compound, in alternation with compound tincture of cinchona and nitro-muriatic acid; or aromatic sulphuric acid and quinine.

While pursuing this course special remedies should be used to sterilize and annihilate the microbial family in the bladder, to wit: the micrococcus urinea and bacillus of yellow and green pus.

Some one of the following bactericides should be administered internally to sterilize the blood and cut off, if possible, microbe nutrition in the bladder: sulphide of lime, dioxide of hydrogen, salol, naphthaline, creolin, sulphur water, uric acid solvent.

The bladder should be injected daily with either a solution of resorcin or creolin, or iodol, or naphthaline.

Patient should drink a tea daily made from one of the following herbs: either buchu, or uva ursi, or pareira brava, or queen of the meadows, or couch grass, or pipsissewa, or cleavers to astringe the walls of the bladder.

General principles should guide; every symptom promptly relieved.

**Inflammation of The
Breast.**
(*Mammitis.*)

afflicted with inflammation. Irritation of the mammary gland is rarely met with unless the gland is in a state of activity. The state of development of the male breast is simply rudimentary, and it is rarely afflicted with inflammation. Infants, at birth, both sexes, often have one or both the breasts engorged with a secretion of milk. Highly organized sensitive ladies, during menstruation, and also from the period of conception until the birth of the child, suffer from a swollen, engorged state of the breasts.

We are, however, safe in stating, that it is only during active lactation, that we meet with acute inflammation of the mammary gland or its nipple.

In most modern ladies, there is a great development of the sympathetic, which is reflected chiefly over the left breast; hence violent emotions, desires, affections, passions, grief, worry, give rise to a weakness or a predisposition, a debility.

The common exciting causes are cold, wet, exposure, blows, violence of all kind, irritation of corsets, all forms of external injury. The gland suffers reflexly from the uterus, with which organ it is in direct sympathy; besides, ovarian, gastric, hepatic, renal, intestinal irritation. It is met with in either the acute or chronic form.

Symptoms.—In the acute form there is the shock, with pain, swelling, and induration of breast, rigors and a fever, with prostration, rapid pulse, arrested secretions, often slight delirium. Arrest of secretion of milk and supuration soon follow.

In the chronic form there is enlargement of the gland and induration; milk is either wholly or partially arrested. It may follow an acute attack, or come on by itself. It is more likely to occur at other periods than pregnancy and lactation. It may also terminate in abscess.

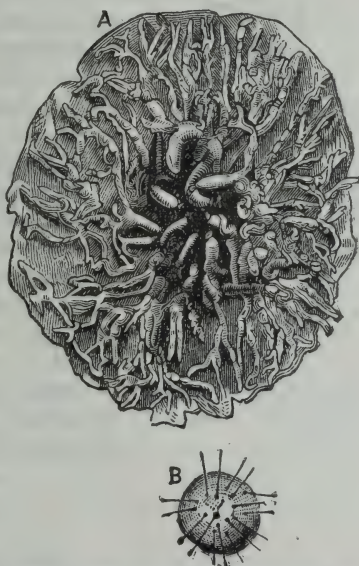
In acute inflammation of the breast, active treatment: fifteen grains of exalgine, twice daily; open bowels with repeated doses of salines; apply over the entire breast equal parts of the fl. ext. belladonna and glycerine. Milk to be drawn off at regular intervals by breast pump; if skin is dry, administer comp. tincture serpentaria.

If it is deemed best to arrest the secretion of milk altogether, then the following should be spread on linen and applied over the entire breast: belladonna ointment, two ounces; iodide of potass and chloride of ammonia, of each four drachms. Mix.

Gentle compression by means of a roller round the chest not to be overlooked.

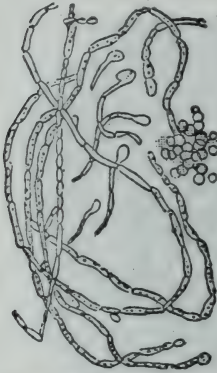
Subsequently tonics and nourishing food.

If it is the chronic form, the best possible results are to be obtained from the boroglyceride paste applied to the entire breast over night, with fomentations of hot vinegar and nitrate of potassa during the day. In this form the internal use of phytolacca is most efficacious. The arm in a sling, compression of the breast with a roller always of utility. If rigors, softening or other evi-



Breast: A, lactiferous ducts dissected out and injected; B, nipple, with bristles inserted into the orifices of the lactiferous ducts.

dences of suppuration can be detected, poultice freely, open in the most depending part as soon as fluctuation can be detected, so as to permit the escape of the bacillus pyocyaneus.



The *oidium albicans*, as seen in sore nipples, with stomatitis in the child of the mother.

Inflammation of the Nipple, whether it be from some irritation, or from some germs of amylobacta, burrowing and causing fissures, or cracks, or from disease germs from the child's mouth.

The most common of these microbes which infest any crack or abrasion of the nipple is the *oidium albicans*.

Any good bactericide, as resorcin ointment or jelly; boroglyceride paste, creolin, etc., is effective in destroying this microbe.

Other germs are to be found in this region, due to microbes carried there by the mouths of other children.

Inflammation of the Cellular Tissue.

The tissue between the skin and the muscles, termed the cellular tissue, is one of the very best absorbing tissues in the entire body, and it is quite extensively utilized for injecting pure alkaloids, so as to obtain their action upon the organic tissues of the body.

Inflammation of this tissue may arise from the microbe of erysipelas, from the germs of the cadaver in post-mortem examinations, from the bites of venomous reptiles.

In addition to general erysipelatous inflammation of the skin, which gives rise to burning, tingling, we have, when the cellular tissue is affected, throbbing; the swelling is stiff, brawny; the absorbents are implicated, the nearest lymphatics take on the irritation, doughy swellings form on the chest and abdomen. The adenitis proceeds to rapid suppuration.

There are violent rigors, fever, a low type of typhoid fever, with abscesses in lungs, liver and other parts. Perspiration is very offensive; stools fetid, jaundice, stupor, delirium, difficulty of breathing, fatal exhaustion.

In the treatment of such cases, free incisions, suction, cups, everything to encourage free bleeding from the part; then the boroglyceride paste should be applied all over the affected part, or solutions of the paste in hot water applied by cloths; the

moment any swelling is detected it should be opened and boro-glyceride solution applied.

Internally push bactericides and nourishment; peroxide of hydrogen, brewers' yeast, salol, resorcin, iodol.

The indications, as they arise, are to be actively treated.

Inflammation of the Cellular Tissue of the Pelvis.

Pelvic cellulitis is mostly met with in connection with some tubercular disease; it may be a result of blows, falls or other violence; abortions, tedious labor, or some uterine or other disease.

Symptoms.—Local pain, throbbing and tenderness, with painful swelling, usually appreciable at lower part of abdomen, or by vaginal examination. Simultaneously with the local pain, there is nausea and vomiting; great constitutional disturbance; rigors, and a fever, with some pain in the head, back and aching pains in the limbs; difficult micturition and tenesmus. If case progresses to suppuration, the above symptoms increase in severity, with additional rigors, throbbing and tenderness; neuralgic pain down the thighs, and if within reach, fluctuation can be detected. Pus channels may form in different directions, into bladder, vagina, rectum, colon, rarely into peritonæum, generally finding their way externally. Nature is most provident of herself in these cases, by the formation of those sinuses almost invariably reaching the surface, and thus providing an egress for the staphylococcus pyogenes.

Treatment.—Those cases require great tact and good judgment; the rectum and vagina should be injected daily with linseed-tea; hot poultices should be applied; fever controlled with aconite, opium, or morphia, to relieve pain. Belladonna and opium suppositories every night at bedtime. Quinine and aromatic sulphuric acid and carbolic acid and tincture of iodine internally; the patient regularly sponged off. Most nutritious food, milk, raw eggs, beef-tea, juice of meat and animal food as soon as the stomach can bear it. If abscess point anywhere, it can be opened with advantage. As soon as the pus has been thoroughly evacuated, alteratives and tonics.

The greatest possible care should be exercised during the stage of convalescence. *Rest* is an indispensable condition, together with well-regulated secretions; *tonics*, and the very best of blood-elaborating food.

**Inflammation of the
Cornea.**

(*Acute Corneitis.*)

The portion of the covering of the eye ball next to the conjunctiva is called the cornea, from its fancied resemblance to a horn, transparent and nearly circular, forming the anterior sixth of the globe, a structure of exceeding low organization, very difficult to depress, by violence or contiguous inflammation, unless the vital forces are greatly shattered and the bacillus of rheumatism, gout, tubercle or syphilis be present in the blood.

Acute inflammation may be the result of injuries, cold, wet, exposure in depraved subjects, or inflammation from other parts. When it takes place, it renders the polished and transparent surface of the cornea hazy, dim, and rough, or to look like ground glass.

Symptoms.—Dull, deep-seated pain in the eye; intolerance of light; abundant secretion of tears; no muco-purulent discharge of any moment; a concentric plexus of minute vessels can be seen passing from edge of cornea; a zone of pink vessels in adjacent sclerotic; haziness of cornea, with opacity. Patient affected very tuberculous; disease runs a very chronic course, lasting for months, leaving cornea permanently cloudy; sometimes ends in suppuration, and softening is liable to take place, with perforating ulcer into cornea. One or both eyes may be affected.

Treatment must consist in the administration of exalgine to reduce temperature and equalize the circulation. Stimulate the liver actively with leptandra and phosphate of soda; apply two blisters to nape of neck just as soon as the active symptoms are controlled; comp. saxifraga and phytolacca, the best of food and everything calculated to build up the vital forces, as avena, kephaline, cinchona.

The same ideas must be followed in the chronic form, whether it be gout or the syphilitic germ which is giving rise to interstitial degeneration.

**Inflammation of the
Middle Ear.**

(*Otitis Media.*)

Beyond all question, the diseases of the auditory apparatus, which occur most frequently and possess the greatest interest, are the inflammatory affections of the tympanum and middle ear. The middle ear properly consists of the membrana tympani, the tympanic cavity, the mastoid cells, the chain of ossicles, and certain muscles, vessels, and nerves. In a small, confined space, we have a most delicate, intricate structure, performing important functions; easily disturbed by the standard of health, by a variety of causes, and attaining increased importance from their

contiguity to such vital parts as the labyrinth, the internal jugular vein, the internal carotid artery, the dura mater, and several venous sinuses of the brain, so when we look at the parts implicated, there should be no apathy in our treatment, no ignorant, officious meddling.

Causes.—It may arise from cold, damp, exposure, rheumatism, gout, boils, injuries, or accidents, injudicious tampering with the ear with hair-pins. It may also be due to extension of inflammation inwards, or upwards from the pharynx, carrying the germs of scarlet fever, quinsy, diphtheria, measles, small-pox, hooping cough, catarrh, pneumonia, bronchitis, influenza, syphilis, mercury, tuberculæ, and the use of nasal-douches. When the inflammatory action reaches the throat, it travels along the eustachian tube, which is the channel designed by nature for maintaining a due equilibrium between the atmospheric and tympanitic air, and for draining superfluous mucus from the tympanum. When all is well it serves those purposes admirably, but when disease exists it serves as a channel for carrying diseased germs up from the pharynx. The tube is short, being one-and-a-half inches in the adult, but its continuity of mucous membrane permits an easy road for the germs to travel, and more so if it is a young child, in whom the tube is much shorter and more open than in the adult. Dentition, first and second periods, are productive of inflammation of the middle ear. The vaso-motor impressions are readily conveyed from the inflamed gums to the correlated membrana tympani by the dental nerve, and the nervi-vasorum of the tympanitic branch of the internal carotid artery. There can be little doubt that the difficult or retarded dentition, due to a want of phosphates in the modern mother's milk, is a common cause of inflammation of the inner ear. It is impossible to doubt it when we look at the troubled little face, the resting of the head on the nurse, the thrill of agony that passes over its features, accompanied with piteous cries or shrieks when its position is moved, especially if done suddenly; and, more than all, the constant raising of its little hand to the side of the head: all indicate the agonizing sufferings of earache.

Of all living diseased germs, those of scarlatina are most destructive to the ear, give rise to hopeless chronic affections, or drift into deafness. The ear, in scarlet fever, is about as obnoxious to irritation as the kidneys, and we should bear in mind that every congestion of the lining membrane of the ear is a true periostitis, and every ulceration a caries of its osseous walls, so that, with better care, a true appreciation of germ-diseases, a more thorough antiseptic course, many lives might be saved, useful ears spared, and deaf-mutism become a rare exception.

Symptoms.—General symptoms of inflammation, headache, pain in back, legs, rigors, and a fever; uneasiness in ear, followed by sharp, lancinating pain in the inner ear, increasing in severity; there are also impairment of hearing, giddiness, a sense of fulness in the head, and an increase of pain in moving jaws, mastication, or swallowing, moving the head, or blowing the nose. On examination of the membrana tympani, it is found red and congested. Beating noises in the ears; eyes become injected; countenance anxious; fever greater; function of skin, kidneys, and bowels disordered. There may be delirium or convulsions. There is always great depression and despondency. If case is not seen to there may be facial paralysis, from a spreading of the inflammation, which is overcome when morbid action ceases. Should the attack be a slight one, or the vital force vigorous, and treatment appropriate, perfect resolution may take place; but if powers of life are low, suppuration may take place, pent-up pus bursting on discharging itself, if in inner ear, by perforation of membrana tympani; or in more grave cases the inflammatory process spreads into the mastoid cells internally, or by bony meatus to the periosteum, covering the mastoid process externally.

In external otitis, perforation of the membrana tympani may take place, owing to the extension of inflammation from within outwards.

The disease usually runs a very rapid course, suppuration often taking place in from twenty-four to forty-eight hours from its inception—a significant fact for rational and active treatment.

Treatment.—The cause, if it can be removed, should be done promptly. Then patient should be put to bed in a warm room, 70° F., moist atmosphere, well ventilated, comfortable, and free from all noise, no talking, the greatest quietness; dry heat to the ear and side of head, such as hops, camomile flowers, bran, or salt, in bags or pillows, made hot in oven; and permit no food requiring mastication, for moving the jaws interferes with the rest of organ. The fever, as well as the local inflammation, must be regulated by arterial sedatives. To do this effectually administer a saline purge, or cascara, or both, and enemata, if not soon moved; heat to feet; aconite, belladonna, and sweet spirits of nitre freely. If the skin does not become moist, compound tincture of serpentaria, so as to cause free diaphoresis; hot drinks; near night either chloral or Dover's powder, so as to get a long sleep. The dry heat is of primary importance, and should be watched with care. Never poultice either an eye or an ear is an injunction to be obeyed. The idea of this line of treatment is, if possible, to prevent the formation of abscess, or

suppuration, as that is a result to be dreaded, as we never can know how, when, or where it may terminate, or to what it may lead. Case otherwise should be placed upon alteratives and tonics. If there is a manifestation of gout or rheumatism, colchicum, quinine, iodide of potass; if upon teething, lance the gums; as soon as fever, pain, etc., are relieved, alteratives and tonics.

Inflammation and suppuration of the middle ear is one of the most common, dangerous and neglected of all maladies. Bacteriological investigations have revealed and unravelled its pathology and demonstrated that the streptococcus pyogenes is ever, though not exclusively, present in all cases. From whatever cause the otitis has arisen, cold, germs of scarlatina, measles, etc., there are invariably present one or other of two kinds of discharges; *fetid* and *non-fetid*; in the former both *cocci* and *bacilli* are found together; in the latter *cocci* alone are present. In the offensive secretion, full-fled bacilli; in the odorless discharge, cocci alone. The discharge is pathogenic of the disease, and is of special interest, as both forms are not devoid of danger; the inner ear being largely infested with rapidly breeding microbe is a fact of great significance.

The oil of mullein sterilizes and completely annihilates this microbe.

This oil when properly prepared contains eight volumes of peroxide of hydrogen, and is a powerful bactericide, etc. Two or three drops introduced into the ear once or twice daily, immediately kills the bacilli and cocci, the entire microbial family, and keeps the ear free from all disease germs.

To effect a radical cure the daily use of the oil must be followed up with tonics, alteratives and germicides, compound saxifraga, oats, kephaline; and the blood kept in such a condition of purity by the daily administration of some ozonized preparation that no microbe can live in that vital fluid.

4

**Inflammation
of the Mucous Membrane
of the Eye.
(Ophthalmia.)**

Inflammation of the mucous membrane of the eye-ball and lids is one of the most common affections of every-day life. From its very essence and character it divides itself into distinct

varieties, each one having or acquiring its own special pathogenic microbe with peculiarities of each other; all essentially contagious and infectious, they have, however, some symptoms in common, as intolerance of light; a sensation of sand in the eye, a muco- or sero-purulent discharge, loaded with microbes.

Infantile Ophthalmia, so called because it occurs in infants from two to four days after birth. It usually commences at the edges of the lids and proceeds over the entire conjunctiva.

The *causes* are often cold, light, irritating soaps, or some of the sebaceous secretion from the skin of the child, by inadvertence of the nurse, got into the eye; or it might arise from the entrance of either the leucorrhœal or gonorrhœal discharge from the mother's genitals.

Symptoms.—A spasmodic closure of lids; lashes stick together; hard crusts form at the edge of lids, which are red; the redness and swelling increase, lids more swollen; the conjunctival sac becomes filled with transparent, yellowish-colored serum and mucus; engorgement continues; then pus, or thick muco-purulent matter makes its appearance; the tumefaction of the conjunctiva is so great that the lids will scarcely close, and the discharge so copious that it runs down the cheek of the infant; the cornea of the eye looks depressed, or retracted, or hid; the surrounding conjunctiva fleshy and elevated, owing to its infiltration with red blood, serum, etc. This swollen condition of the conjunctiva, looking elevated, while the cornea looks depressed, is called *chemosis*. As the discharge is so loaded with bacteria and other diseased germs, if great care is not observed it may contaminate the other eye, or that of nurse or mother. If not actively seen to, the symptoms will increase in severity. The mucous membrane of the conjunctiva possesses a lamellated epithelium, and has the faculty, when so inoculated, of a proliferation of its epithelium, which is transformed into pus cells, which process of shedding gives rise to an enormous discharge, and a continual thinning or peeling of the conjunctiva of the ball of the eye, which becomes soft, and liquefies, and ulcerates, and contents of eye are liable to escape. Perforation is very liable to happen if allowed to run two or three weeks, especially if the lids are swollen and tight on ball. Should the eye escape disorganization, there is often opacity of the cornea left behind, or an opacity of lens, or some defect in vision. The greatest care is necessary in opening the eye; it must be done with great caution and care.

In the muco-purulent discharge are to be found quite a number of pathogenic microbes, as ordinary bacteria, bacillus, pyocyanes and micrococci of various kinds.

In the *treatment*, examine carefully to ascertain if any piece of sebaceous secretion remain, if so, oil it well and have it removed; then darken the room in which the patient is to remain; open its bowels freely with oil; control fever with aconite and sweet spirits of nitre.

Administer one-eighth of a grain of quinine in fl. ext. licorice

every four hours as the great eye tonic. Locally, wash out the eye with a saturated solution of boroglyceride, keep the same remedy applied all the time to the eye, and if matter accumulates between the lids, inject it underneath them. After dressing the eye, drop into the inner canthus of the affected eye a few drops of a solution of atropia—strength, two grains of the sulphate to one ounce of distilled water. Atropia has an antiphlogistic effect on the inflamed surfaces, dilates the pupil and relieves the tension of the eye-ball. Precautions taken lest the other eye become affected. Other bactericides sometimes used instead of the boroglyceride, lotions of aromatic sulphuric acid; creolin, naphthaline, resorcin, etc.

Common acute ophthalmia is usually the result of colds, wet, foreign bodies, as sand, lime, changes of temperature, usually mild, often of a catarrhal form, involving the conjunctiva and meibomian glands.

Symptoms.—Intolerance of light, pain in the eye, a sense of soreness or scalding, stiffness, dryness, a feeling of roughness about the eye, as if there was sand in the eye. This sensation is caused by the congested condition of the vessels of the lid and globe. They are tortuous, swollen; red blood circulating where only white blood was wont to circulate; roughened, and by rubbing over each other, carry this sensation to the mind. These vessels can be seen, of a light scarlet color and irregularly arranged, and can even be moved by the finger. In bad cases general congestion. The discharge is puriform at first, and then becomes muco-purulent. Exceeding microbial, and contagious and infectious. In some cases headache, rigors, fever.

The treatment is the same as the following:

Purulent Ophthalmia, a severe and dangerous form, due to bacteria; more contagious and infectious than the former.

Overcrowding of large bodies of men, women, and children in workshops, jails, reformatories, refugees' schools, and other institutions.

The emanation or miasma of our bodies is prejudicial to others, degrades the normal bioplasm of the conjunctiva into a microbe of extraordinary power, vitality; with great power of reproduction in the mucous follicles of the conjunctiva. A school, a refuge, or shop, once infected, must be thoroughly disinfected by burning sulphur before the germs can be destroyed.

Symptoms.—All the symptoms are well defined: the soreness or redness; the intolerance of light; the sensation of sand; the copious or profuse muco-purulent discharge, with other severe symptoms, intense, with prostration, rigors, and violent fever; the pain in head and eye agonizing; and the amount of

discharge of thick, yellow, purulent matter immense. The conjunctiva of both lids and globes swell, so that it is with difficulty that the cornea and iris can be seen (*chemosis*); and the discharge flows on cheek. If disease does not yield to proper treatment, the inflammation will increase, spread to the cornea and deeper structures of the eye. When the internal textures become involved, constitutional symptoms are still more aggravated; extensive sloughing takes place, and the sight, and often the eye, is lost. Sometimes one eye, in other cases two are affected simultaneously.

Patient to be kept in bed, in a well ventilated, dark room; with disinfectants exposed in the apartment; bowels should be freely opened with comp. ext. colocynth and copious enemata of beef-tea; surface to be bathed thrice daily; exalgine in fifteen-grain doses, to keep pulse 70; hypodermic injections of pilocarpin to keep up diaphoresis; quinine ranging from three to five grains every four hours; sulphonal in sufficient doses to procure sleep every night at bedtime; two blisters to nape of neck, free suppuration from nape of neck.

Wash out the eye carefully with either a lotion of boroglyceride; or creolin; or resorcin; naphthaline, or some other germicide.

The eye itself should be carefully washed out with the boroglyceride solution three times daily, and after each cleansing the atropia solution should be dropped into the corner of the affected eye.

If the case yields to the above plan of treatment, the best plan is to hold the patient on those remedies for a few days, pushing nourishment very strong.

By and by a general alterative and tonic treatment should for two or three months be resorted to, the best alteratives being saxifraga and phytolacca, and of tonics, cinchona and kephalline.

Whenever more than sixty children are congregated for five or six hours daily in a school-house, the microbe of this form makes its appearance at the roots of the eyelashes, and in the minute oil glands, excites an irritation, inflammation, causing a peculiar incrustation on the edge of the lids; even in this slight form it gives rise to impaired vision in city children.

Keeping a child at home, improving its general health by every possible means; washing the eyes three times a day. Boroglyceride wash is usually sufficient.

Gonorrhoeal ophthalmia is usually caused by the gross carelessness of the affected individual, either by bringing the gonococcus from the orifice of the urethra to the eye by the finger, or a

towel, or otherwise; or it might be from a fellow boarder who has a running.

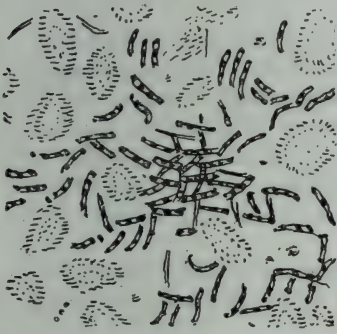
The discharge from the eye contains the gonococcus, which is pathogenic of the disease.

The symptoms are about the same as the purulent, a trifle more intense.

Treatment must be very prompt, even more active than the purulent; the dose of quinine should be increased; more rigid nutrition; leeching must not be resorted to here, it is of no utility, spreads the microbe, being simply a zoological humbug. The all-prevailing idea is the destruction of the germ before it can cause disorganization of the eye.

Tubercular ophthalmia is common from the period of dentition up to the tenth year, and even older in some cases. In such cases the entire body is literally eaten up with tubercular bacilli.

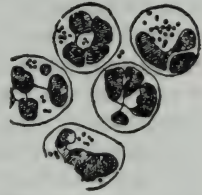
The tubercular cachexia is usually present in a high degree; the skin white and thin; muscles soft and flabby; hair as dry as tow; torpidity of all the great secreting organs.



Bacillus tuberculosis in the blood in cases of tubercular ophthalmia. Usually in those cases the blood is so charged with the germ that its spores excrete through the eye coats.

flowing over cheek cause an excoriation. There are often the thick lips, long eyebrows and eyelashes, eruption behind the ears, with disordered intestinal secretion, so often present in tuberculæ.

Treatment.—Eyes must be protected with a green shade; and when not exercising for health in the open air, to lie down in a well-ventilated room, and a lotion or wash of common salt and water kept applied. The strength of this wash will depend on



The gonococcus as seen in gonorrhoeal ophthalmia.

the age; it must be strong enough so as to barely feel it, not to cause the least smarting. It is the best of all local applications. This wash is to be kept on as much as possible, and changed every little while, as it becomes dry; and cloths either washed or destroyed; never allow it to become dry; an emetic twice a week for six weeks, of wine of lobelia; encourage child to drink freely some tepid water with bicarbonate of potassa, and then follow with half teaspoonfuls of the wine every five minutes till free vomiting takes place. The reflex effect of this emetic on the eye is really wonderful; it acts like a charm; benefits at once, and the whole aspect of the disease changes for the better. Besides, in that class of children the mucous coat of the stomach is relaxed, sarcinæ are present, and there is a large accumulation of mucus in that viscus, which, when thrown off, lets the natural appetite for food return, and more perfect digestion takes place. Bowels to be regulated with cascara; bathing morning and night; flannel clothing; patient placed upon a general course of alteratives and tonics—saxifraga, phytolacca, in alternation with glycerite of ozone, avena, etc.

The diet to be most nourishing, consisting of abundance of animal food, beef, mutton, poultry, eggs, milk, cream, oatmeal porridge and cream, boiled white-fish.

Granular ophthalmia is often a result of the preceding forms of inflammation, or may come on of itself from the same causes, and consists in a low form of irritation of the conjunctiva, with effusion of lymph, which forms nodules or granules, rendering the conjunctiva uneven and granular. These granulations look like grains of sago, and consist of inflamed mucous follicles and papillæ; they cause a good deal of irritation, and opacity of the cornea is the result.

In the treatment, the patient should be placed upon comp. saxifraga, phytolacca, in alternation with tonics, as sulphate of quinine in glycerite of kephaline.

It is rare for internal remedies to remove cleanly all the granulations, they do much good, but their action must be aided by introducing remedies into the eye that will strip off the granulations.

Among recent remedies for this purpose infusion of the ground decorticated jequirity bean has been tried and proved effective.

Eight beans, ground, infused for two hours in half a pint of distilled water, percolated, when sufficiently cooled dropped into the eye, will often in one application cause all the granulations to shell or peel off. If it does not effect this at once, let matters rest about a week, try it again, when it can be made either

stronger or weaker, to suit the case under observation. If this is not procurable, brushing over the eye solutions of iodide of potassa, variable strengths, from five to twenty-five grains to the ounce of water, as frequent, so no irritation be produced, or aromatic sulphuric acid, according to age; bowels regulated; best of nourishment; warm clothing.

Rheumatic Ophthalmia consists in the bacillus amylobacta lodging itself in the white fibrous tissue of the eyeball (the sclerotic coat) and giving rise to organic changes.

Symptoms.—Severe, sharp, lancinating pain in the eye and side of head. It is so agonizing that it depresses nerve centres, and there is more or less fever; the white of the eye looks a pale red, its vessels being arranged in a radiated or zonular form, and beneath the conjunctiva; intolerance of light; dimness of vision, from haziness of cornea and contraction of pupil; the discharge from the eye is watery or serous; there is no sensation of sand, no fleshy condition of conjunctiva, no muco-purulent discharge, no soreness or rawness; but a sharp, lancinating pain, always worse at night.

The general *treatment* for rheumatism must at once be adopted.

Exalgine and quinine in sufficient doses to reduce temperature and pulse, then a selection of some one or two of the following remedies, made by the attending physician, and administered so as to kill the microbe amylobacta: salicylate soda in liquor ammonia acetatis, manaca, salol, casca sagrada lozenges, cimicifuga race., etc.

The atropia solution must be dropped into the eye morning and night, and persistently dry heat, bran or camomile flowers warmed, applied to the eye.

Several other forms might be enumerated, as the *catarrhal*, *reflex*, or *sympathetic*, all of which should be managed upon general principles and bactericide remedies.



Bacillus Amylobacta, spindle shaped forms, including oval spores. The pathogenic microbe of rheumatic ophthalmia, seen in the serous exudation from the eye in all acute attacks.

Inflammation of the Substance of the Heart. (*Carditis*.)

freely spread over the entire anterior cardiac surface, whereas in all other races and in the majority of women this nerve is merely rudimentary.

In considering the subject of inflammation of an involuntary muscle like the heart, we must look at its anatomical relations to the great sympathetic. This nerve in the Caucasian man of average civilization is perfectly developed, and is

In the civilized Caucasian, the development of the great sympathetic is perfect, and as a result it is liberally scattered over his larynx, heart, lower lobe of right lung, spleen, left kidney, mesentery and abdominal viscera, so that when the vital forces are depressed by solar heat, privation, overwork, exhaustion, struggle for existence, prolonged exposure, grief, sorrow, use of tobacco or other narcotics, the individual is liable to have a weak heart, which is greatly aggravated if either the microbes of rheumatism, or syphilis, or typhoid fever, or pyæmia be also present.

This peculiar weakness of the heart, irritated by some special living poison, gives rise to a degradation of the living matter which nourishes the heart, hence, we have a micrococcus.

The first symptoms, aside from the ordinary languor, lassitude, debility, general prostration, is a sudden seizure of violent steady pain in the heart, out of all proportion to any other kind of pain; intense excitement, greatest anxiety; features change rapidly, become ghastly or cadaverous; tongue coats rapidly, brown, dry, darkish; breathing difficult, irregular, labored; action of heart violent but unsteady; rigors heavy, frequent; and a fever of the highest possible kind, with great oppression about the chest; difficult respiration, dread of suffocation, alarming palpitation, delirium, extremities become cold, fits of syncope, pain in heart all the time increasing in severity.

Its duration is from twenty-four to forty-eight hours, invariably terminating in death. The proper treatment to try, if seen early, would be wet cups over region of heart, followed by hot poultices in which opium is abundantly diffused. Then there are three drugs that act well on this part of the nervous organism, and they must be given often and in very large doses.

Veratrum viride, five-drop doses, often and persistent.

Pulverized opium in one-grain doses, but frequently, and

Sulphate of quinine, in from ten to thirty-grain doses every three hours.

The three drugs act harmoniously together; the opium prevents the veratrum from prostrating, and retains the quinine in the blood. To be successful, case must be seen early.

**Inflammation of the
Internal Lining Membrane
of the Heart.**
(*Endocarditis*.)

The endocardium, or the serous membrane which lines the interior of the heart, and which by its reduplication assists in the formation of the valves, and covers them completely,

is frequently the seat of inflammation.

The predisposing causes are the use of tobacco and other stimulants; over-work, nervous exhaustion, worry, grief, sorrow. The exciting cause is rheumatism or gout, or both, which give rise to the evolution of the micrococcus.

Micrococcus Endocarditis.—A pathogenic microbe, a degradation of the complex bioplasm, which nourishes the heart-muscle into a disease germ. It is found as a streptococcus, massed upon the thickened valves of the heart, small chains three or four irregularly linked together. They often assume the form of a zoogloea, and are found congregated together, and form plugs in the vessels of the muscular tissue of the heart. In the detritus of the ulceration which follows, they are found in chains.

The microbe and its micrococci are found chiefly in the heart, spleen, liver, kidneys, lymph canals, blood.

The micro-organism bears cultivation well in beef tea.

The same disease germ is present in acute laryngitis.

Symptoms.—In the acute form, there are the ordinary symptoms of languor and debility, with a deep-seated, sharp, lancinating pain away down deep, as the patient expresses it, in the heart, with great oppression and uneasiness over the region of the heart; rigors and a fever; pulse small, feeble and intermittent; patient very restless and anxious; prefers to lie on back; great difficulty of breathing; jactitation, cold sweats, fainting fits.

If the vital power is greatly depressed, or constitution depraved, there may exist a true typhoid condition, with all its varied train of symptoms. If the endocarditis is of the subacute form, or what is more common, of a low chronic type, the symptoms will be less prominent, milder and more obscure, so much so, that patients attacked with rheumatic fever have endocarditis without being aware of its existence; nevertheless, it is apt to leave structural changes on the valves that give rise to trouble.

That portion of the endocardium lining the orifices and covering the valves most frequently attacked; the left side of the heart more generally implicated. It is seldom directly fatal; its effects, effusion of lymph, and its organization into cartilage or bone, or the effusion of urate of soda in gout, and its degeneration into a chalky concretion, most to be dreaded; invariably gives rise to valvular disease.

Place the hand over the region of the heart, it experiences a vibratory thrill; no increased area of dulness; place ear over heart, a soft, mitral, blowing murmur can be easily detected. Its duration may be months or years; but its inevitable termination is thickening of the valves, general loss of tone, obstructed circulation, impoverishment of blood, dropsy and sudden death.

To sterilize, or annihilate the microbe, concentrated ozone diluted with chloroform over region of the heart.

Internally, try either digitalis, or strophanthus, or ozone water, or simabicia, or ammonia, in alternation with quinine; liquor ammonia acetatis and salicylic acid; perfect rest of mind and body; nothing to fret, worry or cause anxiety; diet to be good, light, nutritious; treatment for rheumatism or gout to be carried carefully out; convalescence to be established on vegetable alteratives, with iodide of potass and tonics; guarding against that twin-monster, rheumatic gout, by keeping the body covered with flannel, and avoiding everything likely to debilitate. Forbid tobacco, alcohol, tea, excess, debauchery, etc.

The very best of diet should be given, consisting of a mixed animal and vegetable kind; and if unable to exercise, massage should be resorted to morning and night.

Inflammation of the Iris.

(*Iritis*.)

The iris, suspended like a curtain, with a circular opening in its centre, lies between the cornea and crystalline lens; and bathed on both sides by aqueous humor, serves to regulate the amount of light that is admitted into the retina. It divides the cavity containing the aqueous humor into anterior and posterior chambers. The iris is composed of delicate bundles of fibrous tissue, or circular and radiating, involuntary, muscular fibres, and of pigment cells. In some cases it is absent, or exists in a rudimentary form. In the Albino, the iris is of a rose-color, while the pupils present a deep red appearance, owing to absence of opaque pigment. In coloboma, the two halves of the iris have failed to unite, in consequence of an arrest of development, which gives the pupil an elongated form. Inflammation of the iris exists in a variety of forms, and is associated or dependent on low states of vital power. The different forms of iritis are divided into (1) hyperæmia of iris; (2) plastic iritis; (3) serous iritis; (4) parenchymatous iritis; (5) syphilitic iritis.

Causes.—Syphilis, gout, tuberculæ, mercury, are the primal causes, but exposure to sudden changes of temperature, cold draughts, or severe drenching, together with grief, anxiety, sleeplessness, may induce it if the predisposition exists in a depraved constitution.

Symptoms.—There is lancinating pain, situated at first, in the interior of the eyeball; then it extends to the forehead, temple and gums, and other parts of the fifth nerve. Throbbing is an unfavorable symptom. Pain increases towards evening and lasts till morning, when it has assumed a dull aching in the eyeball, and occasionally it is of lancinating character. The nocturnal attacks

of pain are very apt to cause fever and impaired appetite. Intolerance of light and lachrymation are rarely absent, but very slight. Now examine the eye. Direct your attention to its color; compare it with the healthy iris, and see if it has not undergone some change, for inflammation changes blue into greenish, brown into reddish, gray into greenish-yellow color; and if blood is effused into the anterior part of vitreous humor, it presents a green color. The arterial distribution accounts for those changes. There is also contraction, dryness and irregularity of the pupil, dimness of vision and sometimes total blindness.

The different forms depend upon the cause; the syphilitic form is the most common, and is usually associated with other symptoms. Its chief distinctive characteristic is that instead of the whole iris being studded over with excrescences, the inflammation is confined to one or two single spots, while the rest is normal. One-fourth or one-half of the iris is changed in color, and swollen.

Treatment.—This embraces general principles; aconite for fever; morphia for pain; free action of bowels and skin; nourishing food, etc.

Our effort must be directed to the eye to obviate the tendency to adhesions, or break them down; for this purpose, a solution of atropine breaks them up if fresh, and puts the eye in a favorable condition toward resolution. The solution formerly given should be dropped into the eye thrice daily. Then the eye kept covered with a solution of boroglyceride.

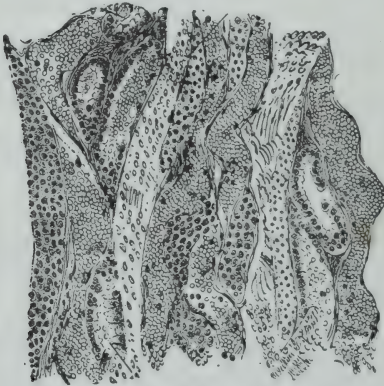
**Inflammation
of the
Kidneys.**
(*Acute Nephritis.*)

Inflammation of the substance of the kidneys, or acute nephritis, is a comparatively rare affection.

It is predisposed to by debility, or a tubercular diathesis, poor living, mental depression. Its exciting causes are cold, damp, exposure to vicissitudes of weather, mechanical injuries, lifting, hoisting, strains, blows; to the presence of calculi or gravel in the kidneys; excessive beer or whiskey drinking; the drastic action of such drugs as turpentine, balsam copaiba, cantharides, and it is also caused by diseased germs.

Symptoms.—In addition to the usual symptoms of languor, lassitude, debility, there is great constitutional disturbance, headache, pain in the back and legs, rigors, fever, nausea, vomiting; hard, frequent, but small, wiry pulse; constipation and a localized pain over the region of the kidneys, increased by pressure and

movement; pain is permanent and severe and often extends down the ureter to the bladder, groin, scrotum, or testicle; besides, there is numbness of the anterior portion of thighs, retraction of the testicle, and tympanitis; frequent micturition, a desire to void water when there is none in the bladder, or passed in drops; often suppression of urine, and if there is any passed it is very high colored and contains casts of the kidney tubes, or blood in large or small amount, or pus. If the urine is suppressed there will be uræmia, with coma or convulsions. If recovery follow it



Renal hyperæmia in acute nephritis.

is liable to leave the kidneys weak for some time. Besides resolution or recovery, the case may terminate in a violent attack of hæmaturia, and get well; or in effusion of lymph and abscesses of variable sizes, which are very destructive to the body of the kidney.

These abscesses are likely to lead to ulceration, perforation of capsules and renal fistula, and establishment of the muco-purulent discharge; often fatal hectic associated with those abscesses. In favorable

cases the pus is evacuated, the kidney heals up and a good cure takes place. Besides being a result of inflammation, abscess may be due to the presence of a stone in the kidney, obstructing and irritating the passages.

Treatment.—If seen early, administer an emetic; follow with aperient and enemata and alcoholic vapor bath; then put patient to bed, between blankets; apply mustard sinapisms over kidneys and over stomach; when a very decided redness is produced, hot linseed poultices; disturb patient as little as possible in their application. Administer aconite, tincture of green root gelsemium and digitalis, in small doses, frequently repeated till pulse reaches 60; then, at longer intervals. Those three arterial sedatives operate well, and should be given for some time in smaller doses, at longer intervals. If there is the slightest tendency to uræmic symptoms, hypodermic injections of one-third of a grain of pilocarpin. Low diet, milk and lime-water, beef tea. No drink, nothing to give kidneys work. If case progresses favorably, apply irritating plaster over kidneys, and administer either quinine, with aromatic sulphuric acid, or compound tincture of cinchona with nitromuriatic acid. For two or three months patient

should use, three times a day, either an infusion of buchu, or uva ursi, or queen of meadow, or pipsissewa, or cleavers, or pareira brava, to restore tone to kidneys.

Inflammation of the Interstitial Tubes.

(*Acute Interstitial Nephritis.*)

Tubular nephritis, or acute albuminous nephritis, is an affection of the kidneys, greatly on the increase, and forms what is known as acute Bright's disease.

Its chief characteristics are excessive proliferation of the convoluted tubes of the kidneys, with congestion of the malpighian tufts, an exfoliation of the walls, and the white blood escapes. The shedding, or shelling, or peeling of the tubes in the process of proliferation, by which they lose their epithelial lining, chokes up the tubes, obstructs secretion. The morbid process is tubular, interlobular, interstitial, commencing at the surface, and proceeding inwards, leaving the cortex pale. In this process the walls of vessels usually give way, and the serum and white corpuscles mingle with the urine, rendering it albuminous, the fibrin coagulates in the tubes, and forms casts. The malpighian bodies form bright red points, pyramids, dark and congested; kidneys much enlarged.

Causes.—Privation, exposure to wet or cold, but especially when the nerves of the kidney are weakened, and there is a union of the urate of soda with lithic acid from beer or ale-drinking, and especially the germs of scarlatina.

Symptoms.—There is a sudden seizure of chilliness, rigors, fever, with headache, thirst, vomiting, restlessness, with pain and tenderness over region of the kidneys; frequent micturition; urine scanty; of a dark, smoky color, persistent and highly albuminous, with abundance of fibrinous casts, epithelial casts, renal epithelium, blood casts, and few blood corpuscles; dropsy of the cellular tissue, general œdema, face puffy, hand swells if it hangs down; dropsy and anæmia; a strong tendency to effusion of serum from membranes of brain, peritoneal coat, pleura.

There are cases occasionally met with of general dropsy and albuminuria, without a desquamation or peeling off of the renal epithelium, called *non-desquamative* disease of the kidneys. This is apt to occur in bad cases of blood-poisoning, owing to a failure of vital power to eliminate morbid material from the system.

A favorable sign is free and copious urination without albumen; an unfavorable indication is scanty, or total suppression of urine, aggravated dropsy and effusion into the serous cavities, pleura, pericardium, and peritonæum.

Treatment.—If the result of intemperance, active measures, as cupping over the kidneys; open bowels quickly with elaterium; alcoholic vapor bath; then put to bed between blankets; mustard, followed by hot poultices over kidneys; very free diaphoresis, with jaborandi or pilocarpin; try first infusion of digitalis and nitrate of potass; and if that fail, citrate of potassa in infusion of hair-cap moss, and general treatment as laid down under *Bright's Disease*.

In the little child, whose kidney tubes are peeling off and exfoliating, our treatment must be more gentle, and still efficient, but different from the above—warm baths; confinement to bed; dry heat to kidneys, in the form of camomile flowers or bran in a bag, heated in an oven; to lie between blankets, and give most nutritious diet of beef tea, milk, eggs, etc. Try infusion of digitalis and sweet spirits of nitre, in alternation with quinine and aromatic sulphuric acid. Open bowels with compound licorice powder. The infusion of digitalis is our best remedy; but if it fail, try infusion of asparagus-tops and nitrate of potassa, or infusion of parsley-root and citrate of potass. Persevere with the quinine and aromatic sulphuric acid. If those remedies do not avail, then try nitro-glycerine—a two per cent. solution, in one-drop doses, every four hours. Most excellent results have followed the use of the remedy in this form of acute interstitial nephritis; it relieves every symptom, the oppression, the vascular tension; the kidneys resume work, peeling is arrested, and we are soon gratified with a copious secretion of urine free from albumen and tube casts. There are no cases but what are relieved, if not cured, by the action of this drug. Improvement inevitably follows.

Chronic Interstitial Nephritis. Chronic desquamative nephritis, or contracted granular, or gouty kidney, or more commonly termed Bright's disease, is a true interstitial degeneration or breaking-down of the epithelium of the convoluted tubes; an exfoliation, or shedding, or peeling of the walls of vessels, which lose their epithelial lining, owing to a true inflammatory process or partial death.

This interstitial irritation causes the interior of the kidneys to collapse, become filled up with broken-down debris or rubbish; choke up the tubes, and obstruct secretion. This interlobular death causes them to contract. Nature makes efforts at revival again and again; but this shedding of renal epithelium continues; and besides blocking up the kidney, appears in the urine in a

more or less disintegrated form. The tubes lose their lining altogether, and either collapse or become filled up. This denuding process permits the liquor sanguinis, or serum, or albumen of the blood, to escape in the urine, so that the urine is persistently albuminous, of low specific gravity, and contains granular casts and epithelium.

Varieties, an excellent etiological classification has been proposed, to wit, which corresponds to the facts of clinical observation, as well as to pathology. The following are the proposed divisions :

1. Febrile nephritis.
2. Toxæmic nephritis.
3. Obstructive nephritis.

The *first* division includes all those cases of acute or chronic nephritis occurring as a result of acute or chronic febrile disease, as is engendered either by the microbes of measles, variola, scarlatina, hooping-cough, mumps, rheumatism, or the bacillus of tubercle, cancer, syphilis, anthrax, erysipelas, etc., or by the micro-organism of diphtheria, typhoid, malaria, pneumonia, ulcerative endocarditis, pyæmia, etc.

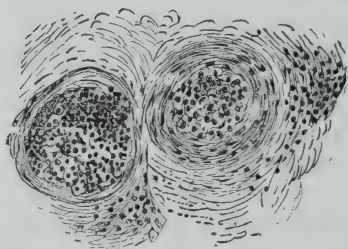
The *second* division includes the great group of essential chronic cases due to lithæmia, an irritation of the kidneys by the excessive elimination of poisons of which uric acid is the type. It includes the nephritis of gout, the poisoning by animal, vegetable or mineral poisons, but more especially the toxæmic effects of beer, which gives rise to an excess of uric acid in the blood and its prolonged elimination through the kidneys.

The *third* division includes all cases dependent upon obstruction to the outflow of urine, as stricture, enlarged prostate, cystitis in men, and uterine, ovarian tumors, pregnancy, procidentia uteri in females.

Predisposing cause may be enumerated thus: neurasthenia or poverty of nerve force; the intense struggle for existence; variable temperature, highly oxygenized atmosphere; suppression of the perspiration, followed by increased acid of the urine, with diminished alkalinity of the blood, leading to the accumulation of uric acid in the blood. The left kidney being freely covered with the great sympathetic, demonstrates most clearly how overmental work, or worry, or grief, damages that kidney, and gives it a predisposition, a weakness to any irritating agent. Residence amidst a halo of sewer gas impairs the integrity of the organism, and is often a primary cause. Frequent chilling of the body increases the formation of uric acid. Climate, individual conformation, occupation, habits as to food and drink; the presence of pre-existing disease of the heart and liver; the failure of the kid-

neys to eliminate, owing to some obstruction, as stricture, enlarged prostate, tumor, pregnancy, ovarian enlargement.

Exciting causes. The most common are the presence of disease germs in the blood, and their elimination, dead or alive, by the kidneys. Where there is an inherent weakness of organization, the microbes of malaria, the bacillus of diphtheria, the vibrios of typhoid fever; the amylobacta of rheumatism, the amoeba of catarrh, the germ syphilitica act as exciting causes. The indiscriminate use of such drugs as mercury, balsam copaiba, turpentine, cantharides, juniper berries, acetate of potassa, etc., often give rise to it. Bad living, constant exposure to wet and cold, to atmospheric changes, deleterious trades, and intemperance, are common causes. Out of every one hundred persons who indulge in beer and other alcoholic compounds, and thus lay the elements of gout and rheumatism in their blood, eighty per cent. are affected, more or less, with desquamative nephritis.



Section from the cortex of a contracted kidney, showing two glomeruli.

The union, therefore, of the urate of soda, with lithic acid in a weakened kidney, or in gout, is the most common of all causes. In this enumeration, previous disease, blows, lifts, strains, etc., are not to be overlooked.

The distinction between gout and rheumatism does not essentially enter into the exciting cause. In rheumatism we have the uric, lactic, butyric acids, the

latter forming or entering the into micro-organism (bacillus amylobacta), gout, with the same compounds and urate of soda.

The inhibition of lead, phosphorus, mercury, leads to the accumulation of uric acid in the kidneys, by depressing the function of the liver or forming insoluble urates.

Permanent hardness in drinking water, due to the presence of lime salts, is often a predisposing cause.

Beer drinking owes its ill effects more to the acid it contains than the alcohol. Whiskey drinking causes cirrhosis of the liver, organic changes in the great urea-forming organ of the body, indirectly causes the formation of uric acid.

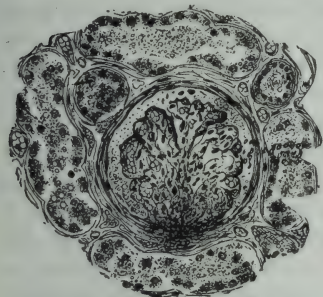
The excessive use of animal food increases the raw material from which uric acid is formed, and also by the large amount of salts contained in it.

Sudden changes of temperature are a fertile cause of this disease.

Prognosis.—The chances of recovery from an acute attack of

Bright's disease are decidedly favorable, for we rarely have a fatal termination unless egregiously mismanaged. We cannot speak so confidently of the ulterior result, for once the kidneys are damaged, they are difficult to repair.

All circumstances must be well balanced in the mind, if the urine is to be kept well persistently loaded with uric acid (lithæ-



Section of the cortex of the kidney in chronic interstitial nephritis.

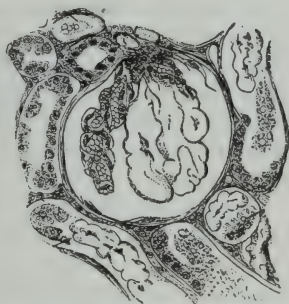


Fatty degeneration, the result of interstitial nephritis, due to beer drinking.

mic nephritis), such as we have in gout, in habitual beer drinkers, whose blood is inflated, may, actually irritated by the dyscrasia, our prognosis is not good, as we have the prolonged action of the uric acid in paasing through the kidneys.

Age modifies this morbid condition.

It is rare under twenty years of age, indeed not common up to forty, very prevalent after that period is passed, after fifty still more common, so much so that one-third of all persons dying above that age show more or less signs of its action on their kidneys. With reference to sex, all statistics show that the contracting type of kidney is less common in females than in males, being one female to two males. It attacks all classes, but is especially common among workers in lead, miners, brewers, and beer drinkers. Its infrequency among females may be due to their rudimentary sympathetic, and to their exemption from the more rugged avocations of life.



Waxy kidney, common in the tubercular, a sequela of chronic interstitial nephritis.

Pathology.—As the mortality from this disease shows a progressive increase, co-equal with civilization, it is interesting and important to note its pathology.

During life, uric acid, the normal product of dis-assimilation, plays a most important part.

Hypertrophy of the heart exists in seventy-five cases out of one hundred; atheroma of the aorta, coronary arteries, ossification of the valves, with evidence of fatty degeneration in all cases.

Of 250 cases observed, 176 were men and 74 were women. The cyanotic kidney was found chiefly in young and middle-aged men, and the œdematous form chiefly in old men and in women. Six-tenths of the cases showed a fatty liver, not affected with fibrosis. As regards the general pathological conditions found in the 250 cases, the following may be stated: the alcoholic kidney was found 248 times; large, fatty liver, 220 times; chronic and acute cystitis, 170 times; a mammelonated condition of the stomach, 150 times; excess of blood in the brain and œdema, 150 times, simple hypertrophy of the stomach, 90 times; arterio-sclerosis, 50 times; acute gastritis, 50 times; Bright's disease and phthisis, 20 times; hemorrhage in the brain, 10 times; and cirrhosis of the liver, 6 times. The changes found in the stomach, liver, and brain are of very great interest. The extreme frequency of fatty liver, with the infrequency of cirrhotic liver, is certainly very remarkable.

In all cases either a waxy or fatty degeneration of the kidneys, with atrophy or hypertrophy.

Many complications of chronic interstitial nephritis are liable to take place, chiefly due to the presence of an excess of urea in the blood, all embraced under "*uræmia*," these are hyperæsthesia of the skin; deposits of crystals of urea on the skin; symmetrical gangrene; vomiting and diarrhea; hiccough; difficulty of breathing; headache; deafness and blindness; hemiopia; hemiplegia; delirium; coma; twitchings; convulsions; epilepsy; hemorrhages; œdema of the glottis; congestive œdema of the lungs.

Symptoms.—General languor, lassitude and debility existing for a long period, even for years, may exist without the true nature of the affection being suspected, but by and by the debility increases, and the weakness becomes associated with loss of flesh, prostration, vertigo; specks and spots before the eyes; noises in the ears, and the skin assumes a uriniferous appearance and odor; the conjunctiva becomes a pearly white, the tongue large and flabby with the diagnostic kidney tracts, with feeble pulse, cold extremities.

There may or may not be pain over the region of the kidneys; usually, however, a sense of weight or weakness. Urine is usually free and very copious, pale in color, and of a very low density, but persistently exhibits traces of albumen in large or small amounts, and soon becomes loaded with casts from the kidney.

Interstitial death or collapse progresses onwards, the above symptoms become more intense, aggravated, then dropsy, more or less œdema, puffiness of eyelids, general anasarca, with effusion into the serous sacs, with some œdema of the glottis and lungs, with symptoms all the time growing worse, degeneration of the kidneys appear, or structural changes in the form of fatty or amyloid usurpation. The blood becomes very impure, loaded with urea; there is an innate or inherent power of resistance to the circulation of contaminated and deteriorated blood throughout the vessels, whence arises the high tension in arteries; hypertrophy of the muscular coat of the arterioles, and enlargement of heart; often organic disease, especially valvular. This impure blood acts badly on nerve centres; retinitis and other signs of degeneration often appear.

Diagnosis.—The history of the case may exhibit a diathesis inherited or acquired; if not the presence of some source of irritation of the kidney with that terrible feeling of goneness. The skin has a uriniferous aspect; the saliva and sweat contain urea. The blood is anæmic, hæmoglobin and red corpuscles diminished, while the water of that fluid is increased. The truly diagnostic symptoms are, the pearly lustre of the eye; longitudinal fissures on the tongue; the persistent presence of albumen in the urine; the anasarca; retinitis, polyuria; dilatation, followed by hypertrophy of the heart; tube casts in urine; of mucus, epithelia, blood; or occasional hemorrhages take place contracting kidney.

Progress and Distinctive Features of the Disease.—The presence of albumen in the urine, or an albuminous body, which is coagulated by heat or precipitated by neutralization, was once regarded as of primary import, but later observations has caused it to lose its original meaning. The number and variety of pathological relations, under which albumen may appear in the urine are numerous. It is invariably present in inflammation, congestion, changes in the mechanical circulation, microbes in the blood circulating through the kidneys; disease of the heart or lungs, or morbid states of the liver, peritonitis; pregnancy, abdominal tumors. It is often present in tubercle, syphilis, cancer, purpura, scurvy, anæmia, diseases of the brain and spinal cord, in epilepsy, chorea; cutaneous affections.

It is also present in active or arterial congestion, from a chill to the skin in bathing; from exposure to cold; from the elimination of some irritant through the kidney, as alcohol, uric acid, phosphorus, lead, cantharides, copaiba; but especially are the microbes of scarlatina, variola, diphtheria and erysipelas disastrous to the kidneys, as well as the vasomotor paralysis which their presence induces.

Venous congestion induced by cardiac, pulmonary disease, goitre. Degeneration of the arterioles, changes in the composition of the blood.

Besides, there is a common form of albuminuria, which occurs in young men and young ladies, victims of self-abuse, or sexual excess, whose reproductive centre is exhausted; who suffer from languor, headache, weakness of the back and knees, indigestion, neurasthenia, without a sign of organic lesion; it is remittent in type, and named cyclical albuminuria, or that of adolescence.

So we meet with albumen in the urine, from innumerable causes, which are not to be regarded as diagnostic of Bright's disease.

The mechanism by which albumen persistently passes in the urinary secretion is essentially one of inherent debility, organic change, permeability in the walls of the glomerule, by or through which the white portion of the blood exudes, by transudation or exosmosis.

Next to the persistent presence of albumen in the urine, *dropsy* is a most striking symptom. This consists in an accumulation of serous fluid in the lymph spaces of the subcutaneous cellular tissue and in the three great serous cavities of the body. This fluid is derived from the capillaries, and under normal circumstances is poured out into those spaces, but taken up again by the venous and lymphatic radicle, as fast as it is poured out. For the production of *dropsy* this equilibrium must be upset, either by an increase in the outflow of the fluid, or in a failure on the part of the veins and lymphatics to take up the effused fluid.

A weak or obstructed kidney, with watery blood, increased permeability of the capillaries; a defective pumping arrangement; organic changes in the brain, blood and capillaries generally gives rise to an increased outflow, a decreased taking up.

Albuminuria is invariably present in all states of damaged kidneys, in all grades of renal debility, or irritation, or where the kidneys become clogged up with diseased germs.

This state of partial death of the renal organs, existing for some time, soon gives rise to the presence of tube casts in the urine.

Casts of the renal tubes are usually one or other of three kinds: blood, epithelial, and hyaline.

Blood casts are evidence of hemorrhage from the glandular structure of the kidney, *epithelial* and *hyaline* casts, evidence of active inflammation.

Nephritic debility gives rise to increased permeability of the glomerular walls and epithelium, and these structures further stunned by the presence of an excess of uric acid, gives rise to "*polyuria*" where we have increased blood pressure, dilatation of efferent vessels, with destruction of capillary areas beyond the glomeruli.

Cardiac hypertrophy is invariably present in all forms of persistent albuminuria, even in acute nephritis, but most common in contracted kidney, and is due to stimulation of the heart, to irritation produced by the microbes in the blood, to the presence of uric acid or urea in the blood, to increased capillary resistance, due to the density of the blood plasma, and the high tension pulse to the acquired increased energy of the heart, with greater capillary resistance.

The chief retinal changes are due to neuritis, which is caused by the disordered state of the blood, and invariably indicates grave organic changes.

A partial death of the kidneys always gives rise to an excess of *urea* in the blood. *Uræmia* is a generic name given to a large host of symptoms which occur in the onward progress of the disease, due to a failure on the part of the kidneys to eliminate this agent, hence the skin and breath have a uriferous odor; the brain is poisoned with it, hence the headache, the vertigo, delirium, intoxication, convulsive attacks, chorea and epilepsy; the asthma, paralysis.

Indeed such patients present themselves under the most varied semiological conditions, they may complain of bronchitis, asthma, pain at the *præcordia*, palpitation, epistaxis, vomiting, diarrhea, giddiness, headache, neuralgia, affections of sight or hearing, apoplexies, convulsions, coma.

Treatment.—The successful management of Bright's disease depends a good deal upon the physician being a man of extensive experience, sound common sense, and upon a thorough understanding of the disease. Fortunately for all patients, the true nature of the malady is yearly becoming better appreciated.

A patient can do much also to improve his condition, maintain and preserve his vital force; in no way, neither with work nor excess of exercise, should he do anything to weaken his condition, all his efforts should be directed to adopt a mode of life which will lead to the acquisition of more strength.

It is not always in the power of patients to choose their residence in strict conformity with medical advice, but when possible a warm, dry climate should be selected for the winter, and the highlands in the summer.

The clothing, day and night, summer and winter, should be woolen.

Tepid bathing should be resorted to daily, followed by brisk friction or massage, cold baths or sponging should never be permitted.

Once a week, if the case permits, an alcoholic vapor bath should be taken.

This is the most accessible, and for general utility, one of the best forms of bathing, and every family should be familiar with its use. In the first place any tinsmith will make a convenient lamp, like an oyster chafing-dish, with five wicks, each the thickness of a quill, and large enough to hold alcohol to burn three-quarters of an hour. In the centre, over the five flames, a deep plate, large enough to hold water to boil for forty-five minutes.



Alcoholic vapor bath.

The whole, for safety, might be placed inside of an iron pot, which is to be placed underneath the chair on which the patient is to sit. The patient is then to be divested of all clothes, and sit down on the chair under which the spirit-lamp is placed. This chair must have a thick, wooden bottom, and there must be some protection, either a piece of wood, or blanket, placed in front to prevent undue heat on his calves. The patient, sitting down, must be carefully enveloped in blankets pinned

tightly around his neck, and lying on the floor, and be careful that on crevice, or hole, or outlet exists to let the vapor escape. The patient being thus duly enveloped and covered up, the lamp and saucer which had been previously fixed, the former with alcohol, and the latter with water, the five wicks are ignited. In a few minutes he begins to experience the glow of the burning alcohol, and by and by the steam begins to rise. Some recommend giving a cup of hot boneset, or pleurisy-root tea, but it is unnecessary—the best drink is abundance of cold water. With this bath there is a determination of blood to the skin; it relieves cerebral, lung, and visceral congestion; induces a healthy action of the skin and mucous membrane; eliminates noxious matter from the blood, and imparts a sense of elasticity and vigor to the system. It is useful in both health and disease, but especially in

colds; congestion of the lungs, liver, kidneys; dropsy, gout, and rheumatism, neuralgia. No tendency to catch cold after it. It will break up all fevers. It should be given upon an empty stomach, and never to pregnant women, or those who are menstruating. It can also be used for medicated vapor baths, by adding iodine, or other chemical agents to the water in the saucer, so that the patient is exposed to the influence of three agents, heated air, or alcoholic vapor, steam, and the medicinal agent used.

After one-half an hour spent in the alcoholic bath, with copious perspiration, the light should be extinguished, and the blankets pushed down, the body well rubbed and dried, and then the lower half; a dry shirt put on, and placed in bed for several hours, or over night. It is much superior to either the Turkish or the Russian bath, and costs little. No family should be without it.

The duration of this bath should never exceed thirty minutes.

Daily exercise, but never so much as to induce the slightest fatigue.

Diet is to be generous and nutritious, embracing, as far as possible, fowl, game, eggs, cream, cereals, as oatmeal, wheaten grits; sweet-bread, tripe, calf's-head; white-fish; fresh vegetables and fruit, with farinaceous food.

Tea, coffee, chocolate are permissible, but beef, mutton, cheese, saccharine fatty food forbidden; a liberal diet, but rigidly deprive the patient of all slops, even milk, beef-tea, soups. Beef-tea is a chemical composition, closely resembling urine, and all soups or broths partake of the same character. Nevertheless, the patient's health and strength must be maintained.

Malt liquors forbid, if anything in this line be necessary, let it be good whiskey in Apollinaris or Vichy water.

In all cases the patient should be placed upon a general tonic and alterative course for months or years.

Such tonics as *matricaria* comp., comp. tincture cinchona and aromatic sulphuric acid; quinine and mineral acids; ozone water; glycerite of ozone, or a mixture containing benzoate of soda and *digitalis*, thus, benzoated soda, five grains; tinct. *digitalis*, eight drops; infusion of gentian, one ounce. Mix. Take a dose thrice daily. For alteratives, comp. *saxifraga* and *phytolacca*, are invaluable; still, such vegetable extracts as *corydalis*, *stilingia*, are not to be overlooked.

Over both kidneys, some stimulant should be kept constantly applied; the common irritating or tar plaster is the most efficient.

While pursuing the general alterative and tonic course, it is

well to change them once a week, so that the patient does not become habituated to any one drug.

An important indication in all cases is to keep the bowels in a soluble condition, the intestines form an important channel of elimination. If the peristaltic wave is arrested, poisons, or ptomaines are formed, which aggravate the existing state of things. If constipation does exist, very gentle, but efficient measures must be adopted.

The cascara lozenge should be tried, being a tasteless, tonic laxative; stimulating digestion, promoting nutrition and assimilation, one or two after each meal; or small doses of the kola-nut, or if very obstinate, a pill containing one grain of euonymine; two grains of the extract of aloes, and one-eighth of a grain of belladonna. Mix. Make one pill. Take at a dose.

Besides adopting a general treatment as here indicated, there must be a special course of remedies used to meet the three prominent indications which are invariably present.

To arrest or check the flow of albumen we must be solemnly impressed with the idea that there are no *specifics* in medicine; that we profess no drug which has a definite, decided control over the excretion of albumen by the kidneys. The action of any drug upon a diseased organ is always obscure, invariably an element of uncertainty about it.

Some of the following remedies should be selected and tried, say, for forty-eight hours; and if no check, another substituted: Gallic acid, in fifteen-grain doses thrice daily, in a tablespoonful of port wine; tincture or infusion of digitalis, ten drops of the former, or wineglassful of the latter, thrice daily; iron in tincture, or iron-alum, oil of erigeron, ergot, matico, mineral acids.

Tannate of soda, thus, tannic acid, bicarbonate of soda, of each ten grains; glycerine, twenty drops; add to and mix in one ounce of water. Administer thrice daily.

Nitro-glycerine, most invaluable drug. A one-per-cent. solution most available, in doses of from one to more drops added to water three or four times daily, is the most effective remedy we possess, it props up the collapsed kidneys, and as we have to deal with heart failure, this remedy while checking the escape of albumen gives backbone to the heart; imparts to it increased energy.

Oil of erigeron is superior to terebene, and deserves an occasional trial, its use in five-drop doses on a lump of sugar every three or four hours, lessens greatly the amount of albumen, lowers vascular tension, and improves the general condition. It has also a most favorable influence on the headache, nausea and other symptoms of a uræmic character.

It is in no sense a curative drug, but it undoubtedly palliates this state in a most admirable manner.

Some claim that the glucoside from eupatorium purpureum, combined with chloride of sodium, the former in five, and the latter in ten grains, are successful; we have increased the dose greatly, and have met with no success with the combination.

Ballota Suaveolens is of great efficacy where the kidneys are blocked up with uric acid, in itself it is a powerful diuretic, dissolves the uric acid lodged in the kidney, removes congestion, checks the escape of albumen, and eliminates morbid matter. This is an invaluable remedy. An acetic tincture of the ballota and senega root, makes a most efficient astringent diuretic.

Occasionally we have found five grains of the syzygium jambolanum, thrice daily, of great efficacy in arresting the escape of albumen, it is the best by far of the class designated astringent diuretics.

Iron is a remedy sometimes of great utility. A good formula for its administration is the following: liquor ammonia acetatis, two ounces; dilute acetic acid, one ounce; tincture of chloride of iron, four drachms; water, one ounce and a half. Mix. Teaspoonful for a dose.

With regard to all drugs, small doses, frequently repeated, are the best; do much better than large ones.

To remove effusion, dropsy of the cellular tissue, or in the three serous cavities.

Infusion of digitalis, or strophanthus, to unlock the absorbents, followed by diuretics, diaphoretics, hydragogue cathartics.

An infusion of digitalis, made fresh daily, has a marked action on the brain, the heart, the arteries; it often arrests the escape of the albumen itself; it unlocks the absorbent system, and is a most serviceable drug. Many are, and have been, disappointed in its action, simply from inattention to its proper mode of infusion. It deserves a fair trial, properly prepared.

Strophanthus if tried, must be used in tincture form, one to two or more drops, then follow in with special remedies.

Caffeine might be tried thus: citrate of caffeine; pulverized digitalis; pulverized squills, of each one grain. Make into one pill. Administer one every three hours.

Bitartrate potassa, half an ounce, to a pint of boiling water, to be used as a drink, has a most remarkable action in flushing the kidneys; or it could be administered thus: bitartrate potassa, one drachm; nitrate potass, ten grains; pulverized mandrake, three grains. Mix. Make one powder. Give one once, twice, or thrice daily, so as to cause two or more motions of the bowels in the twenty-four hours.

Ulexine, an elegant alkaloid possessing powerful diuretic properties, in doses of one-fortieth of a grain three times a day.

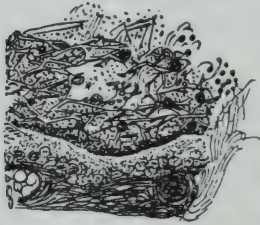
An infusion of the hair-cap moss often does good work, it is an efficient diuretic.

Hydragogue cathartics, that is the stimulation of the entire serous coat of the bowels, with one-twelfth of a grain doses of elaterin ; or some remedy of a like character.

The sonchus oleraceus, or rather the gum obtained from the milk of the plant by evaporation, is the part used, and is best administered in small doses combined with either manna, anise seed, or carbonate of magnesia. It is quite as powerful as elaterin, but not so exhausting. It is always safe to promote a discharge from the intestinal canal, with due caution that they do not become excessive, so as to pass into a permanent diarrhea. Frequent passage from the bowels rid the intestinal tract of ptomaines, urea, and other toxical substances.

**Inflammation
of the
Larynx,
Acute.**

Acute laryngitis is a rare disease, being confined almost exclusively to adult males; women and children almost exempt from this form of inflammation. A slight inflammation or congestion of the mucous membrane of the larynx is common in all ages and in both sexes, as the result of cold, damp, etc.; symptoms being, soreness, or rawness, hoarseness and a dry, harsh cough. But acute



A vertical section of the mucous membrane in acute laryngitis.

laryngitis is a grave, formidable and fatal affection, when it occurs in men whose nervous system has been shattered by worry, care, struggle for existence, and involves the mucous and sub-mucous coats. It is a paltry piece of human mechanism that is attacked, perhaps merely the fraction of an inch, but the inflammation is terrible and rapid in its results; congestion first, effusion of plastic lymph obstructing the chink of the rima glottis, preventing the ingress of air. The predisposing cause is, depression of the great sympathetic, whose branches freely cover the larynx in adult males; the depression being some emotion, desire, affection, passion; the exciting cause, exposure, fatigue, wet, poisons.

Laryngitis, then, being peculiar to persons of a shattered nervous system, comes on very insidiously. At the end of a few hours, violent rigors, fever of a high grade, fauces red,

swollen; pain over the cartilaginous part of the throat; great difficulty of breathing and swallowing; patient very anxious; hoarseness, and complete loss of voice; spasmodic exacerbations, with paroxysms of threatened suffocation; long inspirations; peculiar wheezing sound as if air was being drawn through a narrow tube; harsh, brassy cough; difficulty of swallowing; liquids more difficult to get down than solids, as they bring the circular muscular rings into active exercise. Face and neck first flushed, then livid, subsequently purple; eyes protruding; pulse hard and frequent; great distress. Larynx and trachea move rapidly upward and downward; all the respiratory muscles brought into powerful action, so the chest heaves violently. Patient grasps at his throat, gasps for breath, gets out of bed, will thrust his head out of the window. He soon becomes delirious or comatose, and dies from non-oxygenation of blood. The duration of the affection is from forty-eight to seventy-two hours. Almost invariably fatal.

Treatment.—The importance of active treatment cannot be too strongly insisted on. Immediate relief is indispensable. Rest and quiet; forbid talking. Air of room to be kept at 75° Fahr., very moist, with warm vapor. Extract of belladonna in hot linseed poultices to throat. Inhalation of warm vapor of tincture belladonna and iodine. Diet: cream, raw eggs, extract of raw beef.

Veratrum viride in three-drop doses every twenty minutes; from twenty to thirty grains of sulphate of quinine every two or three hours, between which from a quarter to a half grain of sulphate of morphia. If necessary, open bowels with beef tea. No debilitating treatment to be used in acute laryngitis; make an effort to guide patient over third day and run it into chronic laryngitis, from which he will recover.

Inflammation of Larynx. (*Chronic Laryngitis.*)

This is a very common form of laryngitis. Membrane lining laryngeal cartilages becomes thickened, ulcerated, also involving the fauces and uvula.

It may be caused by cold, damp, exposure, exertion, inhaling noxious gases, etc., and those conditions intensified by disease germs in the blood, as tuberculæ, syphilis, mercury, lead, amœba of catarrh.

The ordinary symptoms are, general debility, cough, expectoration, hoarseness, loss of voice, with ulceration of the mucous membrane of the larynx, fauces. The different varieties are to be recognized by the following landmarks.

Simple chronic laryngitis, by soreness, rawness, redness.

The syphilitic form, by its copper-colored appearance, and dry huskiness, *microbe syphilitica*.

Mercurial form, by its dingy, metallic hue, and peculiar fetor of breath.

Tubercular form, by its mottled appearance, *bacillus tubercle*.

The profession or avocation of the patient will guide us as to the variety. Either of the forms may give rise to thickening, warty excrescences, and small polypi on different parts of the larynx, which aggravate the difficulty, cause impediment to the entrance and exit of air, and impairment or loss of voice. The sputum of chronic laryngitis is loaded with *amœba*, which would necessarily cause it to be contagious and infectious.

Treatment.—General principles must guide us in its different forms. Skin to be attended to by daily baths and friction; bowels to be seen to, clothing to be woolen; appetite to be stimulated, and diet to be rich in blood elements and very generous. Mouth and throat gargled with a wash of boroglyceride, chlorate or permanganate of potassa, three times a day. Atomized spray, warm vapor once a day, consisting of terebene, creolin, resorcin, or chlorate of potassa, or some other antiseptic. The use of demulcents, as gum-arabic water, elm water, flaxseed tea, marsh-mallow, white of eggs and common salt are to be recommended. Alteratives, as compound syrup of yellow dock, ozonized saxifraga, phytolacca, iodide potassa, and tonics, as cinchona, glycerite of ozone, ozone water, nux vomica. Tonics before meals, alteratives two hours after. Two points of suppuration to be kept active by the irritating plaster on side of spine below the nape of neck.

Special Treatment as to Cause.—Muriate of ammonia, terebene, in the simple form; iodide potassa, nitric acid and compound tincture cinchona, compound saxifraga and phytolacca in the syphilitic; glycerite of ozone, compound hypophosphite of potassa, tincture iodine in the tubercular; iodide of potassa in the mercurial; ozonized catarrh fluid, if due to catarrh. If no cause can be ascertained, then a general alterative and tonic course should be inculcated and carried rigidly out; change of air, locality, diversity of scene, every possible means adopted to build up the general health.

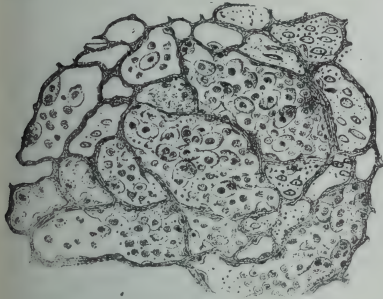
All cases of chronic laryngitis, irrespective of their cause, are greatly benefited by the comp. oxygen treatment—the remedy being an active microbicide—at the same time a powerful vitalizer of the larynx. It stimulates, aids a renewal of life in the various structures of which it is composed.

Inflammation of the Liver.

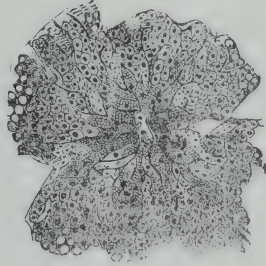
(*Acute Hepatitis.*)

Partial death of the liver may result from some obstruction through the hepatic and portal veins, as occurs in some forms of valvular disease of the heart, or morbid state of lungs, impeding the passage of blood through the pulmonary artery; or in diseases that diminish the capacity of the thoracic cavity; or from violent exercise, or tight lacing; conditions that lead to diminished excretion of bile, so that the ducts become engorged with it, and thus cause *biliary congestion*.

Suppose this condition to progress, the patient receiving some mechanical shock over the liver, or that some diseased germs in the blood took up their abode there, or that it was subjected to the influence of solar heat, malaria, or to some depressing passion or other nervous influence, or excessive eating and drinking of carbonaceous food, as fat, sugar, starch, alcohol, with



Section of the liver in passive hyperæmia.



Hyperæmia of the liver in the incipient stage of hepatitis.

sedentary habits, a state of *active congestion* will set in; other conditions might be enumerated, as the action of mercury, which produces atony of the walls of the vessels of the liver.

From these remarks it will be readily seen that the causes of acute inflammation of the liver are varied and numerous, embracing mechanical irritation, obstruction from morbid changes, heat, malaria and other germs, carbonaceous food, drugs, mental depression; in other words, anything that tends to devitalize.

Symptoms.—General symptoms of languor, lassitude, debility, mental depression, loss of appetite or dyspepsia, tongue coated heavy brown coat, skin jaundiced, yellow conjunctiva, bowels constipated or irregular, a sense of constriction and weight over liver at first, it greatly enlarges from congestion, and the area of hepatic dulness increases; liver extends below the ribs and across the hypogastrium; headache, pain in back, calves of legs,

rigors, followed by high fever, which sometimes assumes a low type; pain over region of liver, aggravated by pressure; cough, deep inspirations, inability to lie on left side; the coat on tongue becomes heavier, conjunctiva tinged with bile; there is nausea vomiting, cough, difficulty of breathing, hiccough, pain in right shoulder and clavicle; if the left lobe of liver suffers there may be pain in the left shoulder, dulness of the upper lobe of left lung; urine is always scanty, high colored, loaded with bile pigment and traces of albumen. The variation and intensity of symptoms will depend a good deal as to whether the peritoneal investment or substance of the gland suffers most. Most generally it is the substance of the gland that is affected.

If the inflammation or partial death is great it may lead in a short time to extravasation of blood into the hepatic tissue, or beneath the capsule, the result of great congestion, as takes place in bilious, malignant, remittent, or yellow fever. The extravasation may be from the size of a pea to that of a duck egg; in some cases the blood is infiltrated through its entire substance, converting the tissue into a pulpy mass. In less severe cases, even with the morbid action diffused through the entire organ, effusion of lymph may take place, which may lead to induration, with atrophy or enlargement, and ultimately softening or abscess.

The formation of abscess is ushered in with distinct chills after the inflammatory stage has proceeded some time, with hectic fever, great disturbance of the stomach, with extreme pain and tenderness over both liver and stomach and abdominal walls; feeling of weight about the liver, emaciation, prostration, diarrhea or dysentery.

Treatment.—Inculcate the general principles of treatment for fever, complete rest in bed, sponging the entire body three times daily with some aqua ammonia and tepid water, drying and rubbing well, and then sponging with nitro-muriatic acid water, heat to feet; first apply a large mustard plaster over region of liver and stomach, and as soon as erythema or redness is produced, paint over the inflamed part with croton oil, and over that a hot flaxseed-meal poultice; change poultices every three hours. As the stomach is irritable, lime-water and milk; control fever with very large doses of the tincture of green root of gelsemium with veratrum and aconite; as soon as pulse is about 70 leave veratrum and aconite out, and hold on to gelsemium; as soon as stomach will contain drink, oatmeal-gruel and phosphate of soda, and six-drop doses of nitro-muriatic acid in water every three hours. If stomach is persistently irritable, use small quantities of ipecac and morphia; if there is dysentery give one or two large doses of quinine, and to render the stomach more tolerant

add about a grain of pulverized opium to the dose; get control of the more acute symptoms, and never mind diet, and even when given it must be greatly restricted. If there is constipation, enemata, or a small dose of compound licorice powder, or a drink of the acid tartrate of potash.

Great care and good discrimination are necessary in the selection of the proper remedy and dose.

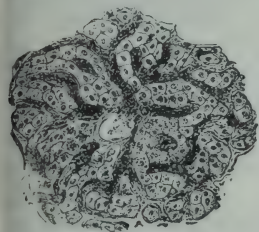
If case progresses favorably, establish convalescence upon compound tincture cinchona and nitro-muriatic acid, fluid extract of chionanthus virg., and nux, or leptandra and salines.

If suppuration takes place, support the powers of life with most nutritious food, cinchona and mineral acids, quinine; poultice assiduously. The peritoneal coat of liver becomes adherent to the abdominal wall at points, and, as a general rule, it is best to let it burst spontaneously; they do better than those that are punched by grooved needles, or trocar and canula, or even the aspirator.

Inflammation of The Liver.

(*Chronic Hepatitis.*)

names have been applied to it, as indurated liver, interstitial hepatitis, granular liver, gin-drinker's liver, hob-nailed liver, from



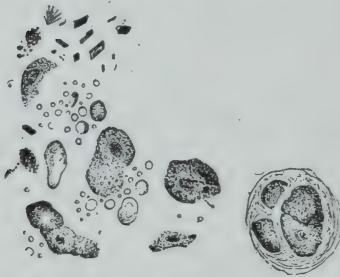
Section of the liver in chronic hepatitis.

Chronic inflammation of the liver may be a sequel of either active or passive congestion; it may present itself with either hypertrophy or atrophy, but in either case indurated or hard. Various names have been applied to it, as indurated liver, interstitial hepatitis, granular liver, gin-drinker's liver, hob-nailed liver, from the fact that the capsule of the gland is drawn in here and there over it, owing to contraction of thickened connective tissue, giving it the appearance of hob-nailed; and some call it cirrhotosed iver, because on slicing it after death it presents the grayish yellow color of impure beeswax. The term chronic inflammation is the best.

Causes.—Solar heat, malarial germs, carbonaceous food, disease of the heart, lungs, etc.; mental depression, articles of dress, as tight lacing, violent muscular exercise, use of mercury, whiskey or beer, which retards its function, and excites irritation directly in its substance; impure air, inattention to bowels and skin, want of exercise.

Symptoms.—There is a general lethargy of the entire body; skin is sallow—in rare cases slightly jaundiced; the white of the eye tinged with bile; tongue coated with white and brown coat; breath fetid; copper taste in mouth; usually constipation and clay-colored stools; urine scanty, high-colored, with bile pig-

ment and traces of albumen; skin is dry and harsh, burning in hands and feet; often sweaty feet, with pungent odors; sebaceous glands of nose, axilla, groin, active, giving those parts a greasy feel; skin not only sallow, but assumes an unhealthy look. After disease has lasted some time, dyspepsia, flatulence, constipation, with feverishness by spells and headache. There may be nausea or loathing of food—a sense of constriction and weight over liver; there is an increase or decrease in size, usually the former, from effused lymph in its interstitial structure. This lymph blocks up, interferes with the flow of portal blood and escape of bile. In enlargement, area of dulness greatly increased; if it contracts and lobules atrophy, the gland diminishes in size; piles, enlargement of spleen, pain, perhaps, over region of liver; if not, then it will be experienced in right shoulder and



Cells filled with pigment matter, in yellow atrophy of the liver.



Hepatitis suppurative, where the inflammation has terminated in multiple abscess

clavicle. Passive congestion of the upper lobe of right lung and dulness on percussion; irritative cough. As the case progresses, symptoms become more aggravated, and debility, with loss of flesh, takes place. An increasing contraction or obstruction from effused lymph takes place, and dams back portal circulation, and ascites supervenes. Jaundice is now decided; dilatation of the veins of abdominal walls; hemorrhage from nose, stomach and bowels often present; indeed, a bleeding from nose and stomach might be an early symptom, and often occurs before the disease is suspected.

After the disease has lasted from a few months to more generally ten or twenty years, the debility and anæmia become great, dropsical effusions in the abdomen and limbs increase, and death takes place either from exhaustion or some complication, as pneumonia, peritonitis, jaundice, toxæmia, diarrhea.

Treatment.—Medical statistics exhibit the fact that nearly two-thirds of our entire population, young and old, men and women are affected with chronic inflammation of the liver. Now, this is

due in a very great measure to our hot, or tropical climate, malarial atmosphere, excessive struggle or brain work, whiskey and beer-drinking, hog-eating, starchy and saccharine feeding, tobacco-chewing, mercurial drugging. Our first aim in a cure, therefore, consists in discarding all these agents; forbid mental anxiety, a total disuse of fat, sugar, starch, whiskey or beer, tobacco, mercury, etc.; and besides, tea, curry and all high-seasoned dishes. Plain animal food, milk, eggs, white-fish, fruit, and vegetables; daily bathing, flannel clothing, open-air exercising, horse-back exercise; well ventilated apartments; bowels to be opened once or twice daily; irritating plaster to be worn pretty steadily over liver; an alterative and tonic course inculcated; such alteratives as saxifraga, tag alder, alums, comfrey, dulcamara, elecampane, blue flag, leptandra, podophyllin, stillingia, iodide of potassa, and iodide of sodium; and as tonics, cinchona, mineral acids, hydrastis, columbo, collinsonia. Besides general alteratives, all bearing upon the liver, stimulating a renewal of life in that gland, the tonics should be selected with the same view, the alteratives administered two hours after meals, and the tonics half an hour before—both freely diluted with water, and changed weekly. Digestion should be looked to, and gentian and pepsin and other remedies to strengthen the stomach. The special remedies that stimulate the liver, break down and absorb lymph, can usually be run in either in the alterative or tonic form, such as

Phosphate of Soda: Used in all articles of diet instead of common salt, is invaluable in promoting a free flow of liquid bile; it should never be omitted in treatment.

Nitro-muriatic Acid: One of the very best of liver stimulants, in six-drop doses in compound tincture cinchona; used for about a week, discontinued for a few days, and then recommenced; its action on the connective tissue of the liver is invaluable.

Sulphur: Always and persistently from one form to another; an invaluable liver stimulant.

Chionanthus Virg., or fringe tree, is superior to all vegetable liver stimulants; much superior to mandrake, blue flag, leptandra, taraxacum; very mild in its action. *Phytolacca* is an admirable cholagogue in small doses.

Nux vomica is not to be discarded. Iodide potassa, ozonized glycerine, ozone-water, should be given all through the case.

In addition to the special treatment for rousing up the liver with special remedies, I have found the use of the white mustard seeds of great value in doses of from one to two teaspoonfuls of the seeds whole—never pulverized—in a little water or mucic-

lage one hour before each meal. It is an invaluable remedy when the liver and stomach are sluggish; when there is great debility, loss of appetite, failure to sleep, depression of the nerves. The mustard seed gives new life to the liver; promotes a good biliary secretion. In that form of chronic inflammation of liver due to the use of whiskey, and when the stomach coats are pretty well eaten, it can be used with splendid success. In the malarial form its action is beyond description. Its use should be continued for six or more months after recovery has taken place.

Kurchicine is another remedy of inestimable value in the chronic inflammation of liver due to heat, malaria, and carbonaceous food or drink. It is extensively used for those terrible forms of bilious fevers so common in the swamps of Hindostan.

When *degeneration of hepatic cells* is suspected, iodoform ointment, instead of irritating plaster, ozonized glycerine and water, nitro-muriatic acid; and if stubborn, apply ozonized clay.

If there is *hemorrhage*, the sulphuric acid and turpentine mixture, gallic acid.

For *ascites*, general treatment for dropsy—digitalis, squills, pilocarpin, diaphoretics, diuretics, etc. (See *Dropsy*.)

Inflammation of the Substance of the Lungs.

(*Acute Pneumonia*.)

Inflammation of the substance of the lungs is one of the most common affections that we meet with, especially in the spring, fall, and indeed at all seasons of the year.

The predisposing causes are intense nervous depression, especially of the great sympathetic, debility, exhaustion.

The exciting causes are cold, wet, inhalation of irritants, mechanical violence.

The usual point of microbe evolution is just where the branches of this nerve are most numerous, to wit, the lower lobe of the right lung.

Inflammatory action and microbe evolution may be limited there, or it may spread in every possible direction.

One of the most important micrographic discoveries of the present time is that a microbe is always present in inflammation of the lungs or pneumonia.

The microbe of pneumonia is found in the lungs of pneumonic patients, either detached or encysted in the lymphatic cells, and in the blood and sputum. Under a strong magnifying power this micrococcus is seen to be shaped like a lance head, and short

rods terminating in a cone, are found with it. The micrococcus is the early form of the microbe, which becomes a bacillus in the adult form.

The presence of a microbe in pneumonia explains many facts which have hitherto remained obscure in this disease, especially epidemics, also the remarkable resemblance between that of man and the contagious pneumonia of cattle.

The origin of the microbe of pneumonia in man is no doubt due to intense nervous strain, worry, exhaustion, especially neurasthenia of the great sympathetic, which is so freely reflexed on the face, larynx, heart, lungs, spleen and internal viscera of the Caucasian; that owing to some adverse state or condition, the bioplasm, the living matter of nutrition of the great sympathetic is either changed, or altered, or degraded into other living matter, a disease germ, the microbe of pneumonia, which is capable of prodigious growth, and multiplication, an independent existence in or out of the body if warmth and some nutritious pabulum be present.

Once it has suffered evolution and become a microbe, it can be propagated by contagion and infection, like all germ diseases.

The partial death of the great sympathetic induces the evolution.

Cultivations of the pneumococcus on boiled potatoes and in meat juice yield immense crops, which if injected into or are fed to any animal produce pneumonia.

The career of this germ does not differ, when it is the sequel of other maladies, such as typhoid, etc.

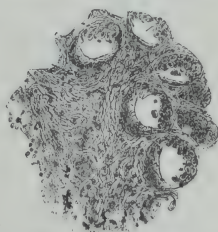
Later on, when the lungs or lobules have become transformed into a solid structure, gray hepatization, masses of micrococci may be found in the air cells, even growing into the blood vessels, in which stasis had set in.

Aside from the pathogenic microbe, we find in the sputa, blood, mucus,

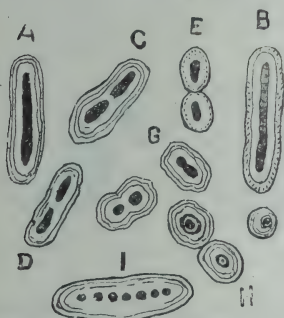
epithelial cells, granular protoplasmic masses, elastic fibres, etc. None of these bear cultivation.

All cases are ushered in with a rigor less or more violent.

Pneumonia is met with in the following forms: *Acute*, sudden



Interstitial pneumonia.



Perfect adult form of the pneumococcus magnified 2000 diameters; A and B, thread forms; C, D and E, rod forms; G, diplococci; H, cocci; I, streptococci. The pneumococcus consist of cocci, ellipsoidal or round, single or in pairs (diplococci), rods and thread forms, all enclosed in a cell membrane or gelatinous capsule.

in its seizure, and attended with fever; *sub-acute*, of the same character, but the vital forces of the patient being vigorous, resist the local irritation, consequently there is no fever; or *chronic*, which may be a sequel of either of the former, or come on of itself from slight irritation in patients whose constitutions are

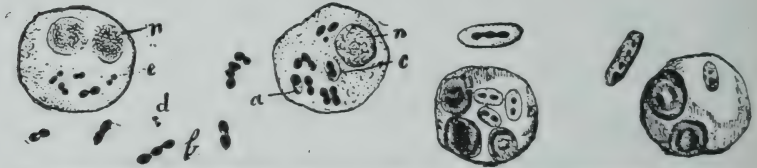


Micrococci of the pathogenic; microbe of the pneumococcus seen in different stages of growth in the prune juice of the sputum prior to the rigor.



The appearance of the pneumococcus prior to the rigor in acute pneumonia. The microbe will disappear from the sputum in less than two hours with concentrated ozone over the germ-smitten lung. Inhalation of comp. oxygen.

feeble. It is called *lobular*, when confined to one lobe; *single*, when confined to one lung; *double*, when both lungs are involved; *pleural*, when the violence comes from without and proceeds inward, affecting the pleura first, then the lungs; and *typhoid*



The micrococci, as seen microscopically in the prune juice sputum of pneumonia; *b, d*, free or encysted in expectorated lymphatic cells.

pneumonia, when the powers of life are low, and the typhoid germ is developed, giving us inflammation of lungs with typhoid fever.

A case that is permitted to run its course has three distinct stages, viz.—congestion, red hepatization and gray hepatization.

General Symptoms in First Stage.—Great nervous prostration, with pain in the head, back, calves of the legs, with cough, shortness of breath, rusty, or prune juice sputum, or streaks of blood, or hemorrhage, restlessness and anxiety, violent rigors and high grade of fever, with aggravation of symptoms; pulse 140 to 160, heat 105° Fahr., respiration 40; flush on cheek or cheeks, nostrils

dilated, tongue coats heavily with a brown coat, nausea, great thirst, loss of appetite. Cough becomes worse, sputum viscid and bloody, pain in the affected lung, with frequent but distressed breathing, skin has a dry pungent heat, sometimes delirium.

As this is the stage of filling up or engorgement, the affected lung which was clear and resonant gradually becomes dull on percussion, and crepitation to a variable extent is distinctly heard. If the pleura is involved, friction sounds can be detected; there is exudation into the air-cells and proliferation of their lining epithelium. This stage may last a few hours to a week or longer.

General Symptoms in Second Stage.—If the inflammation proceed, it passes into the stage of red hepatization, in which all the symptoms of the first stage are still present and more decided; there is in addition likely to be blueness or lividity of the skin, delirium or coma from non-aeration of blood. The air-cells are choked by coagulated exudation of blood and lymph; the spongy character of the lung is quite lost, and it becomes solid as a liver, neither minute crepitation nor vesicular murmur can be heard. There is perfect dulness on percussion and no intercostal movement; bronchial or tubular breathing, with vocal vibration communicated to the walls of the chest by the solidified lung and felt by the hand over the ribs unless there be water in the cavity of the chest. The duration of this stage is from a week to a longer period.

General Symptoms in the Third Stage.—If the inflammation still progresses, and the patient does not die in the second stage, then the third or gray hepatization supervenes; then we have a complete change of symptoms. Fever abates; heat, pulse and respirations often low; rigors; profuse colliquative sweats are common; the flush on cheeks and other physical signs disappear, and it looks as if amelioration was taking place; whereas, we have the grave process of suppuration of the substance of the lung; diffuse suppuration of pulmonary tissue, with parts remaining dense and impermeable; it is hard to drag through with incessant cough; thick, ropy, tenacious pus. In some cases the pus liquefies, and is expectorated, air begins to re-enter the affected lung, and resonance and a healthy vesicular murmur is restored. Often cases will, during the first and second stage,



Some of the pneumococcus in the second stage, surrounded by a capsule.

take on a typhoid condition. The tongue will become of a buff leather appearance, very dry and parchy, or it may become red, like a piece of raw beef, or simply red at tip and edges, with elevation of papillæ; the character of the pulse changes to small, wiry and frequent; bowels generally in pneumonia are constipated, but when typhoid symptoms threaten, diarrhea, sordes on the gums, petechia on skin, eyes sunken, nostrils pinched, face white, gurgling in right iliac, and tympanitic state of the abdomen.

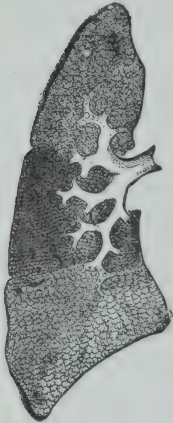
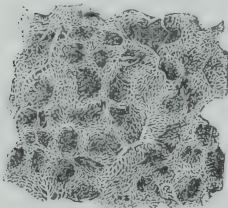


Diagram showing red hepatization of the lung: pneumococcus changing into the streptococcus pyogenes.

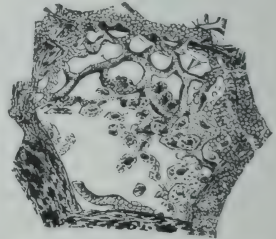
No definite rule can be laid down as to its duration. About two-thirds of cases run thus: a week of infiltration or filling up, a second week in perfect consolidation, and a third in gray hepatization, which terminates in suppuration, extending over a period of months.

In any of its stages it is easily recognized; in the early stage its history, flush on cheek or cheeks, the rapid mal-assimilation, the anxiety or distress, the cough, difficulty of breathing, the rusty sputum or blood, pain in side, dullness on percussion at base of lung proceeding up, lack of intercostal movement, tubular breathing, rigors, fever, purple or livid appearance of skin, delirium, coma, etc.

As a very vital organ is smitten, pneumonia must be regarded as a grave affection, if it has passed the first stage; imperfect



Capillary net-work in the human lung.



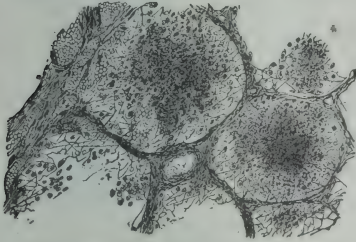
Section of lung, showing a single alveolus in red hepatization.

oxygenation of the blood gives rise to so many complications, besides delirium, coma and lividity of the lips, nose, hands, face, as embolism in brain and heart, that render all cases very dangerous, and our prognosis must be guarded.

In spite of the great improvement in modern therapeutics, the death rate of pneumonia has been steadily on the increase. The pathology of the disease must be better appreciated; we have

not only a vital organ smitten by a deadly microbe-infarction of the lung by the micrococci, non-aeration of the blood the result; skin, kidney, and other excretory organs, imperfectly, feverishly perform their work; springs feeding the smaller and larger glands run dry; the feverish nerve centres repel the vital atoms of the great sympathetic, are wrecked by germ evolution. The blood requires aeration, oxygen, ozone.

In all cases of acute and chronic pneumonia, there are to be found in the blood, in the infiltrated lung, in the sputum, and all

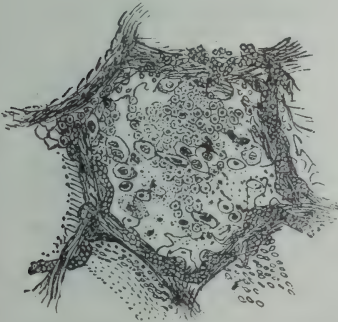


Section of lung in the second stage of lobar pneumonia, showing the pneumococcus aggregated together in patches.

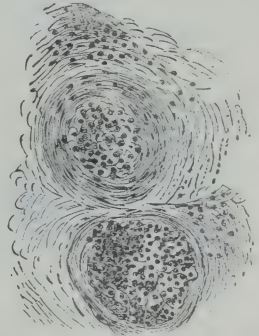


Vertical section of the lung as seen in the second stage of pleuro-pneumonia.

the glands of the body the microbe pathogenic of the disease; even the sputum in the early stages is loaded with the micrococci, which gives it the peculiar characteristic brownish prune-juice tint. This is most common the first seven days from the



Lobular pneumonia, alveolus from lung; the capillaries distended with the microbe.

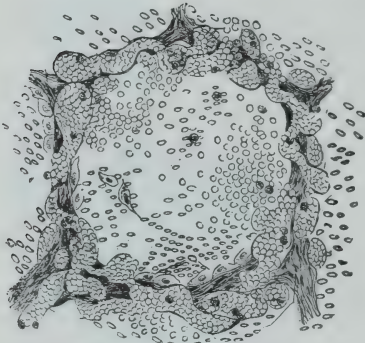


Section of lung, second lobar pneumonia; the pneumococcus actively throwing off spores.

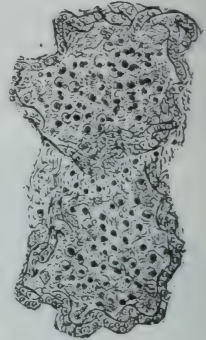
rigor, later on they decrease in number, until about the fourteenth day when their presence is usurped by vibrios.

Treatment.—Perfect rest in bed in a room whose atmosphere is kept moist by steam, and at a temperature of 70° Fahr. If

there be constipation, enemas and a dose of castor oil. Having ascertained the extent of the damaged lung, wet cups should be freely and closely applied over the part, and free bleeding from cups encouraged by hot fomentations, and then followed by hot

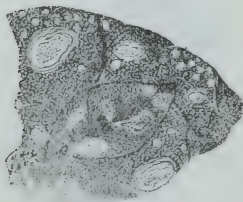


Section of lung, showing a single alveolus in the first stage of pneumonia, with the pneumococcus actively sprouting.

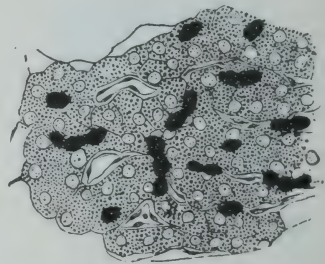


Section of lung, with the streptococcus pyogenes; third stage of pneumonia.

poultices of flaxseed meal. This is a better local stimulant than turpentine or mustard. Poultices should be changed every three hours, spread about half an inch thick, and in size to cover a little beyond affected part, so that if both lungs are affected it will form a regular jacket. Poultices should be covered by oiled silk. Over and above all, there should be a firm flannel roller, wide enough to extend from the arm-pit to the bottom of chest.



Pyæmia (streptococcus pyogenes); abscess in the lung.



Microbe of croupous pneumonia in membranous croup.

It should be pinned evenly and firmly, beginning at neck, inserting a pin every inch, and proceeding down to the bottom, so as to confine the ribs, stop intercostal movement, and cause the patient to breathe by the diaphragm. Outside of all, bladders filled with hot water should, as far as practicable, be placed at

the sides, so as to keep heat in poultice. Patient must not be permitted to lie too long in one position, as it gives the blood a tendency to gravitate into the weakened lung structure and congeal; a change is very beneficial every two or three hours; heat to feet, and general treatment for fever; diet, warm milk, with about five grains of bicarbonate of potassa to the half tumbler full, instead of lime-water, and warm beef tea, one or other at regular intervals every hour; no other diet of any efficacy; eggs and oysters strictly prohibited; drinks are to be warm, and mucilaginous, as flaxseed, etc.

There are, now, three drugs that must be unsparingly and persistently given, and these are, *veratrum viride*, opium and sulphate of quinine.

A tablespoonful of tincture of *veratrum viride*, same amount of sweet spirits of nitre in four ounces or half a tumbler of water, of which one teaspoonful should be administered every half hour till pulse reaches sixty-five, and then at intervals of two or three hours, so as to check the current of circulation, so that when it passes through a weakened tissue effusion cannot take place; a balance maintained, a heart controlled, and by its influence on the connective tissue of lungs, prevents inflammatory action spreading into fresh parts. In some cases it is advantageous to combine a teaspoonful of tincture of *aconite* in the mixture; to be continued as long as there is any fever.

Opium or its alkaloid should be given in every case of pneumonia. It aids the action of the *veratrum*, prevents irritation, and so neutralizes the action of that drug that we are enabled to give it in larger doses. Besides, opium acts as a stimulant to the great sympathetic that so fully covers the lower lobe of the right lung and heart. As soon as the *veratrum* is commenced, begin with the opium every three hours, and continue at regular intervals. The painful oppression of the chest and hacking cough soon disappears; the noisy and frequent respirations soon become quiet and slower; the cyanosis of the face and lips gives way to flush; the dry, scorching skin becomes cool and moist; the heart regains its normal force and regularity; its impulse, its sounds, its murmurs with the lung difficulty subside almost completely. It also counteracts the abnormal quantity of carbonic acid in the blood, and with the attainment of that object, languor and drowsiness disappear. Whether the crude drug or its alkaloid is selected, it must be borne in mind that the condition of the stomach is such that absorption is slow and imperfect; so to obtain readily the desired effect, it is best to administer it with an alkali; to facilitate its absorption and soften the effused products in the lung, such as opium pulverized, ten grains; Dover's

powder, thirty grains; nitrate of potass, one drachm. Mix. Make twenty powders; one every three hours; or if the alkaloid is preferred, take one ounce of lemon juice; carbonate of potassa, enough to saturate; add to one ounce of cinnamon-water, to which add one grain and a half of morphia. Dose, one teaspoonful instead of the opium. The effects of potassa on the lungs is very marked indeed.

The next drug is quinine, without which there can be no successful treatment of pneumonia. Its action on the brain and great sympathetic is good, but in pneumonia the size of the red corpuscles of the blood is diminished. Quinine restores them to their normal shape. Its presence in the blood is most salutary, when loaded with carbonic acid, in diminishing temperature. The dose should be such as will give a result, and continued, as it is freely eliminated by the kidneys, in alternation with the opium.

To relieve cough, a mixture of equal parts of syrup ipecac, squills, wild cherry and tolu, with muriate of ammonia, in half-teaspoonful doses. If there is tremor of hands, quivering of tongue, or delirium, alcohol in the form of brandy and milk or wine must be given.

The important micrographic discovery has been made that a microbe is always present, hence the necessity of a more efficient bactericide treatment, which we hereby submit:

GERMICIDAL REMEDIES WHICH HAVE BEEN DEMONSTRATED TO CAUSE TOTAL DISAPPEARANCE OF THE PNEUMOCOCCUS FROM THE BLOOD, SPUTUM, LUNG.

Internal Remedies.

Exalgine, sufficient doses and frequency to keep pulse at 65 or 70.

The glucoside baptisin, triturated with an equal quantity of sulphate of quinine added to aromatic sulphur and water.

Ozonized tar syrup, or the syrup of Tolu with chloride of ammonia, resorcin, benzoate of soda, opii et ipecac et camphora et resorcin. The combination administered in small doses frequently repeated, so as to maintain a sort of comatose condition, during which the germ dies.

Comp. concentrated tincture of kurchicine, no fluids permitted, micro-organisms disappear. Kurchicine con. contains 20 atoms of carbon and is more powerfully germicidal.

Local Remedies over the Germ smitten Lung.

Concentrated ozone painted over the area of dulness and beyond, followed with hot linseed meal poultices in which resorcin and boroglyceride and opium are freely incorporated, changed frequently. If this is not applied, ozonized turpentine, till an erythema is produced, followed with hop poultices in which resorcin and peroxide of hydrogen are incorporated. Iodol incorporated in ozone ointment rubbed into the chest, and also spread on leather applied.

A jacket of resorcin jelly is most efficacious.

Compound oxygen, administered by the atomizer, is of infinite value, as by this method we bring it into immediate contact with the seat of the disease, thus carrying out the principle of direct medication, and thus sterilizing the micrococcus in the pulmonary tissue. The results obtained by its use are immediate, eminently gratifying and satisfactory to both patient and physician. In the first stage of pneumonia, when the prune-juice sputum is abundant, it should be inhaled every half hour or hour, according to the urgency of the case. Do not wait until cyanosis appears. A few inhalations lower heat, quiet the heart, diminish the rapid respirations; thus enabling the patient to breathe easily, promote free and abundant expectoration.

To obtain good results in chronic lung affections, as in asthma, bronchitis, tuberculosis, inhalations for twenty minutes, three times a day, are best.

The action of the compound oxygen is that of a germicide, by either the sterilization or annihilation of the microbe, substantial results are obtained; the germs become passive or dead; the embarrassment in breathing is overcome; free and abundant expectoration takes place; the cough becomes less and less; the obstructed germ-laden air cells become clear; the cold is cleared up; additional breathing areas are opened up, and respiration becomes full and deep.

The inhalation of this remedy reddens up the blood, frees it from the presence of all disease germs, even neutralizes the ptomaines of numerous microbes; thus the nervous system becomes rejuvenated; appetite is stimulated in a most remarkable degree.

Delirium, coma, blueness or lividity of skin due to deficient aeration of blood; tincture of belladonna with a solution of acetate of ammonia to maintain fluidity.

With the above treatment, during the stage of congestion and the early part of red hepatization, all signs of consolidation of the lung will give way and become absorbed, leaving the walls of the air cells unimpaired and elastic as before. Recovery is perfect, the breathing being mechanically and physiologically performed as in health. Neither is the interlobular structure altered, and there is no permanent thickening of the lung or bronchial tubes.

The products of inflammation in a congested lung consist chiefly of exudation of fibrine, with liquor sanguinis, white and red corpuscles, and perfect absorption takes place. But sometimes cases have progressed too far, and about the end of the second week a change takes place; temperature goes down; there are rigors and sweats, and there is thick, viscid or muco-

purulent matter expectorated, and the physical signs tell us that the lung is still solid but undergoing grave changes; the air does not penetrate; bronchial breathing still continues, but changes which indicate softening and ulceration begin to appear.

Now our treatment must be changed to an alterative and tonic course, including iodide of potassa, tincture of iodine and ammonia; irritating plaster, so as to keep an open discharging sore over the consolidated part; diet changed to milk, cream, raw eggs, animal food.

If during an acute attack there are the slightest indications of typhoid symptoms, antiseptics at once; brewers' yeast in milk, tincture of iodine and carbolic acid, as in *typhoid fever*, every hour.

The degraded living matter in pneumonia is the pneumococcus, which is to be found all through the case in different stages of growth and development.

Inflammation of the
Substance
of the Lung.
(*Chronic Pneumonia*)

In a large number of cases patients, when properly cared for, will recover from acute pneumonia apparently well, but with some portion of lung damaged; that is, weakened, or he may recover with a lobe perfectly consolidated, in which condition it may remain for years; or the products of inflammation may break down and recovery take place; whereas, in another class of cases, the non-aeration of blood and local irritation tells badly on the nerve-centres, and a degradation of living matter takes place, and we have the tubercular germ, or in other words, the ulcerative process of pneumonia changes into that of consumption of lungs—tubercular. It makes little difference how the inflammation originally started; its termination, unless managed with the very greatest nicety, is apt to take that course.

The treatment of chronic pneumonia is the same as should take place following any and every case of acute until the lung clears. Diet nutritious and generous, flannel clothing, daily bathing, followed by inunction of oil; bowels regulated, appetite stimulated with tonics; irritating plaster to be kept all the time, if possible, over the seat of consolidation. Encourage free suppuration. Iodide of potassa, carbonate of potassa in alteratives. Expectorants in sufficient quantity to keep down cough. In other words, a tonic and alterative course.

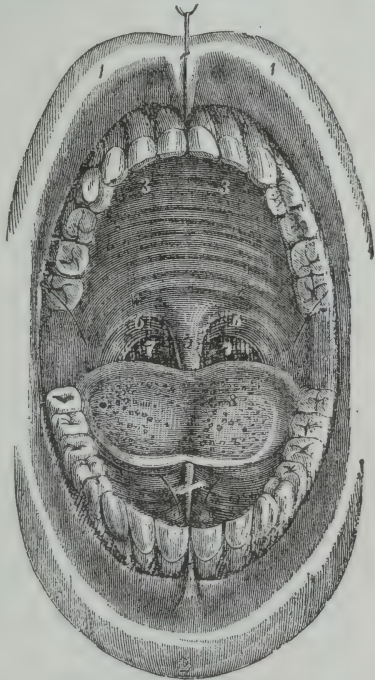
Inflammation of the Mouth.

The very great prevalence of purulent ophthalmia and stomatitis among the children of the crowded sections of our large cities and our public schools demand more than a passing notice. Both affections are either directly due to a special degradation of bioplasm, or to contagion and infection; in the eye, the normal elements of nutrition are changed or altered into bacteria proper, whereas in the mouth, though the bacteria be abundant, the degraded elements are the *oidium albicans*.

The causes which give rise to a partial death of mucous membrane of the mouth are the depressing effects of insanitary states, and the crowding of large bodies of children into small areas with meagre or insufficient, bad or deleterious food, bringing about a perversion of nutrition, the degradation, the germ, and then its spread by contagion and infection, especially by the indiscriminate use of drinking vessels.

Inflammation of the mouth or stomatitis with its special micro-organism is met with in three forms or stages which are simply degrees of microbe growth. In the primary or first state, the diseased germ aggregates in the follicles of the mucous membrane of the lips, cheeks, gums, fauces, and appears in the form of little vesicles or blisters, and is termed *follicular*; when those vesicles rupture, the germs are let loose and spread in all directions, hence it is termed *ulcerative*; if vital force is decidedly lower, insanitary surroundings wretchedly bad, the ulcerative patches may become *gangrenous*.

The symptoms which attend this degradation and germ evolution in the mouth are general prostration and debility, with inflammation of the mucous membrane of the oral cavity, tenderness, the formation of vesicles, on lips, cheek, gums, tongue, fauces—the encysted germs in the follicles or vesicles rupture



The mouth widely opened so as to show the palate; 1, 1, the upper, 2, the lower lip; 3, 3, hard palate; 4, 4, soft palate; 5, uvula; 6, 6, the arches of the soft palate; 7, 7, the tonsils; 8, the tongue.

their sacs and spread (if vital force be low, surroundings bad,) in every direction, giving rise to phagedenic ulceration. There is usually a copious flow of saliva, amounting to salivation; great fetor of the breath, mal-assimilation, restlessness, fever, loss of appetite, and as the germs descend into the stomach and bowels, most offensive stools. The patches in the mouth are covered at first with a dirty, yellow slough; subsequently, the patches of infiltrated mucous membrane are purplish, and the ulcers covered with a layer of pulpy grayish matter; if the disease is permitted

to progress, the germs become spongy, teeth loose.

As the affection is essentially one of germ evolution, the greatest precautions should be observed in isolating the patient, in surrounding him with an atmosphere of germicides.

The essential points in treatment are to kill the germ, and by every possible means raise the standard of vital force, so as to prevent its further evolution and growth.

The mouth should be washed, throat gargled about every hour with either a teaspoonful of a saturated solution of boroglyceride, or chlorate of carbon or potassa added to half a tumbler of tepid water or infusion of sage or thyme, and internally every three hours, five or ten grains of resorcin dissolved in water; or a few drops of peroxide of hydrogen.

A good blood-elaborating diet, embracing cream, eggs, beef juice and other nourishment.



The *oidium albicans* present in stomatitis.

Inflammation of the Matrix of Nails. (*Onychia*.)

Onychia, or inflammation of the root or matrix of the nails, may arise from mechanical injuries, as contusions, spicula of bodies penetrating the mother of the nail, corns, etc.; or it may arise from greatly broken-down states of the constitution, as

in tuberculosis.

Symptoms.—Pain, swelling, and suppuration at the root of nail or nails, and about the surrounding texture. Exudation of sanious, or purulent discharge, on pressure of the nail; ulcera-

tion; nail becomes raised and finally detached, revealing a foul ulcer, with the most intense fetor. The disease-germ, *oidium albicans* is present,—a true rot. Ulcer becomes glazed, irritable, eating and spreading in all directions, even down to the bone, when the vital forces are at a low ebb.

Treatment.—Poultice with linseed and yeast; wash, by dripping hot permanganate of potass lotion on the ulcer, by compressing a sponge, morning and night. Remove nail as soon as possible; continue cleansing sore, morning and night, with permanganate wash. Dress during the day with either the black salve, vaseline, or ozone ointment, iodoform. Place patient upon a general course of alteratives and tonics with nourishing food, fresh air, hygiene, etc., when the difficulty can be traced to tuberculæ, glycerite of ozone especially; if to syphilis, ozonized phytolacca, and iodide of potass; if to mercury, tonics and iodide of potass.

Inflammation of the Lining Membrane of the Nose.

The causes of catarrh, or common cold, may be grouped under two main divisions—viz., *predisposing* and *exciting*. Among the former must be mentioned *youth*; for it is a well known fact that old persons are practically exempt from this malady. Many individuals appear, moreover, to possess a certain idiosyncrasy as regards the affection. It is not uncommon among the gouty, and in persons whose nervous system is in a condition of unstable equilibrium, and among those with a strumous diathesis, or predisposed to asthma. Hay fever would often appear to be a connecting link between asthma on the one hand, and catarrh on the other. Climatic conditions and sudden changes of temperature, not necessarily from heat to cold, but sometimes the reverse, must also be noted.

The most common *exciting* cause is without doubt the action of damp cold, more particularly if the body be heated and perspiration active. Sometimes simple transition from warm to cold air will be enough to induce an attack; at others the prolonged action of cold is required, especially on the feet, and in bald persons on the head. Heat, either as solar heat, or the elevated temperature of a warm room, may produce similar results. In the former case it has been suggested that the catarrhal effects may be due either to direct irritation, or may be of a reflex character, dependent on undue stimulation of the retina. In the latter case the coryza is generally observed in persons in a depressed condition of health, and in those who have been the sub-

ject of previous attacks. The influence of irritating vapors, and of certain medicinal substances, such as iodide of potassium, and of the pollen of many plants in producing nasal catarrh, has long been known.

The earliest symptom of an attack of acute inflammation of the lining membrane of the nose, is a feeling of chilliness and fever, a sense of weight and pain in the forehead, dryness of the nasal membrane, itchiness, accompanied with sneezing, nasal fossa becomes blocked, an irritating watery discharge appears, which subsequently becomes muco-purulent.

Both taste and smell diminish in catarrhal attacks, and may even disappear. The voice becomes distinctly nasal in its tones. This is due to the fact that when the anterior nares are blocked the nasal cavities can no longer act as reverberating chambers. On the other hand, when the stoppage of the nostrils is chiefly posteriorly, articulation becomes defective.

The second stage of coryza is marked by an increased secretion of alkaline serum, which may cause erosion of the nostrils and upper lip. This discharge may be so copious as to necessitate the constant use of the handkerchief, and may even be accompanied by slight hemorrhage. During sleep the secretion is arrested wholly or in part. The nostril opposed to that of the side on which the patient lies may become dry and free, to be affected in its turn by any change of position.

Pathology.—The only actual lesions found in coryza are such as are common to all inflamed mucous membranes, and are superficial and unimportant. The initial stage is active congestion of the pituitary mucous membrane, followed by serous exudation. The exuded fluid contains epithelial cells more or less altered, which increase in number as the catarrh advances, together with blood corpuscles, pus globules, and micrococci. These latter are the real cause of the trouble. It is not quite clear whether the inflammation attacks exclusively the respiratory tract, or both it and the olfactory region. The latter appears the more probable, seeing that the inflammation not uncommonly extends to the cavities accessory to the nose.

Treatment.—In the majority of cases a common cold will cure itself with little aid from medicine, but at times, whether from the severity or the frequency of the attacks, treatment becomes advisable. This may be either *stimulant* or *derivative*. Of all stimulants, opium, either in the form of pulv. ipecac. co., or tinct. opii., is the best. Doses of from five to seven drops of the latter, taken at the commencement of an attack, will often cut it short. But this treatment need not be continued after the second or third day. General principles in all cases.

Rhinitis, mucous membrane, due to irritating vapors or
(Traumatic.) particles of dust.

Etiology.—In addition to the generally irritating effects of dust on the nasal mucous membrane as seen in millers, sawyers, brushmakers and other trades, there are certain nasal lesions more especially found in connection with workers in chemical manufactories. This is especially the case among workers in bichromate of potash, yellow chromate, arsenical and mercuric preparations, and generally in those exposed to caustic dusts and vapors. Snuff-takers enjoy almost complete immunity from the affection.

The earliest *symptoms* are much akin to those of coryza, but instead of being merely temporary, persist for a varying length of time, in proportion to the rapidity with which the inflammatory process is evolved. To the earlier symptoms of pricking and smarting there is gradually added discharge passing from serous into purulent. This dries and forms crusts, which are cast off with more or less hemorrhage. The next and last stage is ulceration of the bone and cartilage, with perforation of the septum; without, however, any offensive odor. The sense of smell is rarely affected. Ulceration of the inferior portion of the turbinated bone may take place, and be followed by perforation. Owing, however, to the fact that the anterior portion of the septum is not involved, no deformity follows.

The immunity enjoyed by snuff-takers may be explained by the excessive activity of the nasal secretion, and by the fact that the nose is so frequently blown. Hence, no irritating matters can long remain in contact with the mucous membrane, which, moreover, by the chronic thickening it undergoes, is rendered less sensible to external irritants.

Prognosis.—The portion chiefly affected is the septum, and little practical inconvenience ensues from its perforation.

The *treatment* should be mainly prophylactic. Frequent spraying with alkaline solutions will keep the nostrils clean, while wearing plugs of wadding will effectually prevent the entry of irritating particles. When the disease has been fairly established, local detersive treatment with boroglyceride or resorcin injections are useful. To these should be added tonic and hygienic measures for the general health.

Our best tonics in rhinitis are the comp. tincture of matricaria, phosphated tincture of oats, glycerite of kephaline. These remedies should be persevered with for a few months, administered in alternation.

**Inflammation
of the
Pericardium.**
(*Pericarditis*.)

Inflammation of the pericardium, or the white fibrous tissue, in which the heart is encased. This is one of the most highly organized of all the white fibrous tissues of the body, and when weakened by any cause, is the favorite location of the bacillus amylobacta, the urate of soda of gout; the pus microbe, uric acid, etc.

The most common predisposing causes are tobacco, alcohol, tea, sexual excesses, nervous exhaustion, diseases of brain, struggle for existence, worry. These and like causes weaken the cardiac plexus of nerves, which, if once enfeebled, are very liable to be irritated by morbid states of the blood.

The common exciting cause is the presence of the bacillus amylobacta, the urate of soda and other states in which the living germs of disease appear in the blood.

Symptoms.—There may be a general attack of rheumatism or there may not. An acute attack of pericarditis is usually ushered in with all the symptoms of fever; first languor, lassitude, debility, with sharp, lancinating pains in the pericardium; pain in head, back, calves of legs; rigors, and a fever of high grade; tongue coats heavily, urine loaded with uric acid; the

sharp, lancinating pain in the heart darts through to the scapula upward to the left collar bone and shoulder, down the arm; the action of the heart becomes violent, tumultuous; its action irregular; the difficulty of breathing is often extreme; inability to lie on affected side; very much anxiety; features become contracted; there is great giddiness, noises in ears, bleeding from nose. As the case progresses there is extreme debility, cough, suffocative paroxysms, fainting fits, œdema of the face and feet; often great restlessness, delirium, distortion of the features, spasms or convulsions.

In sub-acute and chronic cases the symptoms are so slight as scarcely to be suspected; just a little pain, sharp, darting to shoulder blades, but effusion of lymph, which causes adhesions between the pericardium and heart, and organic disease; or effusion of serum, which, if copious, may fill up the pericardium and compress the heart, impede its movements, completely muffling its sounds to the hand or ear.

It is easily recognized in any of its three forms by the pain—sharp, lancinating, darting in acute cases through to the shoulder blades up to the clavicles. In the acute and sub-acute form a



The microbe of pericarditis.

friction sound can be felt by the hand and heard by the ear; or if not that, an alternate rubbing to and fro sound; friction sound, attended with valvular murmurs and excitement of heart.

In the chronic or declining stage of an acute attack, serous effusion often takes place, when no friction sound can be heard, nor even the sounds of the heart itself, being muffled by the water or fluid, which, if great, may compress the heart, so as to cause weakness or paralysis.

The duration of pericarditis depends much upon the treatment. With such improved remedies as we now have it should be short.

In the acute form, it should be treated in precisely the same manner as a case of acute rheumatism—by rest in bed, between blankets, heat to feet, open bowels with cascara sagrada lozenges; malted sterilized milk and beef essence for diet; local stimulation over the heart with concentrated ozone, subsequently dry heat. Administer at once opium in small but frequently repeated doses until there is a perfect freedom from cardiac pain, such as the following:

Opium pulverized, 10 grains; Dover's powder, 30 grains; nitrate potass, 60 grains. Mix. Make 20 chart. Give one every hour, till relief is afforded. This is most important.

If fever is running high, aconite and veratrum; or better still would be quinine, administered in small but repeated doses.

A selection of some remedy to kill the bacillus amylobacta should at once be made and the patient placed upon it.

The special bactericides to completely annihilate that germ are:

The glycerite of wintergreen; the salicylate soda in liquor ammonia acetatis; fl. ext. manaca; salol; and other germicides.

Whenever the tongue cleans speedily under any one remedy, that is the one to adhere to and push with vigor.

The irritating plaster should be placed over the region of the heart as soon as the more urgent symptoms seemed to be relieved and a general course of alteratives and tonics prescribed.

On no account is the bactericide to be dropped; that must be persevered with till every vestige of the amylobacta is wiped from the body.

In the chronic form, pretty much the same treatment should be carried out, avoiding all causes that would be likely to enfeeble the heart.

Here general alteratives and tonics should be administered, until the peculiar diathesis is wiped out. Comp. saxifraga and phytolacca are our best alteratives; and for tonics, comp. matri-caria is the most efficient.

Inflammation of the Ovary.

(*Acute Ovaritis.*)

A partial death of the ovary may arise from a long, tedious, harassing labor; from the use of instruments in producing abortion; from the injecting of fluids into uterine cavity; from absorption of lochial products, or other debris; from the use of caustic to the neck of uterus; from dilatation of the os uteri; from violence, falls, blows; also from sudden suppression of the menses from cold, or wet, or shock; from gonorrhœa, excessive sexual intercourse, or sexual intercourse within six weeks after miscarriage; masturbation. Usually left side, unless due to movement of right leg.

Symptoms.—There is the shock, with localized pain over the region of the ovary, aggravated by pressure or movement, with aching or numbness, or pain in the inside of the thighs, with repeated rigors and a fever. The features are anxious, tongue coated, nausea, vomiting, pulse frequent and wiry; great restlessness and loathing of food; bowels constipated; urine very scanty, scalding, and high-colored; patient lies on back with knees drawn up. In some cases the pain in the ovary is intense, causing a bearing-down like labor pains; in other cases it is of a dull, aching character, with paroxysms of occasional sharp, lancinating attacks. Besides the intense pain in the ovary or gland, there is quite considerable pain in the groin and thigh corresponding to affected ovary. Bladder is always irritable. The peritoneal covering always sympathizes and often becomes involved. Passage from bowels gives great distress, the hardened fæces passing along in the distended bowel presses hard on the ovary. Besides, the ovary can always be detected excessively tender, swollen, or puffed up. If the case is a severe one, or treatment inefficient or shilly-shally, it may terminate in peritonitis, or in the breaking down of the effused lymph in the ovary, and suppuration. If the latter, there will be rigors; the pulse will become feeble; there will be great nausea and vomiting, tongue will become red and glazed; there is weight and throbbing in the ovary. In favorable cases abscess will burst into vagina or rectum; in unfavorable cases, into peritoneal cavity, giving rise to peritonitis and death. When openings or sinuses form, the case becomes very tedious, opening and closing again and again.

Treatment.—The moment a case is made out, apply turpentine over affected ovary; as soon as redness is bright, hot poultices of linseed meal; as soon as it becomes pale, a reapplication of the turpentine, or else croton oil, and follow with hot poultices and opium. At the same time open the bowels with

copious enemata of linseed tea and laudanum, and place patient upon opium or morphia and gelsemium, in doses often and repeated until there is absolute relief from pain. If this does not succeed quickly, introduce pastiles into vagina and suppositories of belladonna and opium into rectum. If skin does not become moist and be considerably better in a few hours, substitute acnite for gelsemium, and with it give jaborandi. In addition to the poultices and stimulants over ovary, cushions or small pillows of hops, baked in an oven, hot over pubes, vulva, hips. If in this manner inflammatory symptoms can be held in abeyance for four or five days by establishing a renewal of life in the ovary, then begin with the iodide of potass with bicarbonate very cautiously; by and by iodide of lime, and later on ozonized glycerine. The irritating plaster can be substituted for the more active agents, spreading it fresh every morning and applying. The diet all through the attack should be meagre, and confined to milk and lime-water, and beef tea; bowels opened daily with warm enemata of linseed tea.

If there are elements of venereal poison in the case, tepid injections of solutions of borax, or permanganate, should be used thrice daily.

As the progress of these cases is essentially slow, great caution is to be observed in resuming exercise, diet, and ordinary mode of life. Even a tonic course, so essential for recovery, is best delayed till all pain has ceased. Usual uterine tonics.

One of the most common affections of modern ladies, during the period of sexual vigor. Essentially a very chronic disease, consisting in a low grade of irritation of one ovary or both.

Inflammation of the Ovary.
(*Chronic Ovaritis.*)

Causes.—Suppression of the menses by cold, damp, fright or passion. Masturbation, use of sewing-machine; violence, exercise too great, as dancing; tight lacing; sexual incompatibility; excessive sexual intercourse; producing abortions with sounds, whalebone, knitting-needles; retention of puerperal products, as clots and pieces of placenta; the use of sponges, pessaries, rings, uterine supporters; sexual congress within six weeks after confinement; use of caustics; gonorrhœa; fictitious literature; rheumatism and gout, etc.

Symptoms.—There is general languor and debility, an undefined sense of weariness; a nerve-tire, with a pale, dry, white, doughy skin, torpid bowels and irritable bladder, with scanty urine, and irritation of stomach, nausea, indigestion, flatulence,

with decided hysteria. There is a dull, continuous pain over the affected ovary, aggravated by pressure, movement. In some cases neuralgic shooting pain in addition; besides this steady pain in ovary, there is also tenderness in the groin, in the sacral region and in the upper part of the thighs. There is trouble of some kind with the menses, usually scanty and painful. Pain in sexual intercourse; likely to be some puffing or swelling of ovaries; also tumefaction and tenderness of one or both breasts. Nymphomania is a common symptom, and it may even merge into a more decided form of insanity, or peculiar strangeness of conduct. Often in defecation, if stools are hard, pain is great. In all cases the ovary can be detected sensitive or tender, either over ovary, or by vagina or rectum.

Treatment.—For three weeks during every month the treatment can be carried on with vigor, but during menstrual period it must be entirely suspended, with the exception of local stimulation over affected ovary. The points to observe are: ascertain the causes, and remove them by daily bathing, hip-baths; regular evacuation of bowels; gentle walking exercise; warm flannel clothing; excite appetite and give best of food, followed by pepsin; solid diet of animal food, white-fish, oatmeal porridge and cream, eggs, etc.; avoid slops. Then general course of vegetable alteratives and tonics, such as compound syrup phytolacca and iodide of potass, Iodide and bromide of potass in the viburnum compound, or in stillingia compound; iodide of lime; port wine and Peruvian bark; sulphate quinine and aromatic sulphuric acid; glycerite of ozone, ozone-water. Besides these, the following acro-narcotics have a remarkable sedative action on the ovaries: tincture digitalis, tincture belladonna, tincture cimicifuga.

Those drugs have an effect to soothe and even prevent the evolution of the ova if long continued. Pastiles and suppositories every night at bedtime of belladonna and opium, if necessary. The above can be so regulated as the tonic can be given before meals, alteratives after, and the other remedies between. The irritating plaster to be kept continuously applied, keeping an open sore about the size of a hen's egg. It will be necessary to keep up this alterative and tonic treatment for some months, and while so taking treatment the vagina should be washed out at least twice a day with tepid water and borax, or an infusion of golden seal and borax or sage tea. In chronic irritation of the ovary, the marvellous absorbing power of the mucous membrane of the vagina should be taken advantage of for administering remedies; pastiles of cocaine, atropia, boroglyceride do good.

Inflammation of the Parotid Gland.
(*Mumps.*)

The parotid suffers from irritation, inflammation, from the localizing in its substance of a pathogenic microbe of mumps.

This very fact renders inflammation of this gland a dangerous and a highly contagious form of inflammation. The microbe is freely distributed on the tongue, mucous membrane of the cheek, gums, saliva, breath; seeks the parotid only when that gland is weakened or devitalized, for if we raise the standard of vitality by applying stimulants, the microbe leaves, seek analogous structures, as the mammæ, ovaries, testes, brain.

At all periods of the attack the micro-organisms are to be found in the blood.

Usually a period of incubation, with the ordinary symptoms of fever, debility, inflammation, with pain in head, back, and limbs; pain and swelling over one or both parotids, stiffness of jaw, some soreness in swallowing. Fever and inflammation reaches its height in four days and then declines, occupying about a week in all.

Treatment consists in rest in bed, warm room, open bowels, heat to feet, aconite and belladonna internally, nourish with warm beef tea, malted milk. To destroy germ in the blood and mitigate its severity, administer syrup of tolu with either resorcin, creolin, or naphthaline.

No local application over parotid.

Inflammation of the parotid may arise from cold, or from the presence of the bacillus of tubercle, scarlatina, syphilis, cancer, etc., and demands a very different form of treatment.

If acute, exalgine, followed up with general alteratives, saxifraga, phytolacca; locally, concentrated ozone, followed with dry heat to the parotid.

Inflammation of the Pleura.
(*Acute Pleuritis.*)

Inflammation of the pleura or serous covering which invests the lungs and inner surface of the thorax; is met with either in the acute, sub-acute or chronic form; confined to one side or to both.

The cause is usually exposure to wet or damp or cold, or fractured ribs.

The symptoms in the acute form are languor, debility, pain in head, back and calves of legs, chilliness, rigors and a fever, with hot, dry skin; temperature not so high, unless pneumonia, to a limited extent, exists—101° to 103° F.; cheeks flushed; hard

and quick pulse; increased frequency of respirations; an acute, lancinating pain in the side, called a stitch or catch, commonly below the nipple, over attachment of diaphragm on front of chest. This stitch or pain is aggravated by expansion of the lung in



Acute pleurisy, showing the microbe at work.

inspiration, coughing, or moving, or lying on affected side, and by pressure. A harsh, dry cough, with frothy expectoration; anxiety and restlessness; scanty and high-colored urine. Over the seat of stitch or pain can be detected, quite early, a friction sound, caused by the inflamed, congested and roughened surfaces of the covering of the lung rubbing against the pleura of the ribs. This rubbing resembles the rubbing of two pieces of brown paper or stiff silk against each other; generally best heard and even felt by the hand forty-eight hours after rigor, often earlier. It ceases when inflammatory action is arrested, or when the two surfaces become moist and smooth

by effusion of serum, or when adhesions by bands of lymph take place from the affected surfaces, or when effusion is in great abundance.

The duration of an attack of pleurisy should be but a few days if properly treated; but if mismanaged, it may be run into some of its terminations or effects, or into a chronic form.

Effusion of serum may take place, to the amount of a few ounces or of several pints. It may be pure serum, liquor sanguinis, or serum and blood. When excessive it compresses the yielding lung, suspends its functions, displaces the heart, and somewhat distends the thoracic walls. This effusion is called hydrothorax.

When pleurisy terminates in a breaking down of lymph, or suppuration or pus, which accumulates in the cavity of chest, it is called emphyema. When this occurs constitutional symptoms are more serious—rigors, febrile disturbance, often of a hectic character; tongue brown, dry and thickly coated; pus sometimes forms a bulging tumor in intercostal spaces; fluctuation can be detected, or sinuses may form at distant parts, and it may be evacuated; or ulceration of costal pleura may take place, pus finding its way through muscles and skin, and forming a fistula in the chest; or, more rarely, the covering of the lung may be perforated, and the pus find an entrance into the air cells, and be expectorated.



Acute inflammation of the pleura, showing the microbe of pleurisy in nests.

Whatever the nature of the effusion, serum, or serum mixed with blood and liquor sanguinis, or lymph broken down (pus), it will cause, according to its extent, dulness on the lower part of the chest, extending upwards. The respiratory murmur of the lung is diminished. The chest may be so filled up that the lung may be compressed, so that little or no air can enter the bronchial tubes, so that no murmur can be heard. The fluid also prevents any intercostal movement. Patient cannot lie down.

Treatment.—Acute pleurisy should be treated with great energy, in order to prevent such grave complications. Wet cups or turpentine to redness over the seat of pain, followed with hot, moist linseed poultices, in which tincture of opium is freely incorporated; changed frequently. A flannel roller should encase the chest from the axillæ down to the base of ribs over poultice; the latter can be kept hot by bladders of hot water. Patient put to bed, perfect rest, avoidance of talking or full, deep inspiration; breathe chiefly by diaphragm, so as to prevent friction between inflamed surfaces. Then one tablespoonful of tincture veratrum viride, tincture of aconite and sweet spirits of nitre in half a tumbler of water, of which one teaspoonful should be given every hour till pulse reaches 70; then at intervals of two or three hours apart. Give half a grain of pulverized opium, five of Dover's powders in an infusion of pleurisy root every three hours, or double the quantity if there is not a speedy relief. Open bowels if confined; keep heat to feet. If the skin does not perspire well with pleurisy root tea, add compound tincture of serpentaria in half-teaspoonful doses. If symptoms are urgent, inject hypodermically one-third of a grain of pilocarpin; when it acts there is immediate relief and a cure; so it is unnecessary to lay down rules for diet or drink, which should be gruel, milk, broths, cream of tartar, water or lemonade.

With such new and definite remedies, we have the means of getting rid of all acute and sub-acute cases in twenty-four or forty-eight hours. Tonics, good, nourishing food during convalescence; quinine, in alternation with iodide of potass, is especially valuable.

Chronic inflammation may follow an acute attack, or it may come on of itself. There is no fever, rarely friction sound, but more generally effusions of lymph, with adhesions in the form of threads, bands, or ribbon-like exudations between the two pleuras, which interfere with respiration, especially if deep, or with movements,

**Inflammation of
the Pleura.**

(*Chronic Pleuritis.*)

as raising hands to face, turning sideways when the characteristic stitch is experienced.

As there is in all cases of chronic pleurisy adhesions going on, the best method of treatment is to build up the general health by good substantial food, well-regulated secretions, woolen clothing, rest for a few months. If that is not practicable, an avoidance of positions in which the catch is experienced; then a general alterative course, with iodide of potassa in alternation with tonics. Over the seat of adhesion, which is readily known by the stitch in certain postures, the irritating plaster should be kept constantly applied, spread fresh every morning, and if suppuration is not free, occasionally rub over with croton oil. The irritating plaster has a better resolvent action than repeated fly blisters or iodoform ointment. Usually about three or more months are necessary to break down a pretty firm adhesion.

The obstacle to free, deep inspiration, and that peculiar retraction of chest will disappear as soon as the adhesion gives way.

To Promote the Effusion of Serum in the Cavity of Chest.—The best of diet to raise the standard of blood; tonics to stimulate appetite. Try first infusion of squills and digitalis, followed with diuretics, diaphoretics and hydragogue cathartics; those failing, alteratives and iodide of potass; all remedies useless, tap the chest between sixth and seventh ribs, two-thirds the distance from the spinous process of vertebræ to middle of sternum. The old-fashioned trocar and canula is better than the aspiration. In emphyema, aspiration should be performed several times. The thorax to be tapped long before difficulty of breathing, or threatened suffocation takes place.

A partial death, or inflammation, of the

Inflammation of the Peritonæum, Acute. <i>(Peritonitis.)</i>	serous membrane lining the abdominal cavity and investing the viscera; a white fibrous tissue of very low organization. Nothing so likely to ward off any depressing influence as strong vital force, and this is especially true with reference to the peritoneal membrane, for we find in a large per cent. of all cases that it is predisposed to by some depression of the sympathetic system, and that the common exciting causes, such as minor injuries, would be insufficient, were it not on account of this nervous depression. In the condition of partial death of this structure there is also a degradation of its normal living matter into a micro-organism or diseased germ, for we find that if a physician is attending a case of acute peritonitis in a male, and by chance becomes the attendant in a case
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of parturition, the lady will become affected with peritonitis, severe or mild, according to her vital stamina, so that thus far there seems to be a living poison present. The general causes are injuries, perforation of stomach and bowels, strangulated hernia, damage done to organs in the abdominal cavity, as stomach, uterus, liver, etc.

Acute inflammation of the peritonæum is one of the most grave and serious calamities that can befall a human being. When not due to wounds, it is generally caused by injuries to organs, as the uterus, beginning as a case of metritis, or inflammation of that organ, and spreading over every organ in the visceral cavity. Originating in that manner it is called metro-peritonitis.

Symptoms.—Chilliness or violent rigors, accompanied with severe, sharp, lancinating pain, extending over the entire abdomen, with high fever, small, hard, wiry pulse, abdomen swells, becomes exquisitely tender on pressure, even sensitive to the slightest pressure, as bed-clothes, or movement of abdominal muscles; patient lies on back, with knees bent, legs drawn up; abdomen becomes more enlarged, tense and hot, tympanitic or drummy; motionless in respiration; features become sharp, expressive of anxiety and suffering; the tongue is sharp-pointed, dry, with a variable coat, according to the location of inflammation; nausea, vomiting, constipation; skin very dry and burning; pulse becomes more rapid; respiration hurried; often hiccough. If case drags, the abdomen ceases to be tympanitic, but remains enlarged from effusion of serum. If the injury is irreparable, or treatment ineffective, and the case about to terminate fatally, abdomen becomes more distended, pulse thready and quick, but intermittent; face becomes of a ghastly expression, cold, clammy sweat, pain suddenly ceases. Unless due to perforation of stomach or bowels, the ordinary duration of peritonitis is about one week; when due to perforation, twenty-four or forty-eight hours. After sudden cessation of pain, when about to terminate fatally, patient may live twenty-four to thirty-six hours.

Treatment.—The aim of treatment is to establish a renewal of life in the affected membrane. For effecting this purpose narcotism with opium, or its alkaloids, is our only resource. The first difficulty we have to contend with is in selecting the form, whether it be crude or pulverized opium alone, or with Dover's powders, or as paregoric, or the sulphate of morphia in cinnamon water. The best plan is to try the crude pulverized alone or with Dover's powder every half hour in half-grain doses. If it answers the purpose of causing the patient to sleep, then push it; if it stimulates, try other forms until you find the one that answers the purpose. In conjunction or in alternation, a few

drops of tincture of green root gelsemium. If stomach is rejecting everything introduced, same remedies in suppositories or capsules per rectum, in double doses. At the same time the attending physician or nurse must select one of three remedies and apply over the entire abdomen; either a fly blister for six hours, or until it causes redness, or turpentine applied until the same effect is produced, or tartar emetic ointment rubbed in over the entire abdomen. There is to be no blistering, as that is injurious, barbarous, draws off the liquor sanguinis of the blood. Whichever is applied, must be followed with large linseed meal poultices made with glycerine and one or more ounces of tincture of opium incorporated in it. Change every two or three hours. If there is any delay in procuring the above articles put on hot poultices of anything that will hold heat and moisture, until proper remedies can be procured.

Local stimulants to the entire abdomen are of the greatest value; they promote vitality, create a renewal of life; their use is founded on sound principles, for it is a law of physiology that when two parts are nervously in sympathy with each other, if we excite a greater action in the nerves of one, we distract action from the nerves of the other. The blister or turpentine to erythema is a powerful means, it cures by withdrawing nervous action from the nerves of the part, and followed by hot poultices induces contractility of blood vessels and a renewal of life.

Turpentine, of all stimulants, is perhaps the best in puerperal peritonitis, and one which, from its action on the skin and kidneys materially helps in the elimination of the *materies morbi* from the system in such cases. Moreover, from the rapidity with which in many instances the symptoms of peritonitis may subside under treatment by this drug, it would apparently seem to have some direct germicide effect on whatever micro-organisms may be connected with the development of puerperal septicæmic fever or metria. In other cases of the same kind muriated tincture of iron, more especially when given in combination with quinine and liquor ergotæ, and given in full doses, appears to act in a similar way, and may be tried either with the turpentine, or in its stead, as long as tolerated by the stomach and bowels. It too often happens, however, that vomiting and diarrhea are prominent symptoms in these cases; and, under such circumstances, the remedies just referred to are obviously out of the question, and we must then fall back on the various preparations of opium and its alkaloids, from the administration of which, concurrently with free stimulation and the use of the hot pack—that is, by swathing the patient in mustard or turpentine stupes until reaction is established, and gastro-intestinal irritation allayed: re-

coveries occur in cases of puerperal peritonitis in which all hope had been previously abandoned. As soon as the skin begins to pour out a copious sweat, and stertorous breathing take place, patient must be turned over on right side, carefully watched, and as a rule ten to twelve hours of narcotism is sufficient. Then waked up and a little barley-water, or lime-water and milk given. If there are any indications of sinking, aromatic spirits of ammonia. The opium, gelsemium and hot poultices should be continued for about a week, the two former in small doses, at intervals of three or four hours apart. Cautiously and carefully begin with a little diet, as milk and water, beef tea, essence of beef. Enemata of warm castile-soap water daily, to remove all fecal accumulation in colon or rectum. A cradle over abdomen to support bed clothes; most perfect quiet obtained. The best of nursing and care, air of sick room to be kept warm and pure; carry case over seventh day, then treatment for chronic peritonitis should be adopted.

Chronic peritonitis may be the sequela of an acute attack; more frequently an independent affection. It may arise from cold, suppression of menses, miscarriage, mechanical violence, such as blows, rheumatism and gout, ovarian irritation. In children, it is associated with deposit of tubercle.

Inflammation of the Peritonæum.
(*Chronic Peritonitis.*)

It may arise from cold, suppression of menses, miscarriage, mechanical violence, such as blows, rheumatism and gout, ovarian irritation. In children, it is associated with deposit of tubercle.

Symptoms.—General languor, lassitude, debility, with abdominal pain, sharp and lancinating, tender to pressure, and considerable swelling of abdomen; sometimes slight fever, with obstinate diarrhea, nausea, wasting and prostration. If case progresses, a good deal of abdominal tension; often effusion of lymph, with adhesions, which give rise to colic. In some cases, effusion of serum or ascites is immense. In chronic tubercular peritonitis in children, there is usually enlargement of mesentery.

Treatment.—Patient should go to bed for a few weeks, until every vestige of pain has disappeared; being treated in the same manner as if the case was acute, with opium, gelsemium and local stimulants. As soon as pain has disappeared, alteratives and tonics, as ozonized saxifraga, iodide of potassa, ozonized glycerine, cinchona and mineral acids, tincture of white bryony. To the abdomen, ozonized clay, if effusion of lymph is suspected, or iodoform ointment, or ozone ointment, iodide of cadmium ointment; and over all a flannel roller; great attention to the bowels and diet; milk and lime-water, raw eggs, raw extract of meat.

Inflammation of the Pharynx.

Inflammation of the pharynx is a very rare form of disease. We meet with it occasionally in terribly broken-down conditions, where the vital forces are at a low ebb, mal-nutrition and mal-assimilation extreme, as we often find it in the degrading haunts of poverty and vice; and when it occurs, it is mostly erysipelatous or bacterial, and is attended with great prostration, low fever, and difficulty in swallowing. Death takes place from exhaustion.

Our remedies, then, are to get the patient into a better atmosphere; abundance of antiseptics or disinfectants around. Administer quinine freely; give brewers' yeast in tepid milk every three hours. Diet, beef tea with barley, raw eggs.

Inflammation of the Prostate Gland, Acute.

A partial death of this gland may be induced by violence, blows, kicks, falls; by gonorrhœal inflammation proceeding upwards; by the use of strong caustic injections into the urethra; excessive venery, masturbation, disease of rectum; a metastasis of the poisons of gout or rheumatism in that class of subjects exposed to cold or wet: to the action of such drugs as cantharides, turpentine, balsam copaiba, etc.

Symptoms.—Pain in the perinæum, very excruciating, with sense of heat; frequent painful micturition, often inability to urinate; great pain and distress in defecation; a feeling of weight and fulness about perinæum and rectum; suffering increases; rigors and a fever set in, and difficulty of micturition increases. The insertion of finger up the rectum gives great pain, but by it the gland can be felt, hot, extremely sensitive, and enlarged. The greatest kind of suffering is experienced if a catheter is introduced; aching in hips and thighs, with dragging in back. If case is not actively treated, often progresses on to abscess.

Treatment.—Hot hip-baths, followed with suppositories of belladonna and opium, or enemata of the same remedies. Then perfect rest in bed, with either hot poultices or fomentations of lobelia, keeping perinæum smeared with belladonna.

Treat fever with aconite, and as large doses of green root tincture of gelsemium as can be borne, with bromide and bicarbonate of potassa, every three hours. If there is inability to urinate, draw off with catheter. As soon as fever abates, add iodide of potassa to the bromide and bicarbonate.

Infusion of one of the astringent diuretics as a drink, to which sweet spirits of nitre can be added to keep urine alkaline. Uva

ursi or hydrangea is the best. As case progresses, alteratives and tonics, iodide of potassa to be the principal. If abscess form, incision over fluctuation, followed with poultices, nourishing food, tonics.

Forbid, during treatment, all stimulating articles of diet, feather beds, sexual intercourse, liquors, as priapism is often present. If there are elements of gout, colchicum and quinine.

In inflammation of the substance of the prostate, besides the symptoms of granular prostaticitis, there are aching or stabbing pains in the anus, sacrum, or perinæum; pain at the suprapubic region is a common sign. There are also radiating lumbar or femoral pains after exercise or long journeys, general languor, *malaise*, or depressed spirits. Increased frequency of micturition is often absent; when present, it is felt by day, not by night. The flow of urine is altered by delay at the beginning, which may amount to retention. Dull pain after micturition, sometimes spasm at the end of the flow, with a sense of more to come, are complained of. In cases of long standing, micturition during sleep is a symptom,—constipation is almost invariable. When the congestion is great, there is pain during defecation and between the acts a sense of weight at the anus or in the perinæum. Pain in the testes when it occurs is simply a neuralgia. There is constantly hypersecretion of mucus.

In some patients, the organ recovers its natural condition in a few weeks; but usually the disease drags on a course more or less wearisome; thus the termination is very uncertain. Relapses are almost sure to follow if the patient exceed in his diet or *regime*. In relapses small abscesses often collect in obstructed ducts, which usually empty themselves through a duct before accumulating much. Sometimes the inflammation spreads to the parenchyma, and the prostate then becomes unyielding to the touch, hard and sensitive. The enlargement of the organ may last long. The increase in size may be symmetrical, or only affect one part, giving the sensation of irregularity or lobular form when felt by the finger. In course of time, the nodules may disappear, and the organ regain its natural size, or even shrink below it, and feel quite firm and smooth.

The treatment of all forms of prostatitis is always obstinate and tedious—of the many remedies in use, few are trustworthy. General treatment assists the local remedies. General alterative and tonic course. Indigestion must be overcome by comp. tincture *matricaria*; bowels regulated with the *casgara* lozenge, and

the best tonics, embracing cinchona, mineral acids, nux vomica, gelsemium and belladonna are very valuable, if troublesome micturition be a symptom. Ergotine and damiana are specially useful if there be enlargement, or if there be pain or aching excited by walking or standing.

When the organ is enlarged, flabby, soft, or tender, a good remedy is the cold sitz bath, taken at first for a few minutes, then prolonged to fifteen minutes, of cold spring water. The cold douche on perinæum and rectum are also of utility. Cold enemata are extremely useful; four ounces of cold water and one ounce of distillation of witch hazel form a good injection; it should be retained, and used at least twice daily. Among the best recognized remedies are the insertion of a cocaine suppository at bedtime, and we have great faith in its efficacy. An injection of ten or twenty drops of the undiluted distillation of the eucalyptus is a good preparation. This has to be repeated frequently.

Prostatitis from Masturbation or Excessive Venery.—Masturbation is a frequent provocative of prostatitis, sometimes in the acute form, more often in the sub-acute or chronic forms. In the mildest form of prostatitis through masturbation, the prostate bleeds easily, the urine is often tinged with blood, smoky, or even coffee-colored. If felt per rectum, the organ is found but little changed from the natural condition. General *malaise*, inappetency, and slight elevation of temperature usually accompany the bleeding. Bleeding from the congested prostate may be copious in young men when it follows prolonged venereal excitement and excessive copulation. Commonly very copious when thus originated, it may be profuse for an hour or two, and exhausting.

In those affections nothing can excel the glucoside of the black willow in the form of a suppository per rectum, the ozonized extract should be given in drachm doses thrice daily. It has a marked effect in checking the involuntary emissions, and thus prevents the irritation, exhaustion, and neuralgia which is often experienced.

Sequelæ of Prostatitis.—Persons who have suffered from a congested prostate are liable to too speedy ejaculation during copulation. This may be so rapid, and erection so fugitive, that effective coitus is impossible. For such cases the ozonized extract of damiana has sometimes a powerful effect. But cure is almost hopeless if continence is neglected. Some persons give way to the sexual appetite without limit. Then follows a condition of great helplessness. The intense neuralgia of the lower extremities which follows the shortest walk renders exercise im-

possible. Pain is rarely absent, even when at rest; it extends from the sacrum along the spinal column to occiput. The digestion is deteriorated. Topical treatment, after the mucous catarrh and chronic inflammation of the prostate is quelled, must be laid aside. The best remedy is a life of quiet, absence of exertion of any kind; a long sea-voyage is one of the best remedies. In rare cases chronic parenchymatous prostatitis excites temporary mania, which has erotic irritation for an early or leading symptom. It disappears if the patient recovers from the physical affection.

We have found in such cases a most excellent cerebral tonic, prepared from the orange wine of Florida Vinum Co.; green coca leaves and the peroxide of hydrogen, alternated with *avena sativa*.

Or, as some term it, chronic enlargement of the prostate, is very common; not as a result of the dignity of a hoary age, but rather of the defects and vices of modern civilization. The

Inflammation of the Prostate Gland, Chronic.

character of the gland is such that with a slight degree of irritation, its different lobes become rapidly filled up with lymph, and thus become greatly hypertrophied. The enlargement is due to effused lymph, the result of inflammation, which, in old age, undergoes calcareous degeneration. Of the male population of North America, it is estimated that eighty per cent. of all over thirty-five years of age suffer more or less from chronic prostatitis.

Causes.—It may be a sequel of an acute attack, or may come on from the same causes, such as mechanical violence, gonorrhœa, irritating injections, diseases of rectum; but by far the most common causes are sexual excesses; masturbation; imperfect copulation, in withdrawing the penis in the act of ejaculation, so as to prevent impregnation; in having sexual congress with women of large or dilated vaginas, or affected with leucorrhœa, in whom the contractility or grasping power of vaginal walls is impaired, and the tonic action of the sexual act on the male is destroyed: the wearing of condoms; the want of compatibility in the sexes. These, and similar conditions, prevent the secretion of the prostate, as well as the semen from the testis, from being thrown off; the result is, it remains in the ejaculatory ducts and excites inflammation; in other words, they are imperfectly emptied of their natural secretion; sedentary habits; incessantly in the saddle, as in riding; strictures; the debasing or demoralizing effect of our modern sexually exciting literature;

drugs that cause a determination of blood to those parts; over stimulation in eating and drinking.

Those are a few of the most common causes of devitalization of this gland, the cause of premature decay, loss of national vigor or manhood. Although we have stated the disease to be of such prevalency and early occurrence, it is usually at a later period of life that decided symptoms make their appearance, although the enlargement begins early. The increase in size is due to a true hypertrophy of the normal structure of the gland. This hypertrophy may affect the whole gland, or only a lobe, or the two lateral lobes alone, or the middle alone may be affected. Again, there may be a separate tumor of prostatic tissue embedded in the substance of the gland, or pedunculated growths may spring from the surface of the gland and project forward on the bladder or back to rectum, often mistaken by the ignorant for piles.

The effects of chronic prostatitis on the spinal cord are bad; on the brain even worse; and as a mechanical impediment to the bladder, of the gravest kind; alters the course of the urethra, lengthens its vesicle end, increases the curve, and diminishes the calibre of the canal; besides, the cavity of the bladder may be intruded on by the size of the gland; its muscular coat thickened by frequent straining to void water, and later on the ureters may, with the kidneys, become affected. Chronic inflammation of the bladder may take place, and its capacity be diminished, or it may become sacculated. Although we have stated thirty-five as the period in our country of its appearance, still, as the symptoms are obscure, patients may not seek relief for many years thereafter. It is a slow, insidious, but progressive disease. The production of prostatic inflammation must be regarded as the result of ignorance and wilful violation of natural laws, and not as the calamity of age.

Symptoms.—The symptoms of chronic inflammation of the prostate in the early stage are not of a prominent kind; indeed, the gland may attain considerable size without giving rise to much trouble. But decided when there is weakness in erectile power, or seminal losses, or obstruction to urinating, or urine escaping with the stools, stream weak, more difficulty in turning it on or off, besides increased frequency in micturition, with more irritability of the gland; if unmarried, nocturnal emissions, one after the other, or a morbid desire for sexual intercourse; often a slight gleet discharge, which keeps the urethra red, tender, or sore. The enlargement causes a mechanical impediment to the function of the rectum, as well as the bladder; stools are flattened like a ribbon; constipation; a feeling as if

the bowels were not perfectly evacuated. The frequent calls to make water become a serious item, disturbs the patient at night, and interferes with his comfort during the day. Continence or incontinence is likely to take place; if the latter, the urine dribbles away. As the case progresses, there is more irritation of the bladder, urinary misery becomes greater, and fits of retention may take place from the slightest exposure to cold, or excess. The reflex symptoms are often distressing—languor, lassitude, debility, nervous prostration, derangement of spinal cord, brain, stomach, liver, and especially in a young patient, a morbid condition of the mind.

With all these and other symptoms, there should be an examination per rectum with the forefinger of right hand, and in all cases the gland can be felt, large, hot, tender. The examination should be made with patient on his back, finger-nail filled with soap, and the finger, well oiled, should be introduced very slowly and gently, so as not to excite spasm of the sphincter.

Treatment.—As soon as the disease is clearly made out, and the necessary arrangements made, begin with a general vegetable alterative and tonic course, as ozonized phytolacca and iodide potass, ozone-water, glycerite of ozone, gentian, columbo, or some other better tonic.

Instruct patient that cure is slow, but positive, unless very old. Inculcate good diet; attend to skin; daily bathing and flannel clothing; bowels to be opened daily; a cold water hip-bath, morning and night, for fifteen minutes each time; forbid tea, coffee, tobacco, and all kinds of alcoholic drinks; recommend exercise, an avoidance of unhealthy literature, and for a few months at least, a suspension of sexual congress. Patient should sleep on hair mattress, on his right side. While this treatment is being carried out, the special features of the case should be attended to.

To Arrest, Check, or Control the Morbid Sexual Desire, or Emissions.—Try first thirty drops of tincture of green root gelsemium at bedtime, and increase dose if necessary. Or tincture digitalis, drops eight. Or tincture belladonna, drops five; begin in afternoon, and give three doses before bedtime. Or tincture erythroxyton coca in sufficient doses. Or lupulin and lactucarium. Or black willow extract. Or, best of all, the spermatorrhea pill. The salts of bromine are efficient, and, if used, let it be for a little while.

To Promote Absorption of Effused Lymph in Prostate.—The patient is on iodide potass in his alterative; so, to aid its action, try every night at bedtime a cocaine suppository, with infusion of hydrangea; or cleavers; or uva ursi. Or muriatic acid in

five-drop doses, thrice daily, in water ; and, in addition to either, a suppository of belladonna and iodide of potassa.

To Overcome Inflammation of Prostatic Portion of Urethra.—Use every other night a gelatinized bougie of iodol.

For Retention of Urine.—The ordinary means, warm hip-bath, belladonna suppositories, and gelsemium internally ; failing, urine should be drawn off daily with a catheter. This is a good plan if there is the least inability to empty the bladder completely, as it is of primary importance that at least once in the twenty-four hours the bladder should be thoroughly emptied. If this is not attended to, it may bring about paralysis of the organ, with the loss of the power of voluntary micturition, and cystitis. For this purpose, a No. 12 silver catheter is better than a smaller instrument ; it goes in easier, is less likely to do damage. Keep the point of the instrument on the upper wall of urethra, and, above all things, use no force. In a short time, even in old cases, the patient will be able to get along. An alterative and tonic course should be persevered in.

The sequela of this inflammation, if not cured, is enlargement of the prostate.

<p>Inflammation of the Rectum. (<i>Rectitis.</i>)</p>	<p>Rectitis, without the affection termed dysentery being present, is a rare form of disease, but it may be caused by violence, or the introduction of foreign bodies into the bowel.</p>
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The Symptoms are the same as dysentery : rigors, fever, great constitutional disturbance, intense heat and soreness about the anus ; severe shooting pain up the back and sacrum ; spasmodic contraction and excessive tenderness of the sphincter ani ; tenesmus, with passage of muco-purulent matter and blood ; irritable bladder, with a train of reflex symptoms, and the same microbe appears as in dysentery.

The treatment should consist in the most absolute rest in bed ; stimulants, such as mustard plaster over the entire abdomen ; followed with hot poultices of linseed meal, changed frequently ; drink, water acidulated with aromatic sulphuric acid ; enemata of starch and tincture of opium every three hours into the bowel ; antipyrine, fifteen grains, every four hours for fever, dissolved in water ; a selection of some of the following formulæ may be made :

Iodol, one drachm ; solid extract of belladonna, five grains ; pulverized opium, twelve grains ; butter of coca, a sufficient quantity to make twelve suppositories. Insert one every four hours.

Subnitrate of bismuth, sixty grains; iodoform and resorcin, of each ten grains; muriate of hydrastin, five grains; sweet almond oil, one ounce. Inject at once and repeat.

Infusion of slippery-elm, one ounce; add to it twenty grains of resorcin, with one grain pulverized opium.

Green root tincture of gelsemium operates like a charm.

Follow with small doses of peroxide of hydrogen and mineral acids; stone crop, as the case progresses to recovery.

Diet very light and bland, as chicken, toast, arrow-root.

Inflammation of the delicate net, or web, or membrane, called the retina, is rare, although it sympathizes with all the inflammatory conditions of the eye.

Inflammation of the Retina. (*Retinitis.*)

Causes.—Exposure to vivid light; such as the glare of snow, the white sand in tropical latitudes, large fires in foundries, and molten iron.

Symptoms.—Acute, deep-seated pain in the eyeballs, extending to temples and forehead; great intolerance of light; dimness of vision; frequent sensations of flashes of light; pupil contracted to a pin-point; iris loses its brilliancy and becomes motionless; some vascularity of sclerotic and conjunctival coats; constitutional disturbance; high fever, and delirium. If not carefully managed irreparable blindness liable to take place.

Treatment.—Perfect rest in a dark room; veratrum, aconite, for fever; morphia, or opium, or hyoscyamus for pain, which is to be relieved at all hazards; bowels to be freely opened; skin stimulated by frequent bathing and jaborandi; heat to feet—after mustard. To nape of neck, a four-inch square mustard plaster, followed with croton oil, then poultices, and latterly irritating plaster. To the eye, warm fomentations of opium and tepid water, or infusion of poppies; alteratives and tonics, iodide potass and quinine.

As to the great value of stimulating applications to nape of neck, there can be no doubt in all eye affections. The optic nerve originates in the spinal cord and medulla, so that a good stimulant at root induces contractility and normal vigor in the main trunk, and in its finer mechanism or reflexion in the optical instrument, the eye. In all eye diseases, aside from children, our motto is active stimulation to its origin.

We cannot urge too strongly the use of quinine in glycerite of kephaline as our best tonic in retinitis. It should be administered in half grain doses thrice daily.

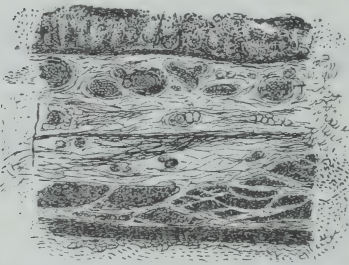
Inflammation of the Stomach.

Acute.
(*Gastritis.*)

The stomach being a very vital organ, anything which gives rise to a partial death of that organ is attended with extreme danger.

Causes.—The ordinary causes are the introduction of irritating agents into the stomach, such as poisons, arsenic, caustics, mercury, acids, emetics, whiskey, and other irritants; or it may be caused by blood poisons or disease-germs, as in yellow and puerperal fevers; or by inflammation spreading from other parts, as in inflammation of the uterus and peritoneal coat; it often spreads to or involves the stomach.

Symptoms.—Nausea and vomiting; burning soreness or rawness in the stomach, accompanied with a pricking or lancinating pain, very tender to slightest touch, or even pressure of bed-clothes; intense thirst; great desire for cold drinks, which when



A vertical section of the walls of the stomach in acute gastritis.

swallowed, are almost immediately rejected; tongue at first may be furred or coated white, with red tip and edges, or in streaks, and subsequently it assumes a raw-beef appearance, smooth and glassy; and if the blood is affected, dark at the root. The matter vomited at first is usually serous, or mucous, or biliary, then becomes greenish, latterly like coffee grounds, or black, which is

simply blood changed by the action of the acids of the stomach. There is a generally tympanitic condition of the abdomen, and patient lies on back with knees drawn up and head and shoulders elevated, so as to keep the abdominal muscles from pressing the stomach. Temperature is very high; pulse frequent, small and wiry; respiration frequent and short; features pinched and sharp-pointed; constipation; loathing of food and disgust of warm drinks; urine scanty, high-colored; its duration, about a week. If not very carefully and energetically managed, death is very liable to take place from exhaustion, or suddenly from gangrene. The best we can obtain is to run it into chronic gastritis.

Treatment.—The patient must be kept as quiet as possible in recumbent posture in bed; weight of bed-clothes kept off by a cradle; heat to feet; sponging body thrice daily; mustard plaster poultices over stomach, followed by hot poultices of gly-

cerine, flaxseed, and opium; no drink allowed; patient can take water or ice in mouth, but must not swallow much, if any—nothing to enable the stomach to contract. Small, but oft-repeated doses of tincture of green root gelsemium, in alternation with a solution of morphia. The two remedies administered on and on every half hour till narcotism is induced, which condition should be continued for ten or twelve hours, and patient kept on right side. If successful with narcotism, then continue same two remedies every three or four hours for a few days; give no food, a little mucilaginous drink, as gum-arabic water or marshmallow tea; nutritive enemata every three hours. The point to be aimed at is narcotism, during which inflammatory action ceases.

If a complication of other diseases, still this point holds good. The idiosyncrasy that often exists to the action of opium or morphia, is entirely overcome by the gelsemium. If successful, be very cautious about beginning diet; milk and pepsin, beef tea and pepsin, white of egg and pepsin, juice of raw beef.

Inflammation of the Stomach

(*Chronic Gastritis.*)

A low grade of irritation in the various coats of the stomach. It may follow an acute attack, or may come on from the introduction of irritants into the stomach, as arsenic, mercury, whiskey, etc.; swallowing immoderately iced drinks; bolting ice-cream after a hearty meal, thereby suspending digestion and devitalizing the stomach. In ladies, belts or other articles of dress irritating stomach; in men, from dispensing with suspenders, wearing belts; and mechanical occupations, pressing on stomach; also, direct violence and other like causes.

Symptoms.—The symptoms of chronic inflammation of the stomach involve all that are present in the various forms of dyspepsia, as heartburn, water-brash, eructations of gas or liquids, gastrodynia, slow or imperfect digestion, with headache; besides, the tongue is red at the tip and edges, with a white coat in the centre; there is pain in the stomach, aggravated by pressure or the clothes; disordered bowels; often a craving for food, but only a small portion can be taken without producing oppression and vomiting.

Chronic gastritis is essentially stubborn. It may exist many years, even in a mild or aggravated form, but is very apt to terminate in thickening or induration of its coats, narrowing the pylorus, or ulceration, perhaps going on to perforation.



A vertical section of the stomach in chronic gastritis.

Treatment.—In this affection, rest, daily bathing, bowels opened by enema of some soup; flannel clothing. A suppurating sore, about four square inches, should be maintained over region of stomach, until a few months, after recovery. The diet should consist of juice of raw beef, milk, with lime-water or bicarbonate of potassa, arrow root, milk toast, boiled fish, chicken, oatmeal mush; three meals per day, pepsin to follow each in a suitable dose to digest without without making any demand on stomach for digestion; drinking fluids to be forbidden.

After attending to those preliminary points, our next and main object is to increase the vitalizing tonicity of the stomach. For this purpose, compound tincture of cinchona, four ounces; aromatic sulphuric acid, one ounce; one teaspoonful every four hours in water, or if that does not operate well, use infusion of golden seal, from a tablespoonful to three every four hours; col-linsonia, gentian, columbo, or other remedies laid down under the head of *dyspepsia*. If there is much burning, soreness, or rawness, use gelsimium and quinine freely, or gelsemium and chlorate of potassa. Once rid of pain, with tenderness on pressure, and the red tip and edged tongue, then a general course of vegetable alteratives and tonics, with more extended and varied diet.

**Inflammation
of the
Spinal Cord.**
(Myelitis.)

Inflammation of the substance of the spinal cord is extremely rare, usually a segment or a portion involved, seldom the entire length.

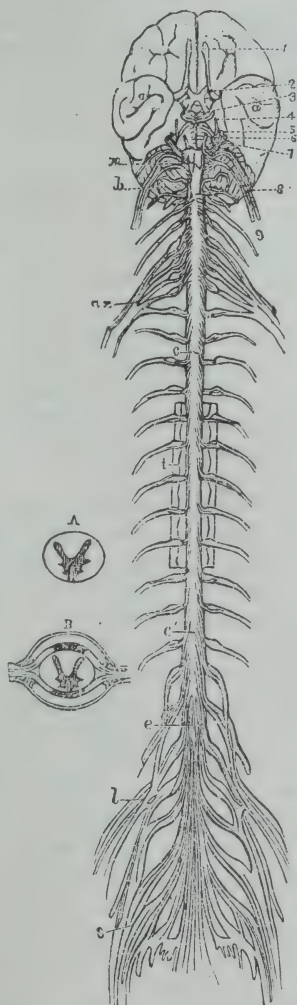
It may be caused by falls, blows, shocks, concussions, or microbial disease of the vertebræ, as the bacillus of tubercle, syphilis, etc.

Symptoms will depend almost entirely upon what part of the cord is implicated. *If the cranial portion* of the cord is affected, there is deep-seated headache; convulsive movements of head and face; inarticulate speech; trismus; difficult deglutition; impeded spasmodic breathing; irregular action of heart; paralysis. If about to prove fatal in the acute stage, great prostration; greater difficulty of breathing; involuntary excretions. When the entire thickness of the cord above the phrenic nerve is affected, death takes place rapidly from cessation of respiratory movements. *If the cervical portion* suffer inflammation, difficulty in swallowing and breathing; impossibility of raising the head, pain in back of neck; sense of pricking and formication in arms and hands; paralysis of upper extremities. *If the dorsal*, pain over the affected part, numbness or pricking sensations in fingers and toes; paralysis of arms and lower extremities, with great difficulty

of breathing and palpitation. If the *lumbar*, marked paralysis of lower extremities, at an early period, abdominal pain, and a sensation as if there were a cord tight around the body, convulsions with retention, followed by incontinence of urine, owing to paralysis

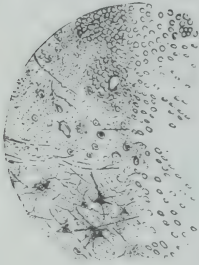
This plate represents the under surface or base of the brain, little brain, the pons varolii and medulla oblongata, also the anterior surface of the spinal cord, to show the mode of origin of the cranial nerves from the base of the brain and that of the spinal nerves from the spinal cord. *a*, *a*. Cerebral hemispheres. *b*. Right half of cerebellum. *m*. Medulla oblongata. Above this is a transverse white mass, the pons varolii *c*, *c*. The spinal cord, showing its cervical and lumbar enlargements and its pointed termination. *e*. the cauda equina. 1 to 9, the several cranial nerves arising from the base of the brain and sides of the medulla oblongata. Below these, on each side are the roots or origins of the spinal nerves—cervical, dorsal, lumbar and sacral. In some of these the double root can be seen and the swelling or ganglion on the posterior root. *a*, *r*. the axillary or bronchial plexus, formed by the lower four cervical and first dorsal spinal nerves. *r*. The lumbar plexus. *s*. The sacral plexus, formed by the last lumbar nerve and first four sacral nerves. *t*. Shows a piece of the sheath of the cord cut open and within it a portion of the ligament which supports the cord.

Plate 1. A transverse section through the cord to show the form of the gray cornua or horns in the midst of the white substance. *B*. Shows the same parts and also the membranes of the cord and the anterior and posterior roots of a pair of spinal nerves springing from its sides.



of bladder, involuntary stools followed by paralysis of sphincter ani. Pain in whatever part is increased by heat, pressure or movement. The loss of power in lower limbs and body below the seat of inflammation, and later, of sensation.

In the treatment, the cause should be removed, if possible, and the most powerful of all stimulants, the galvanic cauterly applied, followed with poultices of belladonna. Exalgine should be administered in fifteen-grain doses morning and night, more frequent if case does not yield; bowels should be freely opened, and the patient placed upon bromide and iodide of potassa in compound saxifraga.



Acute myelitis of the gray matter dorsal portion of spinal cord.

The sole aim of treatment is to carry the patient through an acute attack and run it into a chronic form, which is more easily managed.

Chronic inflammation may be the sequel of an acute attack, but it may arise from the same causes which produced an acute attack. Persons in middle life, suffering from some chronic disease are apt to suffer

a form of reflected irritation, which weakens the cord, and gives rise to myelitis. It is easily recognized by the pain on pressure and movement, on the application of a hot sponge, or the pole of a battery, aching in the back and limbs, gradual loss of power of the lower extremities.

Symptoms are much ameliorated after a long rest in the recumbent posture; the *acute* form may terminate in effusion of blood; the *chronic*, in thickening, with atrophic degeneration.

Very likely to be numbness, coldness, loss of sensation and motion in the parts below. If the anterior columns only are affected, motor paralysis prevails; if the posterior columns, sensibility is either impaired or destroyed.

If the case has progressed simply to chronic inflammation, an effort should be made to get rid of the inflammation by the application of external stimulants, like the irritating plaster kept on nearly all the time; by rest in the recumbent posture in bed; by keeping the secretions active; by the administration of bromide and iodide of potassa in compound syrup of saxifraga; by the administration of such drugs as will diminish the area of the circulation in the cord, as ergot, belladonna, calabar bean, etc., and a diet rich in phosphates, as oatmeal, wheaten grits, cream, eggs.

Such a plan of treatment is of no avail if white softening has set in.

When white softening of the cord takes place, paralysis of all parts below the lesion is inevitable. All symptoms, however, admit of palliation; the case should be carefully watched, especially the rectum and bladder.

**Inflammation of the
Membranes
of the Spinal Cord.**
(*Spinal Meningitis.*)

Inflammation of the membranes of the cord is very rare, as it is well protected from injuries by the thick, bony casement.

Nevertheless, the rheumatic bacillus often excites irritation in its structure.

The indiscriminate and careless method of prescribing nuxvomica or its alkaloids exercises a most deleterious action upon the membranes of the cord.

It is, however, to the pathogenic microbe of cerebro-spinal meningitis that we owe such grave and important changes in the cord membranes.

It usually manifests itself in acute burning, or often sharp lancinating pains along the spine, extending to the limbs, aggravated by pressure and movement. If this irritation is high up, there may be some fever and a tendency to opisthotonos, with some rigidity of the muscles of the neck and back; feebleness of the limbs; paralysis and the loss of power increases as the case progresses, sense of suffocation, or constriction in neck, back, abdomen; lower down still, constipation, retention of urine, priapism, prostration.

**Inflammation of the
Testicles.**
(*Acute Testitis.*)

Acute inflammation of the testes may be caused by blows, kicks, falls, violent exercise; or badly fitting clothing; by a metastasis or extension or migration of the gonococcus

from the urethra, by too quickly sterilizing the urethra by such drugs as balsam of copaiba, turpentine, cubeb, kava kava, or aggravated by strong irritating injections, or alcohol, or venereal excesses. In some cases, only a portion of the testicle is affected, such as its body; or the epididymis and tunica vaginalis are attacked, or the entire gland suffers.

Symptoms.—Pain, and feeling of weight in cord and testicle; great uneasiness in the loin, groin, and upper part of thigh; frequent micturition; diminution or suppression of the urethral discharge; swelling of the epididymis, which embraces and hides the testicle; scrotum firm and tense; swelling of the cord; great tenderness; pressure aggravates the pain. There is pain in the head, back, calves of legs; rigors, and a fever; nausea, vomiting, constipation. The inflammation, if violent, powers of life feeble, or inefficiently managed or treated, may terminate in chronic inflammation, with effusion of lymph, induration and enlargement, or abscess; or, if vital force is greatly de-

pressed, and system vitiated with mercury and syphilitic germs, gangrene.

Treatment.—As there is nausea and often vomiting, with a depraved condition of the alimentary canal, an emetic of lobelia, followed by warm or alcoholic vapor-bath; then open bowels freely with salines; administer aconite, veratrum and gelsemium, freely and frequently, till pulse reaches seventy, then in small doses at longer intervals; opium and Dover's powder, to relieve pain; apply, in the form of packs, several layers of canton flannel, embracing the entire scrotum, saturated with the following: water, one quart; muriate of ammonia, half a pound; nitrate of potash, quarter of a pound; common salt, a handful; tincture of iodine, one ounce. Mix. Cover with oiled silk, and moisten again and again. If skin of scrotum becomes tender or sore, or excoriated, keep it off a few hours, and apply cloths wet with hot water and opium. Bowels to be kept freely opened; patient must be confined to his bed; diet as for fever. Just as soon as the active stage is controlled, place patient upon iodide of potassa in a vegetable alterative, followed by tonics. If the inflammation of the testis be due to the sudden suppression of a gonorrhœal discharge, it is unquestionably a good plan to inject the urethra, once or twice, with a solution of the sesqui-carbonate of potass, so as to cause the gonorrhœa to re-appear; it has the effect of removing the inflammation from the testis at once. In bad cases, powers of life low, and ignorance of medical attendant gross, where the inflammation has been mal-treated, the testicle enormously swollen and very painful, it is found to be a good plan to puncture the body of the testis, so that by a division of the tunica albuginea, the pressure on lobules and convoluted tubes may be removed. The incision allows a quantity of serum, lymph, and blood to escape, and affords instant relief in such cases. After such, some resort to compression with adhesive strips, but this is very painful, and the best plan is to apply the hot water and opium. After recovery, patient should wear a suspensory bandage for a few months.

Inflammation of the Testicles.

(*Chronic Testitis.*)

increased in size.

Causes.—It may be a sequel of an acute attack when badly managed, but more generally it is due to a low grade of irrita-

In this we have a low grade of irritation, with a large quantity of lymph effused, which gives rise to very great enlargement and induration, the testis becoming, in some cases, enormously

tion, as horseback exercise, imperfect coition, strains, condums, stricture, gleet, or the presence of the syphilitic germ in testis.

Symptoms.—Testicle hard and swollen; slightly painful to pressure, but very weighty; the irritation and effusion of lymph usually begins in the epididymis, and extends to the body of the testicle; sometimes effusion of serum takes place into the tunica vaginalis. The syphilitic form is usually accompanied with indications of the presence of that germ elsewhere, as on the tongue, throat, skin, bones or iritis.

In the treatment of enlarged testicle, the patient should be placed upon comp. saxifraga and phytolacca internally. Remove all causes that can be ascertained, such as a stricture, or masturbation, or any impediment to sexual congress. Patient must wear a suspensory, with as much compression as possible. Such local remedies as ointments prepared from iodol; iodide potassa and belladonna; iodide of cadmium, and the like. Failing all, an absorption of the effused lymph may be effected by electricity.

Inflammation of the tonsils is one of the most common affections of the mouth. One or both the tonsils may become affected.

Inflammation of the Tonsils. (*Acute Tonsillitis.*)

The predisposing causes are weakness of organization, a tubercular diathesis or enervation of the glands by mercury, other poisons, etc. The exciting causes are cold, damp, exposure, cold drinks when body is heated, seasons of the year, as winter, spring, vicissitudes of temperature; common in all periods of life.

Symptoms.—Those consist in the usual languor, lassitude, debility, rigors, and a fever of a pretty high grade. The tonsils and adjacent parts become sore, tender, painful, red, hot, and swollen. There is also great pain and difficulty in deglutition; return of liquids through the nostrils in attempting to swallow; there is pain along the eustachian tube and deafness; glands exude considerable mucus, so that the throat is filled, and gives rise to some hawking and spitting; respiration may be affected; the parotid gland at angle of jaw sympathizes; tonsils can be seen often, if double, almost meeting at the root of tongue.

Its duration is from four to ten days. It may terminate in resolution, but apt to return on exposure; or it may terminate in effusion of lymph, with thickening and induration, or in breaking down of lymph, abscess. If indurated or hypertrophied, will alter the voice.

Treatment.—Patient to be kept in bed; warm room; the ad-

ministration of an emetic of lobelia and capsicum is attended with good results; to be followed up with large doses of tincture of aconite and belladonna; mouth and throat washed out every hour with chlorate of potassa and tepid water; heat to feet, and general treatment for fever; locally to the angle of the jaws, heat and moisture, poultices with mustard. Patient an adult, hypodermic action of pilocarpin might be tried; it often breaks up most severe attacks. Its diaphoretic action is excellent, but it has a special action on the tonsils in stimulating them, and causing them to disgorge the inflammatory products with which they are loaded. If young, better to use the acetate of ammonia in alternation with compound tincture of serpentaria. Those two remedies act kindly and speedily. Benzoate of sodium is of great utility. Benzoate of sodium, half an ounce; glycerine and elixir of calisaya, of each one ounce. Dose one teaspoonful every hour. Salicylate of sodium is nearly as effectual. Just as soon as fever abates, begin with doses of iodide of potassa, ranging from five grains upwards, every three hours.

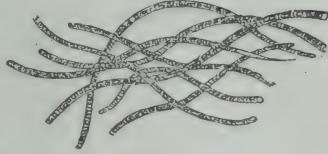
If suppuration seems to be inevitable from the presence of rigors, pain changed to a throbbing one, and by the appearance of a yellow speck on tonsils to the eye, or sense of fluctuation to the touch, then let the patient inhale hot vapors of ammonia, poultice assiduously, and when ready for evacuation of the pus, administer a good, smart emetic of lobelia. In the straining efforts at emesis, the contents of the tonsil is freely discharged, and a rapid recovery takes place under good diet and such remedies as compound tincture cinchona and aromatic sulphuric acid. If any soreness or induration remains, chlorate potassa for a gargle, and iodide internally.

**Inflammation
of the Tonsils.**
(*Chronic Tonsillitis.*)

Once the tonsil has suffered a partial death, it is very liable to become irritated by very slight causes. This repeated, spring and fall, soon tells disastrously on the medulla oblongata, and the patient, after suffering a few attacks, becomes tubercular; so that in chronic inflammation we usually find tubercular deposits in the tonsils. In the chronic form there is little soreness or heat or pain, but a vast deal of effused lymph or tubercle thrown out, and as the gland is very vascular, they often become enormously hypertrophied, the enlargement being so great that they meet on tongue, causing thickness of speech and obstruction to swallowing and even to inspiration.

In such cases, don't resort to excision, as there is danger in

such a proceeding. Place the patient upon saxifraga and phyto-lacca. The one remedy one week, the other the following. An effort should be made to hasten and stimulate absorption by painting the tonsils with equal parts of tincture of iodine and iodide potass, or jequirity in the form of distillation or powder; never irritate; apply about once a week.



Perfectly developed cocci found in the mouth and throat in aphthæ tonsillitis. Magnified 400 diameters.

The jequirity causes a shell-
ing or peeling to take place every time it is applied.

Soothing mouth washes or gargles of slippery-elm; benzoate of soda; chlorinated soda, naphthaline.

A tonic course, change of scene, best of food.

Inflammation of the Tongue. (*Glossitis.*)

The tongue is greatly exposed to the in-
roads and colonization of disease germs.

Either acute or chronic inflammation of
the substance of the tongue is comparative
rare affection, usually dependent upon some

constitutional cause, or some caustic or irritant poison applied to
the organ.

In either case there is fever, great nervous depression, and
debility. The local symptoms are those of pain, heat, redness,
swelling. The tongue becomes of a very deep red color, and so
swollen that it fills and protrudes out of the mouth. It usually
comes on quickly, and is often attended with urgent symptoms,
and requires prompt treatment, as active purgatives, followed by
hypodermic injections of one-third of a grain of pilocarpin, heat
to feet; poultices of slippery-elm to tongue, and suppositories of
veratrum viride and gelsemium per rectum. If mercury is the
cause, iodide of potassa, chlorate of potassa gargles, and sulphu-
retted potassa baths, or both.

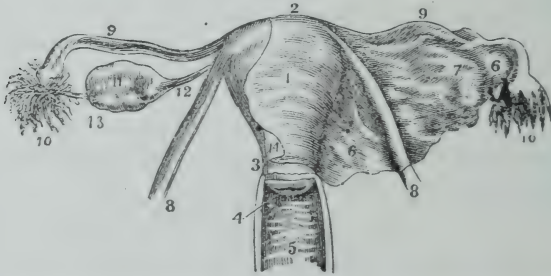
Inflammation of the Uterus. (*Acute Metritis.*)

Acute inflammation of the uterus
is comparatively rare in unimpreg-
nated states, but very common asso-
ciated with impregnated states.

Causes.—The causes of this condi-
tion of partial death are, exposure to cold, damp, and excitement
when menses are on; shocks of all kinds, falls, blows; irritation
from sponges, rings, and pessaries; abortions; violence from the

instrument, of a whalebone, knitting-needle, in performing the act, and in the subsequent non-expulsion of all the membranes and clots; lingering labor, tedious, and painful violence from instruments in delivery; the use of emmenagogue drugs, as savin, tansy, aloes, ergot; the use of injections. It is doubtful whether or not, in very highly civilized women, it may be brought on by grief, worry, passion. Poisons, as the imperfectly-washed hand of an uneducated physician in removing the placenta, or pieces of the placenta; or in administering ergot erroneously, causing the uterus to contract; or a clot, or coagulum, which excites the inflammation; gonorrhœa, the forcible entry of large hands.-

Pathology.—1. In cases of puerperal endometritis, the uterine



The uterus and its appendages viewed on their anterior aspect. 1, the body of the uterus; 2, its fundus; 3, its cervix; 4, the os uteri; 5, the vagina laid open; 6, the broad ligaments of the uterus on the left side; 7, a convexity of the broad ligament caused by the ovary; 8, 8, the round ligaments; 9, 9, the Fallopian tubes; 10, 10, their fimbriated extremities; 11, the right ovary; 12, the utero-ovarian ligament; 13, the Fallopio-ovarian ligament in the peritonæum of the anterior surface.

and vaginal discharges contain a streptococcus which is present in pure, or almost pure, cultivation.

2. In cases of puerperal pelvic inflammations associated with exudation, the discharges contain either the streptococcus with a staphylococcus, or the staphylococcus alone.

3. In such cases where the womb or vagina contain some decomposing dead tissues (retained placenta, vesicular mola, etc.), the extremely fetid uterine and vaginal discharges prove to teem with peculiar rod-shaped microbes, which occur either alone or are accompanied by scanty non-pathogenic bacteria of various species.

4. The puerperal streptococcus is quite identical with the streptococcus of erysipelas. There is no difference whatever in their morphological properties and biological behavior. Besides, the inoculation of the former coccus to rabbits and man gives rise to a distinct erysipelatoid attack.

5. The puerperal bacilli are fairly thick and short (almost ovoid). They are, as a rule, arranged in pairs, which form irregular small-sized heaps. They grow well both on jelly and agar, but somewhat less so (especially in the absence of air) in broth. On gelatine they form large circular colonies of a yellowish-orange color, without liquefying the medium. When cultivated in test-tubes, the microbes develop in from four to six days a characteristic offensive putrescent odor, closely resembling that of the puerperal discharges from which they have been obtained. When inoculated to animals they do not produce any local changes, but give rise to fever, the febrile elevation oscillating

between a few tenths and 2° C., and lasting from four to eight days, according to the quantity injected.



Uterus, showing the thickening of its walls by congestion.

6. Hence, mild puerperal affections may be subdivided into two large groups, one of which embraces *specific* cases caused by the penetration into the patient's genital tracts of certain pathogenic mi-

crobes (streptococcus or staphylococcus). The other group consists of *non-specific* affections determined by the absorption into the patient's circulation of certain ptomaines that are elaborated by the putrefaction bacilli described above, in the presence of putrescent substances (dead particles of animal tissues).

Symptoms.—Should the shock come on the uterus during the menstrual period, or during the lochial discharge, the flow is suddenly arrested, and this will also happen in hemorrhagic congestion. Simultaneously there is sharp, lancinating pain in the uterus, followed by rigors, and a fever of a high grade. Patient lies on back, knees drawn up; features sharpen and become anxious; eyes look sunken; tongue coated, pulse rising; great tenderness over uterus, a sense of fulness and weight. There is throbbing above pubes, in groin, and perinæum; great pain in sacrum, irritable bladder and rectum. Either constipation or diarrhea; if the latter, tenesmus, which is troublesome. Usually nausea and vomiting, which is great or persistent if the outside covering or peritoneal coat of uterus is involved. The os uteri, to the finger, is hot; congested, patulous, sensitive; to the eye, it looks of a scarlet redness. The secretions of uterus

acid and acrid; usually after twenty-four hours there is a watery discharge, then bloody, or sanguineous, mucous, and serous; pains become acute and bearing-down, intermittent, cutting, but at all times the uterus is the seat of pain, which is aggravated by pressure of the hand, or bed-clothes. This pain extends to perinæum and front part of thighs. If case does not ameliorate, symptoms assume a typhoid form. Acute symptoms rarely last over seven days. Recovery may take place when the damage is not great, and the patient's affections not blasted.

In unfavorable cases abscesses form in the structure of the uterus, or other tissues, as the pelvic, areolar tissue, peritoneal membrane; substance of liver and stomach becomes involved, and gangrene sets in; or, in another class of cases, it may leave chronic inflammation, or enlargement, or induration of uterus, labia, and a muco-purulent diarrhea.

It may come on at any time if violence is inflicted. After parturition, a lady is not quite safe from an attack until after five or six weeks. It is exceedingly common and very fatal, and with very ordinary care it might be rare.

Treatment.—Formidable as metritis generally is, still, if seen early, much can be done to aid recovery. Suffering is much relieved by the recumbent posture and complete repose. Commence at once with opium and tincture of green root of gelsemium—half a grain of opium every half hour, with a few drops of the gelsemium (same as in peritonitis, pushed to narcotism). If we delay, or don't come right up to the mark of energetic treatment, the patient will die; don't hesitate; aconite does well, combined with gelsemium; excite an action on the skin with an infusion of asclepias, or boneset, or jaborandi; mustard over pubes for an hour, then followed with hot poultices of linseed and opium; keep patient on back, hips elevated; enemata of linseed tea, with tincture of opium, irrespective of diarrhea or constipation, twice a day; injection per vagina, of the same, or else an infusion of camomile and boroglyceride, thrice daily; dry heat to vulva; hop bags. If there is the debris of a placenta in the uterus, then that organ should be washed out with camomile and resorcin or creolin injection once a day. The great aim in the treatment of the case is narcotism; the opium relaxes neck of uterus sufficiently to permit the escape of clots or other bodies. If there is much distressing tenesmus, and pain in the sacrum, suppositories of belladonna and opium should be used.

Indeed, whatever the cause, from shocks, fright, lingering labor, or violence, or whatever the symptoms may be, they can often be very successfully combated with the opium and gelsemium; under those drugs the inflammation soon subsides,

becomes tractable and manageable. Great care should be exercised less abscess takes place, and it is well, as the active indications subside, to begin with small doses of quinine and antiseptic drugs.

The period of treatment is so short, that if the patient can be tided over the seventh day, the condition of death, at least, may be obviated. Nourishment must be meagre, and increased as recovery progresses; otherwise, if patient do well, the treatment of chronic metritis must be followed out. She must be careful not to get about too soon, as indiscretion may lead to a relapse.

Inflammation of the Uterus. (Chronic Metritis.) consists in a low grade of irritation, either of the neck or entire body of the uterus, with effusion of lymph, which produces enlargement and induration.

Causes.—It may follow an acute attack, or be brought about by masturbation, tight-lacing, which causes local plethora, or engorgement, or frequent miscarriages, or abortions; wearing sponges, pessaries; whalebone, knitting-needles, recklessly used; gonorrhœa, excessive coition, cold, fright and a sudden arrest of menses, or suppression; use of irritating injections; emmenagogue drugs.

Symptoms.—There is a languor, lassitude, debility, pain in the head and back, accompanied by a sense of weight at bottom of abdomen; a bearing-down; aching in thighs and hips, with severe griping pains in uterus, which is very sensitive to external pressure; there are heats and colds, or slight febrile attacks; loss of appetite, constipation, difficulty of breathing; and the headache is often intolerable. To the finger, neck of uterus is very tender, and has more heat than the surrounding parts; to the eye, it is a little redder, but considerably thickened, and there is leucorrhœa. The plethora or congestion of the uterus, with augmentation of bulk, causes it to descend, and produces some abdominal swelling. This increase in size and weight is due to relaxation of its tissues, and they being filled up with serum, lymph, blood, now grave changes take place, owing to the lost contractility and engorgement; its functional activity is entirely abolished; there is inertia, and the organ is predisposed to organic changes. The changes are not uniform, they depend often on conditions, as the transition to puberty, confinement, or forced, celibacy in virgins, or mental states; engorgements, indurations, ulcerations, are frequent results. These conditions are much aggravated if the chronic inflammation occur late in life, for then if the germs

of tubercle, or cancer, or any dyscrasia lurk in the system, it will be likely to manifest itself. In chronic metritis there is apt to be bladder trouble, rarely pain in sacrum, but possibly some pain if stools are hard. The entire train of symptoms of hysteria, in addition to the above, may be present. It may last a long number of years. The menstrual flow is usually excessive or may come on several times during the month.

Chronic inflammation of the uterus is one of the most common diseases among modern females, and renders their whole life a complete misery; and even if in mild cases they should marry and pregnancy take place, miscarriage at four and a half months will inevitably take place, owing to the stretching of the indurated fibres at neck, as the body expands, the irritation being carried to the fundus, and thus contractions are induced.

Treatment.—Patients suffering from this very chronic disease are usually able to be about, and are often engaged in their accustomed duties, although suffering greatly. If they are unable to rest a month or two, it renders the process of cure very difficult, because rest in the recumbent posture, in bed, with elevation of pelvis, is one of our main stand-bys. The recumbent posture is always to be preferred to sitting, and gentle walking to standing still. When menstruation is absent, daily bathing, shower bath, if possible, with hip-bath thrice daily; the vagina should be syringed out three times a day with demulcents or emollients, as linseed tea, infusion of marsh-mallow, slippery-elm, or camomile flowers; and as the case improves, alkaline injections, as soapsuds, borax-water, chlorate and permanganate of potass; the temperature that is best is slightly tepid; both bathing and injections to cease during the catamenial state, and when that is over to be resumed. Flannel clothing; bowels to be kept open once a day with cascara; the appetite to be stimulated with tonics; the very best of diet; beef, mutton, game, poultry, boiled white-fish, eggs, milk; coffee. If digestion is faulty follow with pepsin. Then place patient upon alteratives and tonics, general course, with a class of remedies bearing more especially upon the uterus.

The alteratives should be administered two hours after meals and should consist of one of the following for a week; then another, selecting the two that does the most good, using them alternate weeks: Iodide of potass in compound syrup of phytolacca, compound viburnum, compound stillingia, iodide and bromide of potass, macrotys in compound yellow dock.

Tonics before meals, selecting from the following: Glycerite of ozone, glycerite of kephaline, ozone-water, compound tincture of cinchona and nitro-muriatic, aromatic sulphuric acid and quinine, port wine and Peruvian bark.

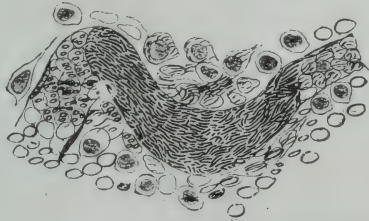
Inflammation of Veins. (Phlebitis.) Inflammation of the different coats of a vein with a coagulation of its contents, is most likely to occur from the introduction into the true skin or cellular tissue of some pathogenic microbe, as the micrococci of metria, in the lochial discharge; the virus of chancres; the dressings of wounds, etc.

Physicians, nurses, and especially washerwomen, are liable to have phlebitis, provided they have scratches or abrasions upon the hands, through which the germs might find an ingress.

The germs of puerperal fever, erysipelas, the micro-organisms of all forms of pus, venereal germ, are most active and very virulent.

Symptoms.—The moment these micrographic molecules enter the living tissue, there is pain, radiating in the course of the veins; these vessels become thick, cordy, swollen, and a streak of redness appears along the entire course of the affected vessel, first extending to the elbow, then up the arm; very prone, if not energetically treated, to terminate in suppuration; if so, there are rigors and flying pains in different parts of the body, with great constitutional disturbance and fever of a nervous or irritative type. When suppuration and abscess take place the coats of the vein ulcerate, and the contained clot is discharged by means of an abscess. The bacteria or germ-poison or microbe does not produce coagulation; it mixes with the blood, rendering that fluid a river of disease-germs, affecting the entire body, and giving rise to bacterial deposits in weakened parts, with embolism and abscess in vital organs, as the heart, lungs, spleen, liver, kidneys, joints and areolar tissue. In some cases a clot is carried from the vein to the heart, and causes sudden death.

Treatment.—The general management of such a case is of great importance; the suction and cauterization of the wound, the application of a solution of muriate of ammonia, and poultices with yeast and creolin. If the vein has become engorged, thick, cordy, the application of a row of leeches along it to empty it of its bacterial contents, and hot fomentation of ammonia or per-

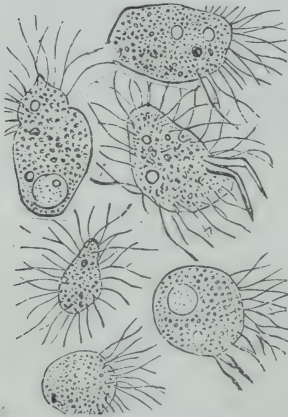


Section of a lymphatic gland in phlebitis, magnifying power, 700. In and around large number of minute bacilli are found at the seat of inoculation; the spleen is large; in the oedematous tissue and in the blood-vessels, large and small, numbers of minute bacilli are found, chiefly contained in the white blood corpuscles, but also free. They are very minute, about 0.008 to 0.001 mm. long, to 0.0001 to 0.0002 mm. thick, isolated or in couples, or in chains.

manganate of potassa; or if the clot in vein is so firm that the diseased blood cannot be drawn off, then to paint along the course of the entire vein with creosote, and then poultice with alkaline antiseptics, as tincture iodine in lime-water, etc. The creosote permeates the walls of the vein, kills the bacteria, and the blood regains its fluidity. It penetrates better than carbolic acid, and is just as effectual in annihilating the micro-organisms. Internally, acro-narcotics, as opium and belladonna in alternation; the former to relieve pain, the latter to maintain the fluidity of blood. Otherwise the case should be treated with a free use of antiseptics, those possessing alkaline properties, as ammonia, chlorate or permanganate of potass; sulphide of lime should have a preference. Suitable doses of quinine should also be given. The patient should be well nourished with essence of beef, eggs, cream, lime-water and milk, and a total alleviation from suffering.

Influenza. Infusorial Catarrh.

Like all microbial diseases, it has a definite period of incubation—sprouting and full growth.



The microbe present in influenza or infusorial catarrh.

A specific, epidemic, and endemic disease, due to the annexed microbe, which is pathogenic of it, and cultures from which it can reproduce itself again and again.

In some respects it is a marvellous germ, aerobic, can multiply in the air and reproduce itself.

Race and sex are equally attacked by the microbe.

Symptoms.—The symptoms consist chiefly of a general and definite febrile disturbance, and of a special affection of the nose and air-passages. The disease commences with shivering or a feeling of coldness down the spine, with a hot, dry skin, quick pulse, thirst, and severe headache. Sometimes these symptoms come on suddenly, sometimes they develop slowly in two or three days. If they come on suddenly, intense frontal headache with aching pain

over the eyes is generally the first symptom.

This feverish state usually lasts four or five days, and then gradually disappears, and its disappearance may be accompanied

by profuse perspiration or a troublesome diarrhea; in some cases the fever may last several days longer, but then some complication has probably arisen and given rise to inflammation of the lungs or some other organ. The peculiar catarrhal affection usually follows the early symptoms of the fever; it begins with swelling and dryness of the lining membrane of the nose, and the tissues or cavities of the forehead, causing great frontal headache and frequent sneezing; the mucous membrane of the eyes or the conjunctiva are generally affected in a less degree, and a thin acrid discharge takes place; now and then bleeding occurs from the nose; this condition then occurs all the way down the air-passages, even down to the smallest branches of the bronchial tubes. This affection may occur in the whole tract of the membrane at once, or, beginning in the nose, it may spread downwards into the lungs. The inside of the mouth and the tongue and pharynx may also become implicated, but in a less degree. The discharge from this inflamed surface is at first thin and acrid, and at times bloody; it then becomes thicker, tenacious, and purulent. The patient sneezes, has a troublesome and violent cough and pains in the side. There is great distress in breathing, and the pallor of the face and lividity of the lips show how great is the obstruction to the circulation in the lungs, for the blood becomes in such cases imperfectly aerated, and, owing to the accumulation of carbonic acid, flows through the vessels with difficulty. In most cases the catarrh is at its height by the third or fourth day, and generally declines from the fifth to the seventh, but in severe cases it may last longer. Coincident with the fever and catarrh, and perhaps in proportion to the severity of the former, is a peculiar state of the nervous system. There is great depression and loss of spirits, with aching pains in the muscles and neuralgic pains in various parts of the body or extremities. The mind is often affected, and the patient may become stupid or delirious. The temperature of the body appears to be raised in most cases, but no exact observations on this point have yet been made. Sweating of the skin often occurs during the deference of the fever, or at the time when a descent of the temperature takes place, but rarely in the early stages. Crops of minute transparent vesicles, or little blisters containing fluid, are often seen on the skin. Meningitis, or inflammation of the membranes of the brain, and otitis, or inflammation of the ear, may come on now and then. Great delirium, as well as intense headache, is a dangerous symptom. Neuralgic pains are met with in many parts of the body, and there is also a remarkable prostration of the muscular strength. The cough comes on in paroxysms, and may be so severe as to bring on a rupture, or

even abortion in pregnant women. There is but slight expectoration at first, and then the phlegm which is expectorated is stringy and often bloody, then it becomes more consistent, opaque, and purulent. Bronchitis, or inflammation of the bronchial tubes, pneumonia, or inflammation of the lungs, and pleurisy, or inflammation of the serous covering of the lungs, are present in some cases, and add to the danger; however, the frequency of their occurrence varies much in different epidemics; their presence may be detected by a careful physical examination of the chest, and by the increase in the distress of breathing. Vomiting and nausea often come on at the commencement of an attack; diarrhœa, as a rule, occurs later on in the disease, when the fever begins to abate. In some cases the skin assumes a yellow tint, and bilious vomiting comes on. As in most febrile affections, the urine is at first high-colored and scanty, and afterwards it often deposits a pink or reddish sand, made up of lithates. Occasionally there is complete or partial suppression of the urine. Now and then swelling of the glands under the chin or in the neck has been observed. Convalescence is often retarded by rheumatic-like pains in various parts of the body, and by prolonged debility or unusual nervous depression.

Treatment.—Consists in general principles, warm bath, rest in bed in a warm room; administer exalgine to reduce temperature, and comp. serpentaria to excite diaphoresis.

Select an efficient bactericide, such as sulphide of lime, or glucozone, or carbolic acid and tincture of iodine, as in typhoid fever; hot steam atomizers charged with iodine, or liquor chlorinated soda should be kept going on at bedside, and disinfectants exposed in the room in which patient is confined. Naphthaline is excellent for this purpose, as it retards the development of the spores.

Naphthaline finely powdered and well spread, or in solution and continually shaken, has its disinfecting power increased. In a temperature of 98° the effect of naphthaline is much more powerful, which makes it highly probable that it is chiefly in its gaseous state that it destroys the germs. Gaseous naphthaline in solution has more effect on aerobic than on anaerobic bacilli, and more on germs cultivated in a solid medium than on those cultivated in liquid. The conditions for the full effect of naphthaline are much more favorable in the intestines than in the test-glass. Naphthaline added to fæces decreases their germs by about a half, but, administered internally, it first decreases them to one-third or even a quarter; after this, however, their number rises again almost to its original figure. Against the bacilli of infusorial catarrh, naphthaline is considered still more effective,

and decreases the number of the germs even to one-tenth. The administration of naphthaline should be commenced at the very beginning of influenza, and continued all through the case. Subsequently tonics and nourishing food.

Epizootic affections in the horse are identical with influenza in the human being—in causes, symptoms and treatment, the amœba in animals being of a large or giant micro-organism. But suppose this form peculiar to the horse is communicated to man, we not only have an aggravated form of influenza or catarrh, but the giant amœba brings about chronic inflammation of liver, spleen, kidneys, giving us hæmaturia, Bright's disease, leucocythæmia, dropsy and death; so that in cases of this kind our best modes of nutrition, our most powerful antiseptics and tonics, fail either to destroy the germ or maintain vital force.

Pink Eye is simply a modified form of the epizooty or giant amœba, only affecting the mucous membrane of the eye instead of the nose. There is a scarlet redness of the eyes, quite considerable swelling, intolerance of light. General health is usually bad from over-work, over-crowding, sameness of diet, or else poor food, bad ventilation.

In all such cases an alterative and tonic treatment should be maintained for some months, and the very best of diet that the circumstances of the patient can afford.



These consist in the bruising, laceration, and
Injuries. division of various tissues, with or without wound of the skin and other parts. In all injuries from a simple contusion or bruise up to the most aggravated lacerated wound; from a simple strain up to a perforation of the skin, all are changed, altered into a bacterial mass. Even an ecchymosis, superficial or deep, all is bacteria.

When superficial, the ecchymosis of the skin appears speedily as a swelling of a reddish color, which speedily becomes black; on third day, violet, with diffused margin or edges; on fifth or sixth day, green; on seventh or eighth day, yellow; and then gradually disappears about tenth or twelfth day, sooner or later, according to the vital force of the patient, and intensity and depth of contusion. If the contusion is deeper-seated, it may not appear for twenty-four hours, or several days. Ecchymosis may, besides being due to injuries, be a symptom of purpura, scurvy, fevers, or of gangrene in inflammation.

The object of all sound treatment is to overcome the condition of partial death, by checking extravasation of blood, by preventing inflammation, by sterilizing and annihilating all mi-

crobes. For this purpose, the injured part should be placed in an elevated position, and a bactericide applied. To an ecchymosis, a lotion of peroxide of hydrogen should be applied; to an incised wound, a solution of boroglyceride; to a laceration, a wash of chlorate of carbon.

being a word of negation, is not easy to define. **Insanity**, Doubtless we may speak of it correctly enough as any condition which is not that of sound mind, but as this soundness of mind cannot be judged absolutely but only relatively, in giving such a definition, we are simply tossing the ball from one hand to the other.

Each case, in point of fact, must be considered by itself and as a whole. Nay more, one law which after all defines insanity, lays down different tests to be applied in different classes of cases. Broadly it may be said that the tests of lunacy, which are commonly used in exactly the same sense as insanity, are in each case incapacity to manage property or danger to the public, in criminal law; however, it is broadly laid down that the test of sanity is the knowledge of right from wrong—a test, as has been well said, which, applied to our lunatic asylums, would set at liberty three-fourths of their inmates. It would be useless here to enter into metaphysical speculations as to the connection between mind and brain, or the alterations in brain substance which are most commonly associated with the insane condition; suffice it to say that the current belief is, that in the great majority of cases of insanity there is a change in the brain substance just as there are changes in the lung in diseases of that organ, or of the heart when that part of the body is affected. For just as the function of the lung is respiration, and that of the heart circulation, so is the function of the brain the manifestation of mind. As we find in other parts of the body, however, when the self-balancing power is lost or in abeyance, there may be disorder of its functions without any marked, or, at all events, protracted signs of local change, so we may have in the case of the brain temporary insanity without any permanent disease of its structure such as give rise to the more permanent form of the malady. The causes of insanity are generally assumed to be of two kinds, as is usual in medicine; predisposing and exciting, but the so-called predisposing causes mean merely a state in which the individual is more likely to become insane than if the same set of circumstances were operating on him in any other state. Accordingly, the term predisposing cause may be looked on as synonymous

with *tendency*, and the origin of these tendencies has here to be discussed.

By far the most potent of these *tendencies* is derived from hereditary transmission, or, as would sometimes seem, transmission from collateral branches of the family. It is of the greatest possible importance to fairly understand and to face the tendency of insanity to become hereditary, for an individual with such an inheritance, if duly guarded, may pass through life fairly able to fulfil its duties, whereas if the fact of this inheritance be ignored and the individual left to face the world like men of stronger mental equilibrium, it is more than likely that at some crisis the equilibrium will be upset more or less permanently. The most difficult question arises, however, when marriage comes into play. Too often these things are kept profoundly secret, or even intentionally hidden away, especially where property is concerned; the result in many cases is unfortunate, the more so that the consequences of the deception frequently fall on the guiltless. We may, however, lay it down as a rule that if one has once been insane—be the individual male or female, though the rule is more binding on the latter than the former—marriage should determinedly be put out of the question. Much more difficult is it to decide in the case of those who belong to an insane family, but who have not themselves shown any signs whatever of the malady. There is always a certain risk, and this must be fairly faced, but the risk is less the further removed the insanity is from the individual concerned. Thus, an insane uncle or aunt would be a matter of much less moment than an insane father or mother, and an insane father or mother portends less risk than does an insane brother or sister. This heredity, however, tends to obliterate itself in course of time in two ways. Intermarriage with a healthy stock gradually diminishes the tendency to insanity in the survivors, and there is besides not only a natural but an artificial tendency to put an end to the heredity from the increasing numbers thereof. Thus, a certain number of those tainted will probably be incapable of propagating the race, and a certain number more being locked up will have no opportunity, and so between the two the insane members of the family tend to die out, whilst the stronger, having intermarried with a more healthy stock, in course of time become like other people. Age has something to do with the liability to insanity. It is greatest between twenty-five and forty, least in the first ten years of life. Then, too, the nature of the insanity varies with the age at which the individual is attacked. In the earlier years

of life there is much more violence connected with insanity than there is with the later; if this rule is reversed, the likelihood of recovery is very greatly lessened. Sex, as already hinted, has a good deal to do with the liability to insanity, though not in the way one might have conceived. When men have grown up they are exposed much more to conditions likely to disturb the mental equilibrium than are females; but, on the other hand, if there is a tendency to insanity in married females, it is, especially in the time of childbearing, etc., likely to have full effect. Next come the causes called exciting, which are special to the individual and not to any class or group, though practically it is found that the same causes do operate in a very considerable number of instances. Chief among these are the moral causes of insanity, which may operate suddenly in the way of mental shock, or they may act over a number of years. Doubtless the former are the more potent in destroying mental equilibrium, especially in a mind which is badly balanced by heredity or by means of the individual's own habits and training. These last, however, belong rather to the group of physical exciting causes. The most important, according to all accounts, is the inordinate use of alcohol. This is especially to be avoided in those of originally weak mind.

The symptoms of insanity differ greatly from the signs of any other disease. They consist in great measure of the sayings and doings of the insane individual, either acquired by the observer from direct inspection or by hearsay. There are certain words used in connection with the mistaken beliefs of the insane, which, though in ordinary parlance used synonymously, yet, strictly speaking, have got totally different significations. These are *delusion*, *illusion* and *hallucination*.

A *delusion* is a false belief relating to something which has a real existence, but to which the insane individual supplies attributes totally false. Thus he entertains a belief that some one, probably the least likely to do so, desires to swindle him; that he himself is a prince possessed of boundless wealth, etc.

An *illusion* is a false interpretation of the senses. There is something to be and something to have, but the patient gives them a totally false significance. A few rags are gorgeous robes; pebbles, pearls of great price; a few words spoken in an ordinary tone, a command to an army, etc.

A *hallucination* is, on the other hand, a mistake on the part of the senses. The eye or the ear itself seems to be at fault; the patient hears and sees things where there is nothing to see or hear. The word delusion is that commonly used so as to cover both the other terms; but should be limited to the mistaken

imaginings of one whose brain is disordered. These delusions are sometimes of a gloomy description. The patient is depressed or nervous, and proceeds to account for this feeling in the way most congenial to his fancies. A rich man may imagine himself a beggar; a good and worthy man, damned to all eternity. Moreover, everybody knows it, and treats him accordingly, or he has some special tormentor who will never leave him alone. Some patients entertain delusions of a totally different character; these delusions are exalted delusions. They fancy themselves rich and powerful, and they are happy; and yet the bodily condition of some of these poor patients is most miserable. They very frequently indicate a form of brain disease which advances through what to the bystander are exceedingly painful stages to certain death. Such delusions are most frequent in the condition known as general paralysis of the insane. Again, there are patients whose delusions take a different turn; they live in fear and dread, but under which they are not passive; they are prepared to fight, do anything for their life and liberty. Such are amongst the most dangerous class of lunatics. But it is not only by means of ideas, it is also by means of acts founded or not on these, that we judge of man's sanity.

Amongst the most notable acts of the insane are indecent exposure, which very often occurs in the early stage of general paralysis, and stripping off of clothes, which has a most variable signification. Very frequently the removal of clothes is had recourse to out of revenge for not being allowed to do as the patient pleases. In other cases the patient cannot bear the feeling of clothes on the surface, and so tears them off him to get rid of them forever. In either case it is troublesome and an expensive symptom. In many cases it is hopeless to cope with it. Give the patient the strongest materials, fastened on ever so carefully, by-and-by they will be torn off and torn to pieces; blankets are torn in the same way. For the former class, that is to say those who destroy clothing not knowing what they do, nothing well can be done; but for the others some sort of punishment has to be devised; for they know perfectly well what they are about; and if this fails, constant watching, which generally puts a stop to the nuisance.

Suicidal acts, or acts of self-mutilation, are frequently committed by the insane. In the form of insanity called suicidal melancholia, where from the depression of mind life has become unbearable, it is frequently hardly possible to prevent the patient from destroying his life. He will watch his opportunity for years, and the first opportunity is sure to be taken advantage of. Very frequently in these patients the homicidal is closely associated with suicidal impulse. The subject of homicide, however, brings

us to the consideration of those acts which are directed towards others rather than to the patient himself. Not unfrequently homicide or suicide is the result of over-powering terror. This perhaps is the most frequent form assumed in the insanity of drunkards. The patients in dread of their lives attempt to escape, and are killed in the attempt, or in their desperation and dread of attack turn upon the attendants and kill them. A goodly number of the murders committed by the insane are from delusions. A man thinks his wife and children are going to starve, and so thinks it better to kill them at once; or he fancies he has got a command from on high to sacrifice them, and does so. Yet, again, it may be done from sheer wantonness, as by an imbecile. In all of these cases there is, as a rule, no difficulty in making out the insanity; it is not concealed, and may otherwise be only too apparent; but there is yet another group of cases, which are of a much more doubtful category. It is well known that the great majority of confirmed epileptics sooner or later become totally insane. These constitute the very worst class of insane patients. Utterly untruthful, not a single word they say can be depended on. Nor is an attendant's life safe with them. Before the onset of the epileptic fits, if they have them at intervals, they generally go through a state of excitement, in which they are exceedingly dangerous. Now the stage is sufficiently well marked long before the minds of the patients are so far gone as to require them to be sent to an asylum, and during these periods they are at any time liable to commit murder, and so it may be said of them just after such an attack. It is, however, with regard to paroxysmal insanity that there is most discrepancy between the opinions of alienists and the public at large. In the latter the idea is not pleasant that a man may go on all his life quietly and decently; yet suddenly an uncontrollable impulse comes on him to murder some individual, after which he returns to his normal state. Yet most physicians, who have studied the subject, are agreed that this is so; and it has now apparently been admitted by the Bench.

Homicidal mania, on account of its great importance, is not infrequently elevated into a special form of insanity. So too are certain others, one which, however, we generally hear of when affecting some of the higher classes of society. These are kleptomania, entomania, and pyromania.

Entomania can hardly be called a special form of insanity; inasmuch as the patient almost invariably labors under other signs of brain weakness. Nevertheless, in some insane patients, the lucid instincts are the most prominent of these symptoms. Such instincts are exceedingly common in many cases of insanity,

especially in the early stage of general paralysis. It is, however, in women that the form of the malady is most marked, especially in young women.

So of *pyromania*. Undoubtedly a good many patients have an inclination to set things on fire, but such a tendency is hardly to be elevated to the rank of a special form of insanity. In many insane people the impulse to destroy everything they can lay their hands on is very great, and a very convenient way of so getting rid of things is to set them on fire. But in all of these patients there are other signs of insanity than a tendency to set a light to everything they can. Roughly, and in such a way as will well suit our purpose, we may divide most cases of insanity into two divisions; those in which there is apparent exaltation, and those in which there is depression, and these two we shall describe as *mania* and *melancholia*; but both of these tend in the long run to end in a condition characterized by absolutely no mind—what we term *dementia*, though there is a condition not inappropriately termed acute dementia.

Most forms of insanity are preceded by a period during which the patient is not quite himself; he is odd in his ways; there is confusion of intellect; bad sleep at night, and the patient is easily excited. The advance of the malady depends a good deal on the amount of sleep taken. His delusions, at first mere momentary fancies, become fixed and insuperable, and drive the patient to acts of insanity. Then most likely the medical practitioner is called in, and the patient is probably moved to some place of refuge. At this time the patient will probably complain of headache, very likely with slow pulse and confined bowels; if a woman, the menstrual function is generally impaired, or there may be pregnancy, recent parturition, or nursing. All these may be removed, and yet the patient does not get well; we cannot restore the mental balance. As a rule, the first thing is to remove the patient from home, and surround him with new attendants who will take him duly in charge in every way, when he will be removed from the causes of aggravation, be they what they may. With this change of scene and pursuit there should be a change of diet to a nutritive one, if it has not been so before, and then everything must be done to secure good digestion and a due nutrition. The bowels must be properly looked after, and sleep must be got. Opium is not good; in such patients it often excites rather than soothes, and increases the headache. Chloral is better, and had better be given in good full doses, thirty grains or so. It does not confine the bowels. If there is a tendency to epileptic fits, bromide of potassium had better be given them too, in full doses of twenty or thirty grains, three times a day.

Tonics, especially strychnine, in careful doses, given so that the patient can never command enough to do himself harm, should be administered.

All these things require very careful superintendence, and as it is quite possible that the patient may get worse instead of better, when constant action may require to be taken, it is always better to select a place for change of air and scene where there is a good practitioner on whom you can rely, not only for medicine but also for what in such cases is more valuable—namely, advice how to act. Most probably, if the case assumes a confused character, it will also assume the phase either of melancholia or of mania. If *melancholia*, then the utmost depression overpowers the unfortunate individual. Everything that happens round him seems to be connected with his evil fortune. Very likely he thinks he has committed sins too black for him to hope for forgiveness. No argument will get him out of these notions; it is useless at this stage to attempt it. The appearance of many such patients is very striking. Woe-begone in the extreme he may stand for hours in one spot, never moving, or he may be restless and trying to wander away, so to speak, from his evil fate. Usually such patients suffer a good deal in health; they become thinner from want of food and sleep. The pulse is slow and weak, and the general condition of the patient indicates imperfect nourishment and bodily change. Suicide is greatly to be apprehended in a good many cases, perhaps the majority; and this tendency may be so suddenly developed as to defy anything save the greatest caution from the commencement. For this reason, skilled attendance is of the first necessity, but it does not greatly matter whether that be carried out at home or in an asylum. Food and sleep are the two great remedies for this state, with absolute mental quiet. For sleep, chloral is best; but if this does not suit, morphia may be given under the skin. The diet should be carefully selected, so that nourishment in abundance may be given. Sometimes these patients refuse their food, and when that is so, they must be made to take it, either by the stomach pump or through the nose. The bowels must be moved and kept open. First had better be administered a turpentine enema, after which a dose from time to time of castor oil, or a small quantity of aqueous extract of aloes, daily at dinner time, will suffice to keep them open. The moral treatment of such patients needs to be begun as early as possible. The great thing is to draw their attention from themselves, and that must be done carefully and judiciously. Once they are brought to take an interest in anything outside themselves, they will generally do well; this is the first step towards recovery. At

this stage, any sudden event which necessitates, or ought to necessitate exertion, will frequently suffice to complete a cure; but if there has been no improvement, it may do harm. Certain of the peculiarities above alluded to as characteristic of melancholia are much better marked in the form of the malady known as acute melancholia. The patient becomes actually frenzied from fright. Such patients have very high suicidal tendencies, and require the most careful watching. These, too, are the patients who most commonly refuse food, and who require to be fed forcibly. They also refuse to lie in bed at night, and especially to be covered by bedclothes. This too must be forcibly combated. Patients, the subjects of this form of disease, generally end badly. They are sure to be badly nourished, and a very little superaddition to their troubles in the way of acute disease, finishes them. The lungs are especially liable to be fatally affected by low forms of inflammation.

Mania, accompanied by delirium, is perhaps that form of the malady which is taken as the type of madness by uneducated people. The patient may be suddenly seized with this form of the malady, and may as suddenly become free from it. It is most frequently caused by violent passions, disappointed love, violent grief and the like, especially if the patient be weak-minded or hysterical. The importance of such an attack must depend very greatly on the soil in which the bud is cast; if there be much of an hereditary taint, the attack may be a final and complete one, whereas under more favorable circumstances it may speedily pass away. As a rule, too, the more marked the symptoms of onset, and the longer they have shown themselves before the actual malady bursts forth, the more severe it is likely to be. It is not always desirable to hurry these patients to an asylum, for, as said, they may recover perfectly in a day or two; but frequently it becomes absolutely necessary to do so.

Acutely delirious patients generally behave much in the same way. They sing and shout, and will not rest a minute. Commonly they are utterly incoherent, jumbling their words together, or they repeat one word or phrase like a parrot *ad infinitum*. They show less delusions than do many other insane patients—their condition is indicated more by gesture and behavior than word. Sometimes they are full of glee, laughing and shouting; at other times they are angry and outrageous, but not nearly so dangerous as some who are quieter in their demeanor. As in most similar conditions, the great object here is to get sleep and rest, for which chloral is the best medicament. Opium generally does harm. Some prefer digitalis to all other remedies, or give its active principle, digitalin, under the skin. The wet pack is a

means of treatment greatly commended by some. (See *Packing*.) It is chiefly with regard to these cases, or to the occasional outbursts of chronic lunatics, that the question of restraint or non-restraint arises. To some it may seem superfluous to speak of there being nowadays a question between the two. Nevertheless, no asylum can be carried on without some system of restraint. It is itself a system of restraint, and the only question is how best to restrain the patient; if that can best be done by living force, let it be applied in the form of the male or female attendant's hand. If such is likely to do more harm than good, or even if it cannot be used with such advantage as can some other form of restraint, let the other, even if it be the strait waistcoat, be applied. During the very acute attack there will be sometimes an entire absence of sleep for days and nights. Women can stand this much better than men; but both men and women require to be well sustained by food during the sleepless period. Rest, food, and sleep are the great remedies, and the means of procuring the last have once more to be examined. Once more chloral stands at the head of the list; once more opium has only to be mentioned to be forbidden. Indeed, before chloral came in, treatment by baths was relied upon, so general was the distrust against opium. No doubt the baths did good by soothing, but they also weakened the patient. The bath, to do any good, must be hot, and a stream of cold water or an ice bag should at the same time be applied to the head. The best temperature for the bath is about 92° or 93° F., and the patient must be kept in it for a considerable time—half an hour or so. Shower baths are not to be given. If the bowels be confined a good dose of calomel may be given; but this had better not be repeated.

There is still another form of *mania*, which may be acute, and yet there is no *delirium*. This insanity may consist of delusions, but more frequently manifests itself in actions usually of a violent and dirty description. Frequently the patients have their wits about them in an almost surprising fashion, quite baffling the medical man who endeavors to examine them, so as to sign a certificate for their admission to an asylum. Yet, as soon as the practitioner is gone, they are dirty and abusive as ever, shameless in their conduct, tear up clothes and sheets, break windows, chairs, and the like—in short, act like the veriest demons. Their incoherence might sometimes be mistaken for delirium; but it is totally different. The health of these patients is fairly good; they eat well and sleep well apparently when they like. At all events they will have good rest one night, and the next they will disturb the whole ward throughout the whole night. Sometimes they may go on like this for long periods

together, and, as they are exceedingly troublesome, care must be taken to get them quieted. This was the class, and they constitute a goodly proportion of our asylum folks, who used to be dealt with by bodily punishments. The plan did not succeed. The plan now adopted, which as a rule, but not invariably, answers, is to give to those who are quiet and well-behaved, and who do any work, some trifling reward—extra beer for dinner, tobacco or snuff, which are always greatly relished; the privilege of excursions and the like. Work in the field or garden is the best means of keeping such maniacs out of mischief. Very often these patients are allowed to run on without care or attention until too late, provided they are not especially troublesome, for the malady tends to a chronic course if not speedily cured, and the only hope of cure rests in seclusion.

There is a variety of insanity to which the name monomania has been given, and of it kleptomania, entomania, pyromania are commonly adduced as examples. But it is rare, if indeed such a thing ever happens, to find a man mad on one point and not on others also. At all events this almost invariably happens—one permanent feature of their maladies may for a time be most marked, but by-and-by, as time passes, the madness is seen in other features of the patient's character, and he probably ends by becoming a chronic maniac of the class just described, or a melancholia, but without the characters of either division being very strongly marked.

Such are the main divisions of insanity; but there is one other so peculiar that we are fain to give a brief sketch of its history. The malady is commonly called general paralysis of the insane. It is commonly described as constituting three stages, of which the first is such as may give rise to little anxiety on the score of insanity, though the individual is often greatly altered from his former self. The second period is one of acute mania, with exalted delusions, and the third one of complete dementia, with complete prostration of mind and body. In the first stage, a general paralytic is usually a prey to exalted notions of his own importance and power. If he has money he scatters it broadcast, fancying his supply of it is unlimited. He asserts himself as some great dignitary, not unfrequently God Himself; but if this position is denied, he will not take the trouble to argue the question—he will let the objector go in what seems to him his besotted ignorance. As a rule, too, sexual ideas take hold of him, he exposes himself in any situation, or assaults women in the most unlikely neighborhoods. He is restless, and, above all, forgetful. He takes an interest in nothing, or if he do it is laid aside in a moment, all about it being forgotten. At this period,

too, in some cases, though not in others, there may be observed a tremulousness about the upper lip, and a slowness of speech, which are very characteristic. Both these signs, are, however, much more marked in the second stage, when the patient becomes fairly the subject of delusion. These delusions, as already pointed out, are all of an exalted character. He can do wonders in every way. All his surroundings, though of the most trumpery kind, are interpreted as being of the grandest character; his power is immense, and his bodily strength, though like that of a child, he thinks incomparable. As to physical signs, as already pointed out, they commonly begin with slowness of speech or rather a kind of interval between each syllable, with a kind of stutter or drawl something like the utterance of an intoxicated man. There is, too, that tremulous motion of the upper lip which is so peculiar; but in some there is a kind of stiffness and swelling instead of the tremulous condition. The tongue, too, trembles when thrust out, and it is thrust out with a jerk, as if the patient had not full command of it.

As the malady advances the delusions of these unfortunately get worse. At the same time they are liable to break out in fits of violence of a most dangerous character. They are altogether unreasoning, and as they are generally men in the prime of life, they are not easy to manage when they break out in fits of violence. By-and-by they become subject to fits of a peculiar kind, not seldom resembling the slighter attacks of epilepsy called *petit mal*. The walk alters, it becomes vacillating about the hips, and the legs are not moved as usual, but are rather thrown forward with a kind of jerk. The hand-writing, too, becomes imperfect both as to mechanism and material. Words or letters are omitted or inserted wrongly, the same word is repeated over and again. The whole is nonsense. The food is eaten voraciously, sometimes bolted, but in other cases, especially as the malady advances, there is difficulty in swallowing from paralysis of the fauces. Such patients are very destructive and very dirty, but they tear up their bedding without knowing what they are doing, and they dirty themselves very frequently for ornament.

By-and-by the patient gets worse; he can hardly walk or shuffle round the room; he loses power over the bladder and rectum if not constantly attended to. His face has lost all expression, and yet it seems fat and puffy. He can hardly hold anything in his hand, and if he is confined to his bed, sores form which are hard to heal. Grinding of the teeth is very often a marked symptom. His appetite is still good, but he has lost the power of swallowing comfortably, so he crams his mouth and throat, and there is a risk of suffocation if this is not seen to.

At this time all such patients require to be fed. In point of fact everything must be done for them. But even in this state they may survive a good long time if care be taken of them, and if they are protected from cold, to which they are very sensitive. The average duration of the disease, from the onset to the end, does not exceed as a rule two years, whilst it may be much less.

The causes of the malady are hard to determine. It generally occurs in the prime of life, and most frequently in males. In a certain number of cases it can be traced to overwork of the brain, but as the malady is more common among the laborers than the rich, this will not account for nearly all. Another cause assigned is sexual excess. This, of course, is no easy to make out, but irregular lives have been noted in a considerable number. As to treatment, that is useless; we must just do our best to keep the patient quiet, clean and orderly. We must try to feed him well, and as soon as any difficulty in swallowing appears no food must be given in the solid state—the pulpy condition is best. If they are confined to bed for a day or two their backs must be carefully watched, and, if necessary, washed with some weak spirit with a little corrosive sublimate in it. Stimulants are usually necessary, especially in the latter stages—in the maniacal stage, they must be given with caution. In these cases during a maniacal paroxysm digitalis or digitalin often does good, but only for subduing the paroxysm; nothing does good permanently. Meanwhile, as far as we know, the malady invariably ends in death.

Feigned insanity has already been alluded to, but briefly. Often as insanity is assumed the fiction rarely succeeds. The would-be lunatic, as a rule, overdoes his part; most likely he has never seen a lunatic, and his only conception of one is a raving maniac. The means of detecting feigned insanity are not too numerous, each case must be dealt with on its own merits; and there are some men known to be sane who have for years succeeded in keeping up an ostensible insanity.

Associated with, and dependent on a shallow state of the typical fissures of the brain, among the ordinary phenomena of minds not regarded as insane, there is an inordinate tendency to acquire, or collect, or hoard. So long as such an impulse does not interfere with the rights of others, or involve a breach of the law, it is readily admitted as an indication of disease, or an absurdity or eccentricity which may consign the individual to an asylum, or to contempt. But when the amount of the object appropriated,

or the circumstances under which it is purloined, bring the matter into a court of justice, the act is treated as a theft and punished. In very many cases this is the result of cerebral disease, in which the typical fissures of the brain are partially wiped out.

The inclination to steal is a premonitory indication of many forms of mental disease, often a characteristic symptom, where violence, delusion, eccentricity, incoherency leave no doubt as to the source from which it springs. But there are many other cases in which the morbid origin cannot be so clearly demonstrated; where the mind is clear and cogent, the morals pure, and where the theft is the only proof of insanity.

The propensity to steal may be so irresistible that the will is impotent, that the appropriation is involuntary and the perpetrator irresponsible.

The gratification of the impulse is found associated with physical changes and conditions which may be regarded as incompatible with the healthy discharge of the nervous system, but the connection is not invariable, and the best mode of establishing the reality of such a disease, is to consider marked cases, in relation to the character, interests, and previous development of the individual, to the nature of the articles taken, to the motive which determined the action. The incongruities of some point to the existence of deep-seated cerebral changes.

Each case must be tested on its own merits and all its salient points and features well considered. The objects stolen, often ostentatiously, without any adequate precaution to conceal the attempt, or perhaps the article taken may be of no value, even useless to the taker, or the taker quite wealthy. The act is solitary, without motive, and promptly and spontaneously avowed and restored.

This disease is observed in extreme youth, near puberty in both sexes. It often follows falls, blows on the head or spine, and looms up as a symptom of perverted sexual abuse, and of pregnancy.

But it is when the uterus undergoes those critical and crucial changes at the turn of life, that this affection is most prevalent. The interstitial changes in the womb and ovaries is reflected to the brain proper, and produces grave changes in the cerebrum—changes which the modern jurist and philanthropist should note. The incarceration of such cases is a blot on the civilization of the age.

The therapeutics of insanity are of late years becoming more extensive.

Chloral hydrate and bromide of potassa in syrup of orange peel, must be given cautiously lest cardiac syncope be induced.

Chloral, bromide potass, conium and hyoscyamus best adapted to procure sleep.

The hydro-bromate of hyoscyamus very valuable in melancholia.

Amyl nitrate is very useful alternated with morphia.

Ergot, combined with hypophosphite of soda, excellent when paralysis is threatened.

When insanity is complicated with epilepsy, belladonna, gelsemium and cannabis indica afford most salutary results.

Turpentine of utility when symptoms of an hysterical nature manifest themselves.

Strychnine, avena sativa, electricity, calabar bean, used with variable success.

For procuring sleep, *amylene nitrate*, sulphonal, paraldehyde, hydrochlorate hyoscyamus.

Insomnia is often an early and premonitory symptom of a partial death of the brain.

Insomnia.
(*Sleeplessness.*)

It may be caused by passion, mental anxiety; dyspepsia; imperfect action of the liver;

constipation; disease of the heart, pregnancy.

It is often an aggravated and persistent symptom of chronic inflammation of the brain, insanity, mania, chronic alcoholism.

Besides, it is often present in neurasthenia, poverty of nerve force, cerebral softening, paralysis and other states, which are the sequel of exhausted nerve force, whether by mental work or sexual excess; it brings about the state of an organ tissue-starved. Following this, granular deposits on the arachnoid, adhesion of the membranes to the surface of the convolutions, crystalline granulations in the lining membranes of the ventricles, with an unusual amount of fluid in the sac of the arachnoid and in the lateral ventricles are found in the brain of those who devitalize that organ. A tissue-starved brain gives rise to inflammation of the cortical part of the brain, ending in its degeneration of the nerve cells of the hemispheres, structural change in the convolutions, the cells of which lose their integrity and look like an irregular heap of particles ready to fall asunder.

The brain of man owes its healthy existence to the quantity of phosphorus it contains; if this is economized, independent of its scantiness in modern food, it might sustain him probably as long as life lasts and health holds out; but let the brain starve, health fails, nature can supply no more; then, unless the patient can obtain phosphated food, or ozonized tincture of oats, or the animal phosphorus of kephaline, degenerative changes will take place in the gray substance of the cerebrum; the cells of that

part will become granular and deposits of granules scattered through its substance, and these changes take place in all parts of the brain and spinal cord, when the phosphorus in the brain is exhausted. Brain workers, merchants, professional men, know this; they feel it in their languor, tired brain; those are the victims of excessive brain exhaustion. How far this granular change in the nerve cell is compatible with healthy mental action, we cannot yet say.

In the treatment, the removal of the cause, whether it be mental or physical; the regulation of the secretions; daily baths, with massage; good digestible food; moderate exercise; abundance of fresh air; an avoidance of all stimulants, as tea, coffee, tobacco, are all important.

One essential element in the management of all cases of insomnia is to crowd in more elements containing more phosphorus.

In order to accomplish this, without disturbing the organism too much, it is always best to administer a tonic, either wine of cinchona or ozonized coca wine; the latter being essentially the most active, it stimulates the absorption of vitalized phosphatic compounds. The tincture of oats and the glycerite of kēphaline are the two best remedies for brain nutrition; and we can procure their absorption by means of the coca. These remedies when thus administered, penetrate the brain, nourish and invigorate it. These are our two best brain foods, a nerve-vital essence; they entirely supersede comp. hypophosphorus as a reconstructor of shattered nerve force; invaluable in all forms of loss of brain power, as loss of memory, paralysis, white softening; very refreshing to the nerves when tired by worry, when in neuralgia they cry for richer food, purer blood.

These are the only true remedies, they cause sleep by promoting cerebral nutrition.

In order that this point be correctly gained, sulphonal can be administered in doses sufficient to procure sleep, until the remedy has time to act.

Sulphonal is the best of all drugs for that purpose, as it does not interfere with the secretions.

It is a capital remedy in cases of sleeplessness in brain-starved subjects.

Other drugs of value are boldo; glucine; methylal; hydrate of amylene; somniferin; antipyrine; hyoscyamus, etc.

All remedies failing, then the case should be placed upon precisely the same treatment as that employed for neurasthenia, namely, vitalized massage, electricity, seclusion, rest, and generous brain diet. This is never-failing, although expensive.

Invagination of The Bowels. Invagination or intussusception is the most frequent of all kinds of interstitial obstruction. In the case of children, it is the characteristic form of obstruction, and any other kind is a rarity. In adults, the affection is far less

common, and differs in its locality and in its clinical course. The disease is far more frequent in children than in adults, and in infants at the breast than in older children; it is more common in boys than in girls; in adults, the distribution between the two sexes is more nearly equal, or even.

The invagination may take place at any portion of the bowel, but most common at or near the ileo-cæcal. In the so-called enteric form, the lesion is in the small intestines; next the colic variety, in which the large intestines is affected, and the valvular or ileo-colic variety, in which the ileum passes through the valve. Intussusception of the rectum is so rare that it is a pathological curiosity, and still more exceptional is it for the duodenum to be involved.

Judging from statistics, the common types are more common, and the rarer forms more rare than is generally supposed.

The course of this affection is essentially acute, from a few hours to a few days from the first symptom to the termination in recovery or in death.

Symptoms are remarkably constant and even; pain always persistently present, severe, and sudden in its accession; then remitting, returning again and again. It is of a colicky character.

Vomiting is usually an early and very constant symptom. It is a reflex effect. In chronic cases it subsides, or may even be absent at first, and appears in the later stage, when mechanical obstruction has become complete.

Tenesmus, which is often mentioned as a characteristic symptom of invagination, only appears when the intussusception has reached the rectum. It would seem to be always absent when the small intestine is the seat of the disorder, and is naturally more obvious in adults and older children than in the case of infants.

The bowels are, in some of the most acute cases, confined from the first, in others diarrhea appears for a time, and in the more chronic there is often a period of irregular looseness of the bowels, ending in complete obstruction.

A more characteristic symptom is the passage of blood, or of blood and mucus, unmixed with fecal matter, containing no pus, and varying from frequent and abundant hemorrhage to the presence of a little blood-stained mucus on the examining finger. We never see the black, tarry stools of melæna, for the blood has

not undergone acid digestion in the stomach. Hemorrhage from the bowel is almost invariably present.

The characteristic sign of a tumor felt through the abdominal wall was present in sixteen cases out of twenty-four. The only other movable tumors likely to be present in a case of obstruction are a scybalous mass in the colon, a gallstone impacted in the small intestine, or a cancerous nodule in the omentum. The two latter possibilities would be excluded in the great majority of cases of invagination by the age of the patient. No other tumor moves gradually from the right iliac fossa across the abdomen, and no other contracts under the hand as an invagination sometimes does. If the reflex centre is in any way weakened, tetanic symptoms slight or aggravated according to the weakness existing.

Abdominal distension is occasionally an early symptom, but more often only appears in the latter stage of chronic cases. It was most marked in a case which lasted three months, and was associated with visible peristalsis, an appearance commonly indicative of chronic obstruction in the larger intestine; but in this case the invagination affected the ilium.

Infants very early show signs of collapse, with cold extremities, feeble pulse, and sighing respiration. The temperature is often subnormal, but in one case of mine, in a child six months old, it rose to above 103° F., although the autopsy showed neither peritonitis nor any other morbid condition, but a reduced ileo-cæcal invagination.

Diagnosis.—When there is no tumor to be felt either in the rectum or through the abdominal walls, the diagnosis of the case depends on the combination of symptoms of acute abdominal disturbance, pain, vomiting, and early or late obstruction, with the passage of blood and mucus. When these occur in a child almost the only condition likely to be confounded with invagination is ulcerative colitis, so-called infantile dysentery. In adults the diagnosis is more difficult. Cancer of the upper part of the rectum may closely simulate the effects of invagination, particularly when it leaves diarrhea, instead of, or in addition to, constipation.

Prognosis and Treatment.—Invagination is always a grave condition. There is little doubt that the bowel occasionally extricates itself by a reversed movement, as may be seen in the case of animals dying from asphyxia. This natural reduction happened in three out of twenty-four cases, in one of them under the influence of chloroform.

Far more frequently cases left to themselves go from bad to worse; the invagination extends farther and farther, and the

patient dies quickly of abdominal shock, or more slowly from exhaustion or from peritonitis. If the invaginated gut sloughs off speedy death often follows by perforation or by hemorrhage. Probably this event was more frequent formerly than now, when our power of diagnosis and of treatment is better. It has rarely been recorded in the case of children, and is an accident of chronic rather than of acute cases. The part involved is more often the small than the large intestine.

The best treatment seems to be to administer chloroform at once, and then to inject air. When the abdominal walls are relaxed, a tumor before undetected may be readily felt, and the condition is more favorable for inflation. If for any reason, however, it is undesirable to administer chloroform, or if inflation has to be repeated, there is no need for an anesthetic, since the operation is painless. The hand should be kept upon the abdominal tumor while air is being forced into the bowel; the inflation of the colon is then felt, and the tumor disappears from the touch with a characteristic sensation. Moreover, one can thus better appreciate and regulate the force used, which must be gradually and cautiously increased. If with justifiable pressure reduction is not effected, the best plan is to desist for two or three hours, put the patient under opium, and try again either by inflation or by an enema. Not infrequently the invagination returns after reduction, but it may be again reduced by a second or even a third inflation. When the invaginated gut has reached the anus, or protrudes therefrom, it must first be replaced by a large, well-oiled bougie, until there is sufficient space in the rectum for the nozzle of the inflation-pipe to enter two or three inches. An ordinary pair of bellows is as convenient and efficient as any other means of inflation, and has the great advantage over specially devised apparatus of being always at hand.

Some good authors prefer the administration of forcible and copious enemata to inflation as a means of reduction. The water should be warm, plain or medicated with lobelia; and the requisite power obtained by raising the receptacle from which it flows. Advantage is moreover gained by raising the patient's pelvis, or by more complete inversion of the body, so as to open out the sigmoid flexure and increase the space between the "plug" and the anus. On the whole, the injection of air appears to be the safest and most efficient treatment.

Neither method, however, is uniformly successful. Indeed, when the invagination has long existed, adhesions have taken place, so that no safely exerted pressure can reduce it; and if this were effected it is likely that a rupture of the softened or sloughing gut would take place. In one case that lasted only a

single day it was found impossible, even after death, to effect reduction by injection of water into the rectum.

In these cases we must, after two or three careful and patient attempts, either keep the patient under opium and hope for a natural cure by the plug sloughing off safely, or else open the abdomen and deal manually with the invagination.

In this case we have the great advantage of a diagnosis, so that the surgeon knows what he has to deal with. The seat as well as the nature of the obstruction can usually be ascertained, and there is scarcely ever already existing peritonitis. These are all favorable circumstances, but on the other hand we have the early age of most of the patients, and the fact that they are already exhausted by want of food for hours or days, as well as by pain and vomiting. In the more chronic cases the patient is usually older and stronger, and more nourishment has been taken; but it is likely that adhesions and other local changes may have rendered reduction impossible or dangerous.

The results of treatment are not, therefore, very favorable. Of a very large number of cases treated, a very large percentage died. The most recoveries take place under the administration of large doses of opium, hyoscyamus and belladonna, internally; with copious warm lobelia injections into the rectum.

In nearly all cases of abdominal section, death follows, not from the operation and peritonitis, but from the damaged state of the invaginated intestine, or from the shock and collapse.

This is the name given to a disease of the skin in **Keloid**. which there is hardening or thickening of that tissue, so that the part very much resembles that seen after a burn. It occurs on the back and upper extremities chiefly, and seems to be an incurable disorder. The word "keloid" or "kelis" is derived from a Greek word signifying a crab's claw. There seems to be two kinds or varieties of this disease. The one appears as hard, shining tubercles or small nodules of a dusky or deep-red color, and generally attended with itching, pricking, shooting, or dragging pain in the part. These tubercular elevations gradually increase in size until they are as large as a horse-bean or even an almond, and about one-tenth or one-sixth of an inch above the general level of the skin. They are hard, firm, and elastic, but after a while they become broader and more irregular. Some delicate whitish, glistening lines appear on the surface, and from each there is a claw-like process from a quarter of an inch to an inch in length, which appear to cause a puckering of the skin. Growth may go on for months and even

years, but they only cause local inconvenience and do not impair the general health. The other form of keloid does not begin with tubercular elevations, but as white, roundish patches of skin, very slightly raised and surrounded by a zone of redness. At first there is no pain nor uneasiness; afterwards there is itching and pain with a feeling of tightness in the part; at length the part becomes hide-bound, and the skin is hard and rigid, so that the movement of the part is impaired. The fingers are very liable to be affected in this way. After a time the skin shrinks, becomes red or yellowish, and may go on to ulceration. If the affected part be extirpated it often returns, and no treatment seems to be of any avail, but a prolonged use of the Chian turpentine mistura.

Skin diseases in our country have neither the **Leprosy.** virulence nor malignity of other parts of the world. This is due to our highly oxygenized atmosphere, to the extreme abundance of healthy food, and cleanliness of our people.

We look with holy horror at the emigration to our north-western States of nearly all the lepers of Scandinavian Europe and Asia. It is well known to our profession in those States that certain localities are literally packed with individuals having this malignant disease. The time is opportune and no false notions of philanthropy or religion should deter us from insisting upon the segregation and isolation of all lepers, and upon forbidding all such entering our country in the general tide of immigration.

Lepra is an infectious parasite disease of an exceedingly chronic character, the microbe or parasite in its embryonic state breeding in the blood, when more matured invading every organ and tissue of the body; chiefly characterized by cutaneous pigment changes, disordered or abolished sensation—making its chief ravages upon the skin, in either tubercles, bulbæ, cicatrices, atrophies, or destruction. The germ creates a cachexia which terminates fatally.

There are several varieties as lepra tuberosa, maculæ, anæsthesia, etc.

Leprosy is a contagious and infectious parasite disease, produced by the bacillus lepra. Common to both sexes, all ages. After the microbe is once hatched, breeding freely, it produces organic or degenerative changes in the nerves, which explains the anæsthesia, or hyperæsthesia, and possibly the pigment alterations, so characteristic of the malady.

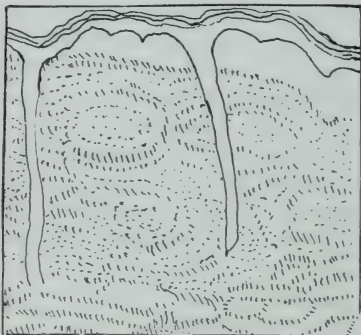
The peculiar inaptitude of the nervous tissue to undergo retro-

gressive metamorphosis; the slow growth of the germ, its tendency to invade the skin with no involvement of the internal viscera, explain the slow growth of the disease.

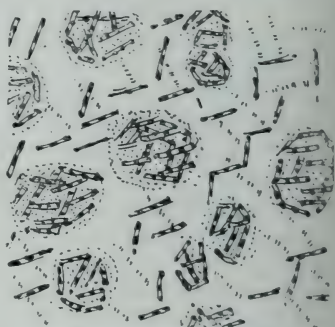
The bacillus lepra is discernible in no other disease affecting man, although in leprosy, in tuberculosis, in syphilis the aggregation of germs often tend to cutaneous and subcutaneous growths or nodes; nodules in the cornea, cartilage, testicle, spleen, liver, bone.

In a drop of blood placed under the microscope the germ is visible in lymph spaces, or in any new formation. The microbe consists of fine, slender delicate rods with tapering extremities, some rather long and pointed, some clearly mobile and others not. In the secretions they are recognized sprinkled through the mass, have a beaded appearance.

The germ bears artificial culture in blood, serum, and alkaline



The microbe of leprosy in its embryonic state, magnified 1000 diameters.



The full-fledged bacillus of leprosy, magnified 1500 diameters.

meat extracts. Inoculation on animals nearly allied to man produces the disease.

The germ is most prolific in the tubercular form of leprosy; here their growth is prodigious, and as a result they are found in enormous numbers in the mouth, palate, larynx, liver, spleen, kidneys, testes, lymph glands, and in the interstitial tissue of the nerves in anæsthesia form.

The recognition of leprosy is very easy; the eruption, its appearance, odor, chronicity, its large, brownish-yellow, glazed bulbous lesions; its leathery, mica-tinted cicatrices are rare in any other contagious disease.

As regards treatment we have a most remarkable and exceedingly tenacious microbe to deal with. No remedies known to science have thus far had any direct curative effect; that is, we have not yet found the potent germicide. Even the Chian tur-

pentine with the ethereal peroxide of hydrogen, with resorcin and thallin, which so effectually annihilates the cancer germ, fails in half the number of cases in which it has been used to destroy the lepra bacillus. Other remedies, as the comp. saxifraga; half-drop doses of creosote; oil of cashew nut, gurgun balsam, ichthyol, chaulmoogra oil, alvelos milk, siegesbeckie, internally and locally have all been employed with varying success; they mitigate greatly, but fail to exercise a controlling influence over the disease; that is, they do not kill the germ.

The most recent and extensively used remedies to kill the microbe in the connective tissue between the nerves, are chaulmoogra oil and gynocardic acid with glycerine. Both oils are administered internally in increasing doses to one drachm a day. Chaulmoogra oil in emulsion.

The adoption of a highly nutritious diet, the exhibition of our best tonics, as iron, cinchona, avena, kephaline, wine and malt liquors are always of good service.

Baths are of great advantage in all cases. Those of the highest potency in germicidal properties, as ozone, sulphur and iodine, should have the preference. Such remedies would be of utility in syphilis and cancer.

Every secreting ulcer and open surface in a leper should be attended to by the application of resorcin and ozone ointment, so as to destroy the bacilli that are contained in it. The prominent indications in each case should be met. If the patient happen to reside in a district where the disease prevails, an immediate change of residence and climate is necessary.



An essential symptom of all diseases of
Leucorrhœa. vagina, uterus, ovaries.

It is therefore present in debility of the vaginal walls; in acute and chronic inflammation of the uterus; uterine catarrh, and ulceration; in all forms of displacement; in all forms of ovarian irritation, etc.

If the original morbid condition can be got rid of, there is little trouble in getting rid of leucorrhœa.

General internal treatment consists in the use of tonics and alteratives; pulsatilla and caulophyllum, in alternation with the aleteris cordial and compound tincture cinchona.

As the discharge in all cases is loaded with disease-germs the remedies used must be bactericides; as extract hydrastis, dioxide of hydrogen in tepid water; hemlock bark, dioxide of hydrogen in tepid water; acetic acid, solutions of boroglycerides; packing the vagina with boroglyceride; lime-water and tincture of iodine.

Infantile leucorrhœa, as seen in children of three or four years of age, differs altogether from the leucorrhœa of adolescence or maturity. Its location is the vulva; discharge, sero- or mucopurulent. The subjects of this disease are tubercular, and the victims of hereditary syphilis. Exceptional cases are due to the germs of the eruptive fevers and ascarides. There should be an improvement of the general health by all possible means, fresh air, abundance of nutritious food, cleanliness and the affected parts bathed three times daily with a warm solution of boroglyceride. Internally, compound tincture of matricaria in five-drop doses, in water, is most effectual in overcoming the pathological condition of germ evolution which is dependent on debility.

A disease in which the number of white corpuscles in the blood is greatly increased, with a simultaneous diminution of the red. This state is brought about by chronic, exhausting diseases, exposure to cold, wet, privation, and insanitary conditions, and often a sequelæ of malaria, typhus, typhoid, puerperal fevers and pneumonia; affections of the lymphatic glands or of the spleen, and is attended with a decided train of symptoms.



Destruction of the red corpuscles of the blood in the spleen by the microbe of malaria, which gives rise to the white-cell disease of the blood.

Great weakness and debility, anæmic pallor, with all the other symptoms of anæmia; disordered respiration, loss of appetite, mental depression, abdominal swelling, with enlargement and induration of the spleen; sometimes diarrhœa, at others, constipation, nausea, jaundice; often hemorrhage from

nose, lungs, stomach; jaundice, anasarca, ascites, prostration, ending in death. Very chronic, lasting usually quite a number of years.

The morbid condition is characterized by an excess of white corpuscles in the blood, with great enlargement, induration of the spleen, often as large as a child's head, its proper structure

obliterated, filled with coagulated blood, soft and friable, and a mass of bacteria. Oftentimes we have a peculiar inflammation of the retina.

All methods of treatment and our best remedies fail us in this disease.

An eruption consisting of small pimples or papules,

Lichen. arranged together separately, or in clusters, and occurring anywhere on the surface of the body. The term is restricted to inflammatory papules, which undergo no metamorphosis.

In the treatment there are three indications, the improvement of the general health, especially as regards the nervous exhaustion; the relief of the itching by local means, which will go far towards the removal of the eruption.

The patient should not scratch the heads off the pimples, as he may produce an irritable sore which may become eczematous. The papules are not large, but are hard, dry and red in color. They tingle or itch and disappear by scaling off. Numerous varieties are described, according to the cause which gives rise to it; none of them dangerous, but as a rule troublesome or intractable.

The employment of general alteratives and tonics, among the latter, *avena*, mineral acids, *nux vomica*.

Local remedies of most utility are thymol, naphthaline, resorcin, creolin, rubbed up in lard or vaseline; in the form of lotions, try oil of cade cut with alcohol; or chrysarobin five to ten per cent. solution; baths of sulphuret potassium.

The case must be pushed; nerve tonics, it is essentially chronic, and if untreated may last for years, spreading and leading to grave complications.

Various lesions may be occasioned by the local application of many substances; chiefly irritants; but eruptions also sometimes follow the internal administration of certain drugs. Amongst the more common thus caused are the following:

A scarlatiniform eruption (from belladonna), erythematous patches (from quinine or chloral), a rubeoloid eruption (from copaiba), a vesicular rash (from arsenic), pigmentation (from the prolonged administration of arsenic or silver-salts), an acneiform eruption (from iodides or bromides), and a purpuric rash (from iodide of potassium).

By leaving off the drug, those various eruptions will each and all disappear in forty-eight or seventy-two hours, without any treatment whatever.

A hybrid micro-organism produced by the presence of the microbe of syphilis and the bacillus tuberculosis. It usually attacks the face and manifests itself in a variety of forms.

L. erythematosus.—The least severe form. Most common in the female sex and usually attacks face. It is mostly symmetrical and makes its appearance as an erythematous patch on either cheek. These generally become joined across the nose, the arrangement then somewhat resembling a butterfly with its wings spread out. Sooner or later scabs form which adhere closely to the skin. When removed by the nail, they are seen to extend into the orifices of the sebaceous glands by numerous fine processes from their under surface. The scabs, in fact, consist of dried sebaceous matter. The disease has, therefore, been considered by some as an affection of the sebaceous glands. Its affinities, however, are more marked with the other affections described as lupus, and like them it leaves permanent cicatrices. It is a chronic affection and may last for years.

L. vulgaris.—The more severe form often causing great destruction of tissue. Begins mostly in early life—usually before puberty, often in quite young children. May go on for years even if vigorously treated. More common in the female sex. Sometimes hereditary. Said to be frequently associated with struma, but many cases of scrofuloderma were doubtless formerly erroneously regarded as instances of lupus. Any part of the body may be attacked but, as with the erythematous form, the face is the favorite locality. It also attacks the mucous membranes. The characteristic appearance of lupus is that of minute yellowish-brown translucent (“apple jelly”) nodules in the substance of the skin. They average a line or two in diameter, are not raised above the surface, and are covered with epidermis. The tubercles may occur singly or in groups. The former arrangement is rare and has been termed *acne lupus* from its superficial resemblance to the follicular prominences seen in acne. More generally the nodules occur in groups which gradually tend to get larger owing to fresh portions of the skin getting attacked. The older nodules get paler in color. Microscopic examination shows the growth to begin by an aggregation of small round cells in the corium mainly in the coats of the vessels. The growth extends along the vessels until it involves the whole thickness of the corium. It occupies the interspaces of a fine fibrous network in which a few capillaries may be seen. Later, there is marked overgrowth of the epidermis, and the cells of the rete malpighii are infiltrated with leucocytes.

The two principal varieties of *L. vulgaris* are *L. exedens* (or

exulcerans) and *L. non-exedens*, so named according as ulceration does or does not occur. *L. tuberculatus* is a form in which the new growth forms prominent tubercles, and *pustular lupus* is a variety having a superficial resemblance to impetigo.

In *L. non-exedens* the new growth does not extend deeply but is limited to the skin itself, a considerable tract of which may become ultimately involved by irregular gradual extension of the disease. As the growth advances in a fresh direction cicatrization takes place in the parts first attacked and grayish-white glistening scars are left. The hair-follicles are destroyed in the process and the hair is therefore not reproduced on the areas attacked. Compared to the next form this is a comparatively benign affection, though deformities may result from the contraction of the cicatrices.

L. exedens is that form in which the process goes on to ulceration. Most common on the face, especially on the nose and cheeks. As a rule the ulceration has more tendency to advance superficially than deeply. When the process has lasted a certain time a fresh patch is attacked, and on the older patches a scab forms, beneath which gradual destruction of the tissues may still go on. More or less cicatrization may ultimately result and disfigurement or deformity may ensue. On the face the lower eyelids may be drawn down and everted, the mouth, drawn out of place, and incurable nasal deformity be caused. On the limbs the contraction may limit the movements of the joints. In those rarer cases in which ulceration tends to extend deeply extensive destruction may be caused. Almost the whole of the face may thus be destroyed and even the bones may be attacked.

Pustular lupus is an eruption consisting of isolated tubercles (occasionally confluent) which may reach two lines in diameter.

They become pustular at their summits, and soon small dark scabs form and adhere firmly. If removed fresh ones form. The tubercles finally disappear, leaving temporary discolorations and permanent scars.

In lupus we have a hybrid germ; a microcosm, which exercises a fierce, unrelenting struggle for existence.

The hybrid microbe lupus in nests interspersed with sweat ducts and sebaceous follicles.



In its formation we have a disappearance of both the bacilli of tubercle and that of syphilis; no doubt these two bacilli, when together, generate a diastase which kills themselves.

The hybrid microbe, the factor of lupoid infiltration and ulceration in all its varied forms, is the direct offspring of the micro-organism of syphilis and tubercle in the blood. The presence of both germs in the lupus nest in the skin, actively proliferating, places the origin of the disease beyond all doubt, as well as the fact that both disease germs can be isolated and cultivated.

Simultaneous with the evolution and growth of both mother-germs, the hybrid lupus follows.

Both the internal, as well as the external, treatment, must necessarily be, in the highest degree, germicidal.

The internal treatment should be constructive and alterative, the best of diet, bathing, clothing and a mode of life calculated to build up vital force, embracing the very same remedies which are of utility in syphilis and tuberculosis, as the iodide of starch, saxifraga, glycerite of ozone, sulphur water, hydrogen, peroxide, phytolacca, have a marked effect in sterilizing the organisms, dwarfing their micrococci and their multinucleated masses of protoplasm. Constitutional remedies do great good; they sterilize the blood and the lupus-nests fail in their organization.



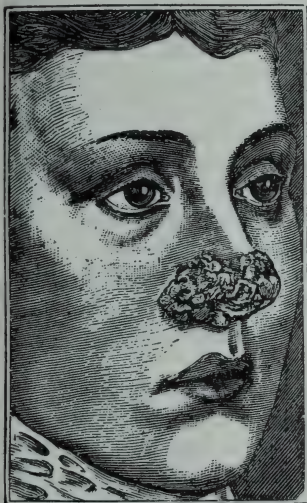
Lupus microbes removed with ozone ointment and resorcin.

The favorable results obtained by some of the following local remedies have again and again been verified. The favorite are either iodized oil, thymol, ichthymol, naphthol, chrysarobin, iodol, sozoiodol, creosote, peroxide of hydrogen, salicylate soda, chromic acid, sulphurous, pyrogallol in ointment form. Equal parts by weight of ozone ointment and resorcin most efficacious; lactic acid.

Erosion, scraping by the dermal curette or spoon, followed by the application of iodoform, has met with fair results. Before any remedy, either in ointment, lotion or in gutta-percha and chloroform be ap-

plied, the crusts should be softened by boroglyceride oil and slippery-elm. If a caustic be deemed indispensable, electrolysis, or nitric acid in which the chloride of gold et soda is dissolved, should have the preference. A mixture of thallin and papoid, made into a paste, of immense value; sprays of C. P. peroxide of hydrogen, very effectual.

Several most interesting cases of facial lupus have been speedily and permanently cured by the local use of one ounce of ozone



Lupus exedens before treatment.



Lupus exedens after treatment with ozone ointment and resorcin.

ointment and one ounce of resorcin. Mix thoroughly and apply over night, during the day sprinkling the part with iodol.

Masturbation,
or
Self-Abuse.

This is a term applied to a most pernicious and disastrous habit—the stimulating the penis with the hand, in order to excite the pleasurable sensation of coition and a discharge of semen; an act revolting to humanity, destructive to vigorous manhood, and one which depreciates vital stamina, entails degeneration, disease, insanity and death upon all who practice the vice.

The causes which give rise to this habit are the defects and vices of modern civilization; a poverty of nerve force; isolation, monotony, solitary confinement which wipe out and obliterate the typical fissures of the brain; isolation of the sexes; the developing the nervous system at the expense of the physical; the moral tone of society is blunted.

The symptoms incidental to this habit are insidious languor, lassitude and debility; a want of energy and ambition; a depression of spirits; a disinclination to society; a pallor of the face; weakness of the back and knees; hands and feet are cold and

clammy; noises in the ears; specks and spots before the eyes; the circles around the eyes are depressed and darkened; a general want of nutrition, emaciation; he cannot bear the cold, as he is morbidly sensitive; morbid thoughts annoy him; his old pursuits and amusements have no attraction for him, neither do new ones have any charm for him; his memory becomes imperfect, so does vision and hearing; the freshness and vigor of health disappear; a general destructive metamorphosis sets in; the skin becomes rough, often of a leaden hue; the eyes lose their brilliancy, and by languor express that of the whole body; the lips lose their vermilion tint; the teeth their whiteness; the hair becomes dry and falls out, and sometimes even the whole body is bent and distorted; his face is shrunken, haggard, pale, unmeaning, soulless, inexpressive; eyes become dull and lack lustre, in other words, the masturbator is a physical, moral and mental wreck.

This vice is not confined to the male sex, it is equally common among women. Young and apparently modest ladies are dying by thousands from tuberculosis, uterine complaints, spinal and nervous disease, general debility, prostration caused by this habit. The symptoms and effects are similar to the male. The practice causes a glary, white discharge to pass away, which is very weakening; besides, it gives rise to leucorrhœa, ovarian and uterine irritation, mental aberration, suppression of the menses, and general disorganization and bankruptcy.

The effects of masturbation are invariably disastrous, it always gives rise to irritation of the prostate gland and ejaculatory ducts; damages the testes, the veins of which with those of the spermatic cord, become weak, varicose; atrophy or wasting set in, or if the practice has begun in early life, they do not attain their full size, lose their power of secreting semen, and the entire body is dwarfed and suffers vital deterioration.

As a rule the generative organs suffer first, the penis and testicles resemble those of a boy, they take on interstitial absorption, lose their elasticity and firmness—their proper structure is anæmic—the spermatic cord atrophies, its nerves degenerate and the cremaster muscle disappears. The thin, watery semen that is formed under such a state is entirely destitute of spermatic granules and spermatozoa; its fertilizing power is gone; impotency supervenes.

When the testicles waste away, as the result of masturbation, the wasting is equal, dwindling to nothingness; whereas if they waste as the result of the localizing of the syphilitic germ, they alter in shape, become uneven, or irregular, or elongated as well as small.

In some cases, enlargement of the testes takes place, puff up, insidiously increase in bulk, but diminish in firmness, consistency and elasticity; in others, they become spongy. Whether it be enlargement or atrophy, it is the precursor of degeneration.

The reflex effect of the act upon the spinal cord and brain is most disastrous in setting up an irritation, in draining off the nervo-vital fluid, in changing the whole aspect of the cerebral areas.

The time when most males and females become addicted to this vice, is usually about puberty, the most critical period of life. The generative propensity, called forth perhaps prematurely and viciously gratified, steps in amidst the natural efforts of growth, with its unnatural train of nervous shocks, and physical pollutions, causing our boys and girls to have the appearance of old age, being feeble, pale, effeminate, with perverted tastes, drained out brains, mere wrecks of humanity, victims of nervous disease.

It is thus the delicate, the impressible nervous system of the young of both sexes, that most vividly experiences the depressing effects, the soul-wrecking ravages of self-abuse. Such a habit strikes at the root of society; the origin of species; dwarfs humanity in its very bud, deforms its features, stunts its growth. Its direct reflex effect on the nerve centres creates an intense tubercular diathesis, and this peculiar nervous defect aids in the creation of this abnormal desire.

Fathers, but especially mothers, must not shut their eyes to the fact that their children often, at an early period of life, resort to tickling their sexual organs. Later on, just at the time when all the energies of the system are needed for growth and development, the practice is most devitalizing, but when puberty sets in with its rapid growth of the organs, the increased power and frequency of erection, the dawn of a new life, the practice is most demoralizing, and its effects more permanent.

Man, with his instinctive and moral nature, is often a slave of habit, and if the act of masturbation be but a few times indulged in, this habit is created.

The blighting effects of masturbation are not confined or limited to the sexual organs, to wasting or atrophy of the spermatic cord, testicles, spinal cord, but re-acts upon the brain, impoverishing the nerve centres; so that the semen secreted becomes thin and watery, of a sickly odor, with no living spermatozoa in it, consequently not fertilizing.

The effects produced by masturbation may be embraced under three heads:

1. A condition of genital debility, in which the seminal ducts will not retain the semen, but it oozes away by day or night or

both, with or without seminal incontinence ; or a chronic prostatitis may be the result, with emissions often and persistent.

2. Chronic irritation of the lumbar portion of the spinal cord.
3. Exhaustion and irritation of the brain.

The leading or characteristic symptoms of these three stages are as follows : A general feeling of languor, lassitude, debility ; there is vertigo or swimming in the head ; specks or spots before the eyes ; noises in the ears ; skin becomes white ; pupils are dilated ; breath fetid ; digestion is feeble ; bowels constipated ; the fæces harden in the rectum, and produce irritation of the seminal ducts in their vicinity ; the circulation is languid ; the extremities cold and clammy ; the muscles soft and flabby ; by-and-by, the forehead may be dotted over with pimples ; the corners of the mouth are lengthened ; the nose and features become sharp ; eyes sunken and deprived of their brilliancy ; there are bluish circles around them ; no look of gaiety or animation ; he cannot look you in the face ; becomes morbidly sensitive ; loses all his vivacity or grit.



Healthy spermatozoa from a vigorous man who never committed the act of masturbation.

The case progresses onwards ; there is weakness about loins and knees ; a crackling in the joints ; memory fails ; perceptions become dim ; desires blunted ; distraction or absence of mind, which renders him unfit for business ; imagination gives birth to the wildest fancies and most groundless fears ; an allusion to the habit, in his presence, causing a twitching, a flush of shame, or even despair. The affected one shuns the face of man, and dreads the observation of women ; then, after a while, there are fainting fits, wandering pains, chorea or convulsions, trembling, epilepsy, and partial paralysis.

The debility of masturbation is both local and general, never partial. Persons so affected, in attempting sexual intercourse, may be unable to get an erection ; or, if the act is accomplished, an emission takes place too quickly, and is followed by exhaustion ; besides, there are daily as well as nocturnal losses ; the semen regurgitates, and finds its way into the bladder, and is passed in the urine ; or it may be passed during an evacuation of the bowels ; the patient becomes keenly alive to his weakness ; is timid, fearful, careless of everything ; his mind becomes absorbed in the consideration of his malady, until the presence, recurrence and persistence of the same train of thought, with the ever-leaking seminal ducts, creates a monomania or premature

old age. There is not a gland or function or movement of the body natural, nor a faculty or organ, nor sense or perception of the brain clear or healthy; all is out of gear; nothing but disintegration and disease; incessantly, by night and day, the seminal fluid or brain juice oozing, dribbling away without sensation, erections, or any show of natural ejaculation. This persistent drain of the most vital fluid in the body varies in quantity, according to the state of weakness.

Onanism wipes out the deity of manhood. The victim of the solitary vice is repulsive to his fellowman; his very skin emits an odor resembling the smell of the ailanthus blossom in a decaying state, or that of a dog-kennel; his brain softens, insanity supervenes.

First Stage.—The main, if not the only trouble, is in involuntary emissions. The patient, after having practiced masturbation, has generally discovered its pernicious nature and abandoned it, hoping by temperance and frugality to outgrow its evil effects. But the injury once having been done to the delicate sexual apparatus, he is sooner or later surprised and alarmed by the occurrence of involuntary discharges of semen. These, in the first stage, occur at night, sometimes at considerable intervals, at others several times a week, usually accompanied by a dream of an obscene nature. These seminal losses are a terrible drain upon the system; they impoverish the blood, and rob the body of the precious elements of manhood. For some time no other serious effect is observed, the general health being good, and the sexual powers vigorous. When these symptoms are present, treatment should be resorted to at once, for if the evil is not remedied it soon passes into the second stage.

Second Stage.—The emissions now occur not only at night with dreams, but sometimes without them, the patient knowing nothing of it until he observes the stains on his linen the next day. He also soon learns to know, by a wretched feeling of malaise and depression the next day, that he has suffered a loss of the vital principle. In this stage the weakness of the organs increase so that emissions take place in the daytime, the semen escaping with the urine, or while straining at stool. The sufferer now begins to experience a gradual failure of his usual strength and powers of endurance; in some cases there is loss of flesh, and various abnormal symptoms, headache, dyspepsia, low spirits and melancholy, weak back, gloomy forebodings, etc. And, although from not being married he may not observe it, there is perceptible weakening of the sexual powers. The power of erection may remain comparatively perfect, but the sexual powers are easily exhausted. In such cases, on attempting intercourse,

the emission takes place too soon, thus defeating the end of marriage, and bringing disappointment instead of mutual happiness. In an advanced degree of this stage urethral complications set in. The urethra becomes relaxed and weakened, the semen is not ejected with force, and is sometimes thin and watery, producing feeble, unhealthy children. There is a low degree of chronic irritation, which produces uneasy sensations in the passage at times, a burning sensation on passing water, and a dribbling of urine afterwards. Sometimes there is a kind of oozing of a clear, whitish fluid, like the white of an egg, which may be either mucus, prostatic fluid, or these discharges mixed with semen. These are always bad symptoms, as they denote an advanced stage of the disease, and debilitate the generative organs and impair the health. This is followed by nervous irritation, restlessness, lack of energy and ambition, loss of memory and want of self-confidence. If, from neglect or improper treatment the disease has been allowed to reach this stage, appropriate treatment should be adopted at once; as, if not remedied, it gradually passes into the third stage, making a considerably longer course of the remedy necessary.

Third Stage or impotence and sterility, "Loss of Manhood," as it is termed, the sexual powers continue to gradually fail; the emissions are now less frequent, because but little semen is secreted. The nervous energies, however, suffer the same. Inclination for the opposite sex is irregular and feeble, the secretions are slow, weak and imperfect, and no longer under the control of the will, intercourse is often wholly impracticable, owing to absence of erection, or premature discharge; when the semen escapes it is often accompanied by a burning sensation, owing to the unhealthy state of the urethra. In time all sexual power is wholly lost; occasional erections of mornings may be observed, but they are due to a distended bladder rather than the presence of semen. If married, the patient discovers himself incapable of consummating it, and many under such circumstances have committed suicide in despair. The general health is often still more impaired, although on the gradual extinction of the sexual functions, a person will sometimes become fleshier, and to outward appearance look well, the same as eunuchs and castrated animals. No one knows better than himself, however, what a fraud he is to womankind. He is impotent; or if capable of occasional intercourse, his semen is imperfect, containing no spermatozoa, and he is sterile and incapable of transmitting life to posterity. Towards the latter part of the second stage, and during any part of the third stage, the mind is liable to become diseased as well as the body; then comes mania, insanity—a grave consultation

of friends and physicians—a hurried removal to the confinement of an asylum—and he is entombed alive—a few months, or at most years, of mad delusion follow—and all is over! This is the sad end of many a once ambitious and promising life, recklessly sacrificed by vice and ignorance.

This is a function performed by women
Menstruation. between the age of puberty and middle life; this forms the child-bearing period, and usually lasts about thirty years. Various names have been given to this function; it is spoken of as the menses, the period, the catamenia, etc. When not performed at all the patient is said to have amenorrhœa, when the function is performed with difficulty or pain it is called dysmenorrhœa, and when the discharge is very profuse the individual is suffering from menorrhagia. The appearance of menstruation is generally accompanied by more or less pain in the back, headache, and lassitude; often, also, the patient loses color, and has a dark ring round the eyes. From thirteen to fifteen years of age is the average time when menstruation commences, but it may come on a year or two earlier in some cases, or it may be much delayed in others. The periods are frequently irregular at first, and some months may elapse before the function is carried on with regularity. When well established, an interval of about four weeks elapses between each period, but sometimes only three weeks intervene. The blood that flows differs from ordinary blood in being acid instead of alkaline, and in not clotting unless poured out in large quantities. This function is always suspended during pregnancy, and is, in fact, the chief symptom from which a woman dates the expected time of her confinement. Many things will tend to cause irregularity in the performance of this function during the child-bearing period of life—exposure to cold or wet, mental emotion or worry, acute diseases, consumption, cancer, and many other diseases may either cause menstruation to stop altogether, or be diminished in quantity, or to occur at irregular intervals. The period of life when menstruation ends is known as the climacteric period, and the cessation of the function is often accompanied by more or less distress; the patient becomes nervous and is easily worried, suffers from lowness of spirits, pain in the back and between the shoulders, pain also frequently in the left side, and headache; the temper may be irritable and the appetite capricious. These symptoms arise in a great measure from a disturbance in the nervous system, giving rise to various neuralgic pains; such symptoms, however, though often

troublesome, are not attended by danger, and subside when the function of menstruation has quite ceased. The flow generally ceases gradually, and becomes more and more scanty; sometimes it is for a short time much increased in quantity.

Menstruation has a nerve origin; not a shedding of mucous membrane. Recent authority points out that this monthly phenomenon is the result of changes in the condition of the nerve supply, manifested by symptoms of a general character. With the approach and appearance of the monthly flow the whole frame, as one would naturally expect, participates more or less in the change, and the amount of disturbance experienced as well as manifested is commensurate with the power the organism possesses of adaptation. The true nature of the catamenial discharge is still conjectural and theoretical, yet its elimination from the body renders it highly probable that having already served some special end, its detention in the blood may exert some deleterious influence upon the animal economy. Ovulation and menstruation are coincident. It is alleged as an established theorem that from the period of puberty to the climacteric age there is, besides a gradual death of the mucous membrane lining the whole uterine cavity—which must ever recur, to be compatible with life—a more or less regularly-recurring and complete death of this coat. In the whole animal kingdom we search in vain for a physiological change truly analogous with this. To maintain the integrity and activity of the menstrual function almost indefinitely, we have two most remarkable remedies, namely: *avena sativa* and ozonized distillation of apiol; the former acts on the origin of the sexual appetite in the brain; the latter upon the uterus.

Mesenterica,
Tabes Mesenterica.
 (*Marasmus.*)

The mesentery is a double fold of peritonæum which retains the small intestines in their place in the abdominal cavity; it is fan-shaped in form, and attached to the front of the spine at its narrow end. Around its longer margin the bowels are arranged, so that perfect freedom of movement upon each other is allowed, while yet each portion keeps in its proper place. Between these two folds run some vessels which take blood to and from the intestines; these are called the mesenteric vessels, and consist of arteries and veins; they are also accompanied by various nerves. There are besides a great many glands in the mesentery, called the mesenteric glands, and these are often liable to disease. Through these glands passes an alkaline, opalescent fluid called the *chyle*;

this chyle is collected in the intestinal walls by a vast number of small vessels called *lacteals*, which are very analogous to the lymphatic vessels in other parts of the body: these lacteals join together and form larger branches, until, having passed through the mesenteric glands, they convey the chyle, altered by that process, to the *receptaculum chyli*—a dilated tube lying in front of the spine and serving as a kind of reservoir for that fluid, which afterwards passing up the thoracic duct, enters the blood at the left side of the root of the neck.

The lymphatics of the mesentery belong to the same class of glands as the suprarenal capsules, spleen, pink marrow of bones, lymphatics, active blood raisers.

Any irritation in the bowels, as diarrhea, cholera infantum, worms, irritates and weakens the mesentery and renders it a congenial place for the localization of germs, so that the bacillus of typhoid, tubercle and other germs, lodges in its meshes or network; grows with great rapidity, fills up its tissue, destroys the function of the gland; their growth obstructs the passage of chyle through the convoluted lacteals which traverse the mesentery in all directions; besides there is a complete failure on the part of the gland in elevating the white discs of the blood, consequently all the tissues of the body starve and waste.



Inflammation of the omentum; the tubercular bacilli filling up its interstitial structure.

The symptoms of *tabes mesenterica* are very plain, usually some intestinal disturbance, as diarrhea or cholera infantum; when the abdomen becomes hot, tender, swells with less or more pain in the bowels; in some cases pain severe, griping, causing the legs to be drawn up towards abdomen; deep red color of lips; angles of the mouth covered with small ulcers, in which the *oidium albicans* abound; the passages from the bowels resemble chopped spinach, and sour smelling; are very irritating; abdomen continues to swell or bloat; becomes tense and greatly enlarged; at the same time the emaciation is fearful; the patient gets down to skin and bone; even the marrow in bones wastes; skin white and wrinkled; intense debility, with rapid, increasing weakness. The abdomen, although intensely swollen, soon becomes irregular to the feel, lumpy in masses like large eggs at first; when tubercle is active and growing, soft; then a cheesy feel, and latterly calcareous; there may be a tubercular condition

of lungs, bronchi, or membranes of brain. Its duration is uncertain, depending on the condition of vital force and season of the year. If it appear early in June, the little sufferer, unless taken to the seashore or country, stands a poor chance of recovery before September; whereas, if it appear in August, there is usually little difficulty in tiding the patient into the cool weather. It may occur at any season, but much more common when the vital forces of the child are depressed by solar heat and city life—season when cholera infantum is prevalent.

True, the mesentery may be the abode of numerous germs, but none seem to have the power of holding their position, breeding and going through its different stages of growth, like the tubercular bacilli.

The treatment of *tabes mesenterica* requires the nicest tact and good judgment. Bathing twice daily, with massage; diet chiefly essence of beef.

The whole aim of treatment is to keep up vital force and kill the microbe; a good plan to begin on is to keep the intestinal tract aseptic.

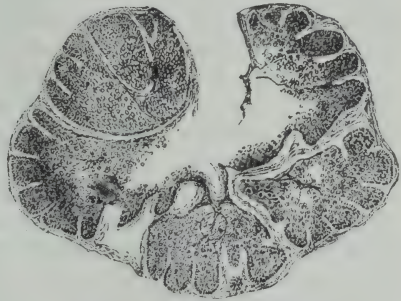
Several remedies have lately been proposed as intestinal disinfectants. Naphthaline, which has been recommended by Rossbach, is very sparingly soluble, so much so that it passes to a great extent unchanged through the whole of the intestinal canal. It certainly destroys the disagreeable odor of the motions in infantile diarrhea, but it does not appear satisfactorily to check the disease. Salol is the phenyl ether of salicylic acid. It passes through the stomach unchanged, but in the duodenum it is split up by the pancreatic juice into salicylic and carbolic acid. Although the carbolic acid is set free at the point where its action is wished, yet there is still the disadvantage of its being poisonous, and so betol has been recommended. The constitution of this substance is similar to that of salol, but it splits up into salicylic acid and beta-naphthol, which is more sparingly soluble, and which is less poisonous than carbolic acid, while it is much more powerfully antiseptic. Resorcin, thymol and benzoate of soda are among the antiseptic remedies which sometimes are used here with success.

A disease of the skin, characterized by
Molluscum. round elevations of the skin, varying in size from a hemp-seed to a hazel-nut, and marked on the summit by a dark point and a depression in the centre. The color of the skin over them is sometimes translucent, or of a pinkish color. Some of the growths have no black mark and no depression. These little tumors may increase slowly in size

without undergoing any change, or they may ulcerate and discharge their contents. There seem to be two kinds: (1) *Molluscum fibrosum*, which consists in an increased formation of the fibrous tissues round the hair follicles; and (2) *Molluscum contagiosum*, which is due to an increase in the sebaceous follicles, so that the contents of each tumor have a cheesy appearance. The usual seats of molluscum are the back or front of the trunk, the neck, face, and scrotum. Its presence is not attended with



Microbe of molluscum.



Section of molluscum (microscopic).

any constitutional disturbance; it may exist at any age, but is most frequent in children. There are generally several of these small tumors present at the same time. The treatment is purely local; the tumor should be laid open, the contents squeezed out, and the inside touched with caustic; if attached by a thin stem to the skin, the growth may be snipped off with a pair of scissors, and the cut end touched with caustic.

Some cases are benefited by a course of general alteratives and tonics, as *saxifraga*, *phytolacca*, in alternation with glycerite of *kephaline*, tincture of oats; with a local treatment of either *resorcin*, *ichthyol*, or *creolin* in a solution of *gutta-percha*.

The nails may be absent or imperfectly developed

Nails. (*onychatrophia*). Either of these conditions is usually congenital and associated with absence or imperfect development of hair. Hypertrophy of the nail (*onychauxis*) may occur and be either lateral, causing ingrowing toe-nails, or be limited to the extremity of the nail. A special form of hypertrophy, limited to the centre portion of the nail, is termed *onychogryphosis*. Either of these forms of hypertrophy may be treated by scraping away the nail with knife or scissors. Ingrowing toe-nail may be treated by scraping the nail with a piece of glass until it is very thin, or softening it with liquor of potassæ.

Inflammation of the nail (onychia) may occur in a limited form from ingrowing toe-nail, or more extensively as the result of injury. Pus forms under the nail and the latter becomes loose.

Certain diseases of the skin involve also the nails in some cases. The most important in this connection are eczema, psoriasis, lichen ruber, ringworm and favus. These may not be easy to distinguish one from the other by having regard only to the condition of the nails, but the accompanying eruption will generally guide to a correct diagnosis. Ringworm or favus may, however, attack only the nails, usually by direct contagion in persons who have to attend on patients suffering from these diseases. They may be diagnosed by scraping the nails and examining the scrapings under a microscope after soaking them in liquor potassæ. The nails become brittle and split when involved in eczema, lichen ruber, or psoriasis. The former affection of the nails begins with pitting, the pits gradually extending until the nail splits longitudinally.

After febrile diseases shedding of the nails may accompany the desquamation of the skin which goes on; the nails may also be shed in acute eczema and pityriasis rubra.

During a severe illness transverse lines form on the nails; one at the root of each nail. As the nail grows they are carried forward until they reach the free edge and are cut away. It is hence possible, on seeing a patient several weeks after a severe illness, to calculate the date of his illness by observing the situation of the lines and taking into consideration the known rate of growth of the nails.

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Neuralgia. Violent paroxysmal pain either in the trunk or branch of a nerve, due either to a want of nutrition in the nerve or to the presence of disease germs or their ptomaines, toxically acting on the same.

The causes, then, of neuralgia, are disease, germ-laden blood, anæmia, debility, overwork, struggle, worry, defective nutrition.

It divides itself in numerous varieties, according to the special nerve affected, and the cause producing it.

The primary indication in all cases is to afford immediate relief of the pain, and subsequently remove the cause.

The various antithermic drugs, exalgine, phenacetine, solol, are used with success in all neuralgic affection, whatever their location may be; the best results are obtained from small doses, frequently repeated.

Croton Chloral Hydrate.—This contains two more atoms of hydrogen than the chloral, and is, properly speaking, butyl chloral, which has the property of diminishing sensibility before

producing narcosis. It gives instant relief in facial neuralgia in doses of fifteen grains, repeated, if necessary, after meals or largely diluted with water. The syrup of croton chloral is an elegant and efficacious preparation. It gives immediate relief. To combine the croton chloral with quinine we have still a more effective remedy.

Citrate of caffeine is a valuable drug in facial neuralgia, the dose to be such as will give relief of pain. It operates better than guarana—not so rapid and effectual as the croton chloral.

Bromo-hydric acid, with or without quinine, of which it is a solvent, operates very beneficially, if the neuralgia is due to reflex causes, in doses of half a drachm upward.

Tincture of green root gelsemium, being non-poisonous, only in very large doses, is best adapted to malarial cases, in doses of a half drachm upward.

Salicylate of quinine, in rheumatic and gouty cases, is so speedy in its action that it is unnecessary to precede it with any of the above remedies, for in six-grain doses it is usually efficacious within a few minutes.

While pursuing this course of treatment in relieving pain, the cause must, if possible, be ascertained and removed. In looking over the list of causes, we must scan them carefully as to anæmia, mercury, malaria, gout, rheumatism, syphilis; and to reflex causes, as teething, worms, liver, kidney, or other forms of chronic disease. The treatment should in all cases be adapted to each, and if no cause can be ascertained, the patient should be put upon an alterative and tonic course; all through relieving the intolerable pains. In these cases the condition of the stomach, bowels, skin, kidneys, should be seen to.

Local remedies for the relief of pain are of little utility, but if used should, in all cases, be combined with chloroform, to carry the remedy down to deep-seated parts. Aconite and belladonna are especially valuable in neuralgia of facial nerves; cinchona, iodine and gelsemium, if of a malarial type; coffee, if due to nervous anæmia; phosphate of quinine, if due to gout; and general treatment as to cause. Improvement of the general health in all cases. Diet very nourishing, raw eggs, animal food, milk. Clothing warm, flannel next the skin. Warm tepid or cold salt-water baths. Friction to skin; change. Indeed, everything to improve the nervous system, and give the patient richer and purer blood, pure air night and day, great cleanliness, and avoidance of all causes. The true aim of treatment is to fertilize the brain by the persistent administration of *avena sativa* and glycerite of kephaline—thorough reconstruction.

Neuralgia of the Breast.
(*Mastodynia.*)

The free anastomosing of the uterine nerves with those of the mammæ, their blending or junction with the sympathetic in the breast of all highly civilized ladies, renders the nerves of the mammæ extremely susceptible of irritation and weakness.

They are very liable to suffer from the presence of microbes in the blood, from reflex irritation from the uterus or ovaries; from certain other causes, as occupations; corsets; sitting at benches.

Neuralgia exists without any structural lesion.

Symptoms.—Pain in the breast of a sharp, lancinating character, or it may be an aching, wearying kind, but usually like neuralgia elsewhere, acute and liable to exacerbations. There may or may not exist a slight puffiness, or swelling, or even an increase of temperature of the affected gland; and even the lobules may feel rather firmer than natural. But it is more generally the case that the gland feels healthy to the touch. When due to uterine or ovarian trouble anæmia is generally prominent. In some women the breasts enlarge and become irritable; suffer from neuralgic pains at and during menstruation. In all cases there is some impairment of general health; nervous dyscrasia; loss of appetite; constipation; leucorrhœa; restless nights; anxiety.

In the treatment, immediate relief must be afforded from the distressing pain.

For this purpose a combination of the sulphate of morphia and atropia is most effectual; or cocaine subcutaneously; iodide and bromide of potassa; belladonna plaster over the entire breast followed with dry heat.

As soon as pain is relieved, the cure of the disorder upon which the pain depends; search carefully for malaria, mercury, syphilis, gout, rheumatism, anæmia, chlorosis; but above all for ovarian and uterine irritation, and the greatest attention to diet of the best; proper outdoor exercise; daily bathing; flannel clothing, and regulated bowels.

Alteratives and tonics, embracing ozonized phytolacca, or saxifraga, iodide potass, iodide of lime, glycerite of ozone, and keph-aline, sulphate of quinia, cinchona.

No application to breasts equal to the belladonna; if the plaster does not produce the necessary anesthesia, put on the chloroform, aconite, and belladonna liniment; the chloroform will carry the belladonna down to the deepest nerve. There should be proper support, but no pressure. The uterine trouble should be seen to, and removed, according to its cause.

Young infants, boys, and girls about puberty, are liable to slight neuralgia of the breasts. In some cases there are enlargement, tenderness, and secretion of milk. There must be no irritating applications applied, no friction, nor any stimulating application, the belladonna plaster being usually sufficient.

**Neuralgia of
the Auditory Nerve.**
(*Otalgia.*)

Neuralgia of the auditory nerve is simply the cry of a nerve for better and purer blood. It may be brought about by cold, damp, rheumatism, gout, tubercle, syphilis.

When an attendant upon some acute disease there may be fever, but more generally it is unaccompanied by any febrile disturbance. The intimate connection of the auditory nerve with the various nerves of the face, especially those supplying the upper and lower jaws, the stomach, liver, uterus, render ear-neuralgia common where those organs are out of gear. Ear-ache is thus common, as its causes are numerous and varied.

It is easily recognized by the sharp, lancinating pain in the ear, very severe; frequently also shooting through the nervous filaments distributed over the side of the head and face, causing much suffering and great restlessness.

Treatment.—If it is traced to imperfect performance of stomach or liver, an emetic of lobelia, and saline purge; a carious tooth, extraction; or to any special diseased germ, treat for its destruction; drop one or two drops of mullein oil in the ear. In all cases, and at once, relieve pain by resting the head on very hot pillows of hops, or camomile flowers, or bran, or salt; or the roasted bulbs of onions; or, better still, garlic. In addition, if very severe, the aconite, belladonna and chloroform liniment should be applied to the side of the face; cotton-wool, saturated with glycerine, tincture of opium and belladonna in ear. During the day, aconite and belladonna, in alternation with quinine, are true stimulants to this nerve, and it is well to give pretty large doses; at night either chloral or morphia, to procure a good night's rest. In the mean time, treat the case according to the cause, with alteratives and tonics; and bear in mind that in this painful nerve-cry, that brain-food, or nerve-forming diet, is an essential and important element in the cure. Animal food, eggs, milk, boiled white-fish, oatmeal porridge, cream, and those admirable drugs, glycerite of ozone and kephaline. Nutrition is an important indication in the treatment, so as to prevent a recurrence, especially among the little ones.

Neuralgia of the Coccyx.
(*Coccyodynia*.)

Pain, tenderness about coccyx; often sharp, tearing, lancinating; is a most unpleasant form of neuralgia. Most common in women, on account of their great development of coccyx, and above all, in women of high civilization, who have as an index of that condition a sacrum at an angle well verging on to 45° , and a coccyx most perfect. In women of low civilization the sacrum is nearly straight, and the coccyx almost as rudimentary as it is in man.

Causes.—Hurried labor, or insufficient support to the perinæum, whereby the nerves of the coccyx receive a shock; blows, falls, fractures, and horseback exercise, etc.

Symptoms.—Pain in sitting down or in rising, or in walking, or in defecating. Pain is even more than neuralgic, more than sharp and lancinating; there is a general soreness. In many cases patient can only sit on one hip. Any movement or pressure on the surrounding parts give rise to pain. It is aggravated by menstruation, or sexual intercourse. It may be reflex, as in chronic inflammation of uterus or ovaries. It is very chronic in its nature.

Treatment.—Remove all sources of irritation about uterus, ovaries, rectum. Place patient upon a general alterative and tonic course of treatment, with the best of food. Keep bowels open with cascara; suppositories of cocaine, belladonna and opium at bedtime, or hypodermic injections.

To raise the standard of vitality in the nerves of the coccyx, warm hip-baths, quinine, iron, pulsatilla, glycerite of kephaline, and other nervines, such as musk, valerian.

Painful Sitting.—In coccyodynia, as a result of fracture of the hinge-joint, after ossification, in having a child after thirty-five years of age, there is apt to be a laceration of the nerves, and neuralgia established, which gives rise to painful sitting.

This is also present in deep-seated inflammation of the genital organs, especially in the uterus and ovaries, so very slight, however, that the patient does not experience uneasiness, only in the sitting posture.

Relaxation of the great joints of the pelvis towards the end of pregnancy is very natural; they become loose and juicy, and a considerable increase of motion is observed in them. If the labor is long, the presentation not a good one, or the head of the child large, or instrumental delivery, made with force or violence, there may be a low grade of irritation set up in them. So that there is a morbid loosening, which not only gives rise to pain in sitting, but hopeless lameness. Rest, general alterative and tonic treatment will, in time, effect a cure.

Neuralgia of the Nerves of the Face. Facial neuralgia or irritation of the nerves of the face may be due to any of the microbes which infest the human body; to cold, damp, exposure; to the irritation of the microbe of dental caries.

In the treatment of all forms the cause must be removed, and the microbe annihilated; if due to the *rheumatic germ*, manaca; salicylate soda in acetate of ammonia; colchicum and quinine; if due to the *microbe of syphilis*, chloride of gold et soda, saxifraga; if due to *cancer germ*, Chian turpentine; if due to the *malarial germ*, com. tincture of kurchicine, etc.

To procure anesthesia of facial nerves, aconite, belladonna, ammonia, phosphate of quinine, as a local remedy in all cases, concentrated ozone with chloroform.

Neuralgia of the Kidneys. Often due to gravel, or disease-germs, like malaria; to drugs; to suppression of an eruption; in the left kidney to poisons of rheumatism; gout, cold, wet.
(*Nephralgia*.)

It is attended with most excruciating suffering; sharp lancinating pains, coming on suddenly, violent in intensity, relieved by pressure, never aggravated by it. If due to gravel, it may be continuous, beginning at the time it commenced to pass into the ureters, and continuing till it reached the bladder. The pain is paroxysmal in its character, not only experienced in the loins, but extends to the groin, thigh, or abdomen, causing retraction of the testicle in the male, and irritation of ovary in the female. If the paroxysms are severe, they may be accompanied with nausea and vomiting; a small, wiry, feeble pulse; profuse perspiration; prostration, with a desire to pass urine, and an inability to do so. When concretion, if due to that, reaches the bladder, pain suddenly ceases; if due to other causes, it may continue till the cause is removed. Its location (relieved by pressure), character of pain being paroxysmal, with other symptoms of kidney irritation, are always important landmarks.

In the treatment, alcoholic vapor-bath; external warmth over kidneys; if stomach is so irritable as to cause everything to be rejected, apply mustard over it, and give a large dose of tincture of green root of gelsemium; if vomiting still persists, hypodermic injection of morphia, preceded by the inhalation of a few drops of chloroform. Then apply belladonna plaster over kidneys, and depend on quinine and gelsemium internally. In some cases aconite and belladonna answer well, with dry cups

and lobelia fomentations. If due to the retrocession of an eruption, compound tincture serpentaria or jaborandi; if due to rheumatism, alkalies, as nitrate of potassa and cream of tartar, followed with nitro-glycerine; and acetate of ammonia and salicylate soda. Each case managed as to its cause.

**Neuralgia of
Intercostal Nerves.**
(*Pleurodynia.*)

Neuralgia of the nerves of the pleura and of the intercostal are generally due to the bacillus amylobacta, more rarely caused by the microbe of syphilis.

Associated with the presence of one or both microbes, we find all that class of patients suffering from great impairment of the general health, with mental and physical prostration—phosphates and chlorides in the urine.

The recognition of the pain being non-inflammatory coming on, leaving suddenly but intensely sharp and lancinating, fatigue is often an exciting cause.

In the treatment, apply either dry cup, or irritating plaster at once—dry heat; then follow with either salol or manaca, or salicylic soda in acetate of ammonia; these three remedies are most efficacious.

Follow up with comp. saxifraga and phytolacca, tincture of oats, glycerite of kephaline.

**Neuralgia of
Muscles.**
(*Myalgia.*)

Stiffness, soreness, cramp, or pain in the voluntary muscles of the body, may be due to various causes: for example, in young persons of rapid growth, persons in whom the bones grow faster than the muscles, the muscles and tendons become stretched, and the individual suffers from what is termed *growing pains*. These are often quite severe, and involve both the fleshy part of the muscles as well as its tendons, either the centre, or where it is inserted into the bone, or both. It is often due to a strain, lift, over-exertion, and involves the muscles of back, chest, abdomen, arms, or legs. It is also a symptom of a shock from cold, great nervous prostration, and is thus prominent in certain diseases, as fevers, inflammation, parturition, rheumatism, scurvy, tuberculosis, cancer, chlorosis, leucocythæmia, dysentery, diarrhea, prolonged lactation, exhausting maladies generally, and spermatorrhœa.

Symptoms.—Pain is the chief symptom; and this in its degree and intensity bears a direct ratio to the amount of debility that

is present. Where it depends on too rapid growth of bone in young persons, they seldom complain of it in the morning after a good night's rest, but comes on after exertion, and gradually increases till night. In the case of the masturbator, or those suffering from seminal losses, pains in the morning, and rather wear off during the day; whereas in case of disease, mostly an aching all the time. The pain in all cases, however, is aggravated by movement. General health in all cases is poor; skin cool, pulse natural or depressed; appetite good, clean tongue. In bad cases there may be night-sweats, loss of appetite, impaired digestion, constipation, no vigor or energy, inability for work, severe mental depression.

Treatment.—The principles of treatment will be modified by the cause, but all cases require good nourishing diet, as animal food, boiled fish, oatmeal porridge, cream, raw eggs, fruit, vegetables in abundance; tonics, as cinchona and mineral acids; sulphate quinine and aromatic sulphuric acid, quinine, iron, hydrastin, nux pill. Rest for the affected muscles, by splints or otherwise. Massage to be performed twice daily; begin with half-an-hour treatment, and increase length to two hours, if patient has means to carry out treatment. In the massage treatment, bathe a limb with soap and water; dry; use dry hand until there is a glow of warmth; then shampoo, rub, knead, and otherwise manipulate with warm olive oil; then another limb in same manner until the entire body is massaged. Electricity can follow if case is bad, or in a hurry to get well.

**Neuralgia
of the
Sciatic Nerve.**
(*Sciatica.*)

An intense form of neuralgia, characterized by acute pain following the course of the great sciatic nerve extending from the sciatic notch down the posterior surface of the thigh to the popliteal space, and often along the nerves of the leg to the foot.

The causes are a depression of the sheath of the nerve, by cold, damp, sprains, etc., and blood charged with the bacillus amylobacta circulating through the weakened tissue, giving rise to thickening and compression of the nerve.

Sciatica, properly speaking, is not an affection of the nerve, but its sheath, which, under the irritation, becomes thickened and contracted, compressing the nerve, and thus causing the excruciating pain in movement, or numbness in the leg by compression. Sciatica, then, is not, at least at first, neuralgia of the nerve, but inflammation and thickening of its sheath, and this thickening produces a mechanical condition which presses the nerve, and thus gives rise to the neuralgia.

In the treatment we must pursue a course of treatment very similar to rheumatism.

Salicylate soda and acetate of ammonia, salol, manaca, cascara sagrada lozenges, etc. One of those remedies should be administered; if it fail to give relief, then try a mixture composed of equal parts of tinctures of aconite root, colchicum seed, belladonna and actia racemosa. Mix. Six drops every few hours till relief is felt, or use a hypodermic injection of morphia and atropia.

Locally, along the course of the nerve, paint on and confine concentrated ozone—its action is prompt, much superior to menthol, acupuncturater, or dry cups.

Exalgine has been very highly recommended.

If case resists ordinary treatment remedies then it should be placed upon iodide potass in the compound saxifraga.

A temporary irritation of a special nerve or nerves often gives rise to a spasmodic and involuntary contraction of one or more muscles, attended with rigidity and great pain; most common in the muscles of the lower extremities, as the large muscle of the calf of the leg; but it is very apt to affect the muscular fibres of internal organs, as the stomach, intestines, bladder, uterus, pharynx.

Neuralgia of Special Nerves. (*Cramps.*)

The true cause is a weakness in the nerves that supply special muscles, and those weakened nerves crying for pure or better blood; so that disease-germs in blood, poverty of blood, gout, rheumatism, metals in blood, the bacteria of dyspepsia, the cholera germ, etc., besides pressure on nerves not infrequently causes it, as the head in labor; etc. Swimmers often attacked, and common cause of drowning.

Symptoms.—The nerves of a muscle, weakened, irritated, cause the contraction, which gathers the muscle into a knot, appreciable to the touch and often to vision, when external. Pain is not only severe, but agonizing. The cramp, or contraction, or spasm, may last a few seconds, minutes, hours, and leave the part tender and patient prostrated. The same nerves of a muscle may be affected over and over again, if its vital integrity is not restored; or if due to a poison, it may affect different muscles, as in cholera, where all the muscles of the body are in a cramp.

Treatment.—To relieve the cramp immediately, administer either chloroform or the antispasmodic tincture, in twenty or thirty-drop doses, in warm boneset tea, every few minutes till re-

lieved. Then search for causes, as debility, anæmia, indigestion, constipation, lead, tin, zinc, gout, rheumatism and other blood diseases, and remove them with alteratives and tonics. Best of food; pure air. To raise the tone of nerves, quinine, glycerite of kephaline, aconite, belladonna, friction, shampoo, massage, stimulating liniments, baths.

Neuralgia of the Testes. When the nerves of the testes are irritated by the microbes of syphilis, rheumatism, etc.; or weakened, exhausted, or drained out by venereal excesses; or when the ejaculatory ducts become clogged, or stopped up, affording no outlet for for semen secreted, and the testes suffer compression; or there may be a shock from mechanical irritation—in which condition the nerves suffer a partial death, neuralgia supervenes.

If due to rheumatism, acetate of ammonia and salicylic acid; manaca; colchicum and quinine; tincture black cohosh, etc.; locally, dry heat with camomile flowers or bran. If due to syphilis, iodide and bromide of potassa; saxifraga, phytolacca; chloride of gold et soda.

Neurasthenia. A poverty of nerve force. May be general, involving the whole body, or it may be local, affecting an organ.

The present work aims to increase our knowledge of the origin and phenomena of disease-germs; *how* normal living matter, concerned in the nutrition of the body, can be changed, altered, or degraded by conditions adverse to life, into diseased or malignant living matter, of a special kind, genera and species, each capable, in a proper medium or fertilizing fluid, of reproduction and independent existence, the powers of growth being prodigious; *how* such diseased living matter is contagious and infectious; that living, breeding, organized germs are no phantom but a living enemy; *how* such conditions can be averted by maintaining a high standard of health, of vital force and rigid enforcement of the laws of sanitary science; and how all can be obliterated by an antiseptic treatment.

In *neurasthenia* or nervousness, there is a degradation of the primary molecules of nutrition of brain and nerve tissue into the disease germ; in all deviations from health, or mental vigor; in all states of phrenal incapacity; in all nervous affections, even in nervous headache; in trance, natural or artificial; in all grades

or degrees of insanity, mental aberration; in epilepsy, inebriety, cholera, etc.; evolution and dissolution, or a change of living elements, preside over all the phenomena of nature.

For all practical purposes, the definition of neurasthenia may be thus given: It is a condition of nervous debility or nervousness; a chronic morbid condition of the nervous system; a practical death of that tissue, the basis of which is an impoverishment of nerve force; a starved phrenal state, in consequence of which there is a liability to quick exhaustion and an imperative necessity for frequent supplies of force; there is beside in this state a lack of inhibitory or controlling power, both physical and mental; a feebleness, an instability of nerve action, with excessive sensitiveness and general and local irritability.



Microbe of neurasthenia.

The physical and mental constitution of man gives us the highest type of evolution, of organic life, of phrenal development; and no acquaintance with the laws of physics and natural science is required to rightly understand, that if the human brain is placed in an abnormal condition by worry or strain or overwork; or by over-

stimulation by climate, alcohol, tobacco, opium, chloral—a condition analogous to a hot-house, that its evolving cells will be weakened, degraded, or take on excessive development; hence, debility, weakness, exhaustion, etc.

A partial death of the nervous system, or as it is termed nerve exhaustion; a most common condition, *one* incidental to all nervous diseases; *one* that is dove-tailed into them, blended and enumerated under different heads; in an infinite variety of forms, in all affections that are common to men and women who have exhausted their vital force; affections that are generally looked upon by the profession as modified forms of idiosyncrasies, crankiness, hysteria, morbid thoughts, increased sensibility, depraved appetite, perversion of special nerves or senses, or parts of the nervous organism; giving rise to neurosis of mucous membrane, glands, skin, organs; special modifications impress the nerves that supply the organs of circulation, giving rise to nervous headache, nervous palpitation of the heart; abdominal pulsation, due solely to nervous influences, which has too often been mistaken for abdominal aneurism; besides we have nervous cough, asthma, a spasmodic contraction of the bronchial tubes;

aphonia, weakness of the laryngeal nerves; musca volitantes, tinnitus aurium, and many other marvellous nerve disorders. In this condition of nervousness, there is very apt to exist restlessness, mobility, with or without undue excitability of nerves.

The brain presides over nutrition, secretion, excretion, digestion and assimilation. If the integrity of that organ is impaired the whole body is out of gear and a degradation of the primary elements concerned in its nutrition takes place.

Causes.—The causes that give rise to general nervous debility in individuals and nations are very numerous, as the increased necessities and activities of civilization—a condition very wearing to the brain, unless muscular work be in excess. The condition of early precocity in children, fostered and nursed by a perniciously too early education; by children's magazines, rushing the immature brain of childhood into excessive development by over-culture. To this hot-bed of civilization, we add care, worry, overwork, struggle, intense tension, the brain being overtaxed at the expense of the physical. There are causes in our country, in our highly oxygenized and ozonized atmosphere.

There is no climate, no portion of the earth, so productive of neurasthenia as North America. There is every essential in it to produce increased brain activity, active cell development, and no one living under its influence can escape becoming neurasthenic; its exhausting faculty added to great mental efforts, together with the almost universal use of tobacco, alcohol, excesses, effect the result.

The mighty momentum of all that is great in science, in arts, in practical utility, sways the ever active brain of the American who, if left to himself, will soon become the prototype of the noble Roman.

While glancing at these and other causes, we must ever bear in mind that the human body is but a reservoir of nerve force, which is constantly escaping, while at the same time it is constantly renewed from the centre of all force. A healthy man between twenty-five and fifty-five years of age has a large amount of nerve force in reserve, and is not much if any way exhausted by the ordinary tear and wear of the body. He has, so to speak, always a margin left behind and beyond that required for his ordinary avocation, on which in powerful emergencies he can draw with no other effect but slight fatigue, which disappears under rest, sleep and food; whereas an individual suffering from neurasthenia have a very meagre amount of nerve force in reserve; the slightest exertion, mental or physical, will drain it off.

Symptoms.—In appreciating the condition of nervous debility

we must look closely at the nerve centres. True the entire nervous system is a unit, a whole, but for the sake of description or a perfect elucidation of symptoms, we map it out into three great centres, the brain proper, spinal cord, and great sympathetic,—they form a trinity, a three in one—one emanation of Deity. This microcosm, in a highly civilized and sensitive man is a perfect centre of reflex action, and it is this that in some measure accounts for the variety and intensity of the symptoms.

An individual or race suffering from general nervous debility usually manifests itself in a strong nervous temperament, with a white skin, sharp cut features. They suffer from languor, lassitude, debility, being easily exhausted on the slightest exertion; they have no reserve of vital force, no margin upon which they can draw, the fountain-head is empty or drained off. They may do more work, exert more nerve force in a short time than a strong man, but they are more easily exhausted than the vital; may eat and digest with little expenditure of vital force, but they cannot bear labor nor fatigue, nor privation, nor loss of sleep. It may not shorten life, nor destroy its usefulness, but the individual or race has not the tone, or vigor, or vivacity of the vital; they have lost the stamina for essential work.

Neurasthenia may exist in an individual or race for many years, and the affected party be unconscious of its existence. The leaves, blossoms, twigs, branches may begin to fade, while the tree remains sound and strong; and the true condition is not realized until the disease, in its progress downwards, attacks some of the main branches or trunk, or until some vital organ is smitten; until pneumonia, cardiac and kidney disease, nervous dyspepsia insomnia, physical and mental prostration, attract the individual's attention. The fatigue, pain, worry, want of rest, the wreck produced by mental toil is marvellous.

The symptoms of neurasthenia are very varied, being often central in the brain proper, but the largest number are reflex, taking place through the motor and sensory nerves; the sympathetic and vaso-motor, the irritation being transmitted to weakened parts in the cord and bulb. When the mental wreckage is great, fear is a predominant symptom, fear of society, fear of solitude, of place, of disease, of morbid impulses; suicide, mental depression, wakefulness, headache, impaired memory, deficient mental control, palpitation, aneurösis, neuralgic pains, dysentery, spinal irritation, cardiac insufficiency, etc.—neurosis somewhere.

Effects.—The grand predominating effect of neurasthenia is general vital deterioration. The intellectual torpor of a semi-civilized state is more favorable for brain vitality, national growth and vigor, than one highly civilized. We have an excellent illus-

tration of this in an Irish woman, she keeps all her vital force in reserve, she will do any amount of hard work, even drudgery, unblest, uncared for by exhausting sentimentalism, without being able to read or write, or calculate past, present or future. In her daily toil, she seldom brings out all her available vital force; whereas, the sensitive, highly civilized American woman, with a small amount of inherited vital force, living an in-door life; her mind highly active, subsisting upon pernicious literature; real or imaginary stories, the effeminating journals of the day, attending theatres, receptions, balls, subject to worry, care; she has no reserve of vital force, it is exhausted as generated; whereas the Irish woman has a large amount of vital force, a full reservoir, an excess—a battery of potential vitality, with great power of resistance; while the neurasthenic is endowed with the most meagre supply.

All highly evolved nervous organizations have a smaller amount of vital force, have very little resistance to disease, or to the entrance of disease germs into their bodies, or to molecular change, much less than those whose organizations are low. The highly evolved nervous organizations are more complete, they are stronger reflex agents; the mechanism of their nervous systems is more elaborate, has a finer grain, contains more cineritious matter, it has deeper fissures of thought, but it is less resisting, less vital than the lowly organized.

Individuals free from neurasthenia are vital, all organs are strong and normal, and resist disease.

Among nations, the modern American is the most nervous; they are ever in a state of tension, or strain; they are incessant at work, from the cradle to the grave, and do an immense amount of work, though not of the highest.

All forms of nervous exhaustion prepare the way for disease; they prepare and fecundate habits of inebriety, in tobacco, opium, and alcohol.

This inherent state of deteriorated nerve power comes from weakness and degeneration; all the victims have oxaluria, lithæmia, phosphuria; all have degradation of blood elements, and suffer from disease germs in every structure of the body; all have the stamp of effaced vitality. Children affected with neurasthenia exhibit well marked symptoms. The child is restless, fidgety, suffers from insomnia, headache, indigestion, manifest weakness and irritability in the cerebral nerve mechanism. The higher grade of brain life, phrenal activity, is illustrated in rapid development, or evolution, early precocity, weakness of organization with attendant symptoms.

Pathology.—Neurasthenia, poverty of nerve force, cerebral

softening, paralysis and other states, are the sequel of exhausted nerve force, whether by mental work or sexual excess; it brings about the state of an organ tissue-starved. Following this, granular deposits on the arachnoid, adhesion of the membranes to the surface of the convolutions, crystalline granulations in the lining membranes of the ventricles, with an unusual amount of fluid in the sac of the arachnoid and in the lateral ventricles are found in the brain of those who devitalize that organ. A tissue-starved brain gives rise to inflammation of the cortical part of the brain, ending in its degeneration of the nerve cells of the hemispheres, structural change in the convolutions, the cells of which lose their integrity and look like an irregular heap of particles ready to fall asunder.

The brain of man owes its healthy existence to the quantity of phosphorus it contains, if this is economized, independent of its scantiness in modern food, it might sustain him probably as long as life lasts and health holds out; but let the brain starve, health fails, nature can supply no more; then, unless the patient can obtain phosphated food, as ozonized tincture of oats, or the animal phosphorus of kephaline, degenerative changes will take place in the gray substance of the cerebrum; the cells of that part will become granular and deposits of granules scattered through its substance; these changes take place in all parts of the brain and spinal cord, when the phosphorus in the brain is exhausted. Brain workers, merchants, professional men, know this; they feel it in their languor, tired brain; those are the victims of excessive brain exhaustion. How far this granular change in the nerve cell is compatible with healthy mental action, we cannot yet say. But we do say, and nothing can invalidate it, that unless our brain-workers obtain more phosphorus, white softening, paralysis and insanity will become more common.

General Remarks.—Man, the embodiment of the Great I Am, in whom he lives and moves and has his being, his body, with his instinctive, moral and intellectual nature—embraced in the sympathetic with its numerous ganglia or little brains, the generators of nerve force, constitutes a bundle of nerves, reflex in their character, that rebound upon each other, reflecting irritation to the medulla oblongata, which force thence is reflected to weakened parts, so that any irritation set up in one part is liable to produce an irritation in another. There are certain organs, which, on account of their importance, complexity of their nerves, and from the fact that they are indispensable to the functions of life, are pre-eminently the seat or centre of reflex action; the cord, the heart and blood vessels, through their abundant, complex and sensitive nerve supply, keenly feel any irrita-

tion from any source. The circulation is kept unbalanced, waves of irritation, under a myriad of causes, explain the fugitive character of the symptoms. There is a power within the human body, partly physical, partly mental, of working off or tolerating disease. A vigorous man physically and intellectually, with a certain mental organization, will bear pain, suffer shocks well—states which would make a weak man a chronic sufferer, a life-long invalid, rendering his existence a cipher. Strong, vital constitutions will bear suffering, ward off disease, and by the inherent element within them will prevent degradation under which others would succumb.

Neurasthenia is as jealous as a woman, it allows no rival. Let there be malaria, syphilis, gout, any form of blood poisoning, the nerve debility entrenched in the constitution of the individual will hold its own and ever be on the top, in spite of all diseases, but being paramount, it modifies every affection known to the human race.

Varieties of Neurasthenia.—Nervous debility is a devitalized state, a disease, which has its cause, its symptoms, its effects, its antidote, and when thoroughly entrenched in any individual will hold its own position, often in spite of every effort. It is true it may be aggravated, complicated, modified by every known disease, and its presence in the individual makes other diseases more difficult to eradicate or overcome.

The action of the mind upon the body in health and disease, is a problem that has caused much perplexity to all medical men, and still more the enormous capacity of those affected with neurasthenia for mental exercise and work.

Neurasthenia, like insanity and other mental states, is divisible into a vast number of varieties, such as hypochondriasis, or crankiness, a demonstrable form of cerebral disease; certain idiosyncrasies, which are purely mental wrecks; the infinite number of forms of *neurosis* of every organ, gland and structure of the body. The most marked or noted of all forms of neurosis is the sexual—pruritus is very common; painful connection is most distressing; continence or incontinence of urine annoying.

Nymphomania, a species of madness, in which the excitation is so great, that spasms are excited by the sight of a man; or the irresistible desire to masturbate or hold abnormal methods of intercourse of the sexes, is often accompanied with peculiarities of voice (squeaky) or by obscene language or conduct, fits or attempts at suicide, states in which the mind is peculiarly affected—termed Erotomania, a mental state, exclusively occupied by illusions, hallucinations, etc.

Nymphomania is physical; erotomania, mental, psychical;

satyriasis is peculiar to the male sex, and is to man what nymphomania is to women. Its symptoms are hallucinations, fits of sexual furor at the sight of women, repeated ejaculations, obscene conduct and words, a tendency to suicide.

. Strange, undefinable sensations amounting to numbness or even pain; inharmonious states, incompatibility, loathing, disgust, complete perversion of the sexual appetite, which gives rise to callousness, imaginary impotency; or farther, where the neurasthenia has progressed to a wiping out of the typical fissures of the brain.

**Neurasthenia of Brain,
Spinal Cord and
Great Sympathetic.**

A poverty of vital force, a want of nutrition is often applied to tissues or organs when their vitality is impaired, irrespective of any disease of the blood, such as anæmia of a nerve in neuralgia, a starved heart in rheumatism and gout; atrophy of a muscle, owing to an insufficient blood supply; anæmia of the uterus, etc. In cerebral anæmia the quantity of blood in the brain is reduced below the natural standard, or the quality of the circulating fluid is impoverished. In either case the nutrition of the organ is interfered with. In the one case there may be a loss of blood, or the blood cannot permeate the nerve-centres, or there may be a lack of blood formation. Insufficient nutrition is the cause of anæmia of the brain, spinal cord and sympathetic, and this may be brought about by worry or struggle for existence, or it may be due to insomnia, to sameness, monotony, isolation, or to irritation reflected, to diseases within the body, or to disorders of digestion or assimilation interfering with nutrition. It is well known that under a condition of worry, sorrow, grief or other depressing passion, the blood becomes poor in quantity and quality from deficient nerve supply, and is unfit to nourish the brain, and the great centres suffer from the shock incidental thereto as well as from poor blood, and with it the whole body suffers.

In cerebral anæmia from impoverished nutrition, there is not only a decrease in the red corpuscles of the blood, but the power of the heart and blood-vessels is lowered; there is a deficiency of the functional energy of all organs, due to a want of blood and innervation; strength of will, vigor of intellect and the vital capacity of execution and determination are impaired, and the individual is capable of no effort. The mental inertia or depression is generally accompanied with lassitude and a feeling of utter incapacity for muscular and mental exertion of any kind.

The causes of anæmia of the nerve-centres are very varied,

and embrace to a certain extent a long list of diseases, such as concussions, the action of the sun, chronic inflammation, softening; the action of whiskey, opium, chloral, tobacco; mania, monomania, dementia, melancholia, nervous dyspepsia, hysteria, epilepsy, catalepsy, ecstasy, somnambulism, paralysis, convulsions, headaches, etc., in addition to worry, tire, exhaustion, study, mental strain incessant; masturbation, sexual excesses, deteriorating influences of civilization, over-stimulating the nerve power; defective assimilation of brain elements, improper reading, deleterious trades; solitariness or sameness, which wipe out the typical fissures of the brain and thus lower its quality; too early an education, which causes a defective power of assimilation in the brain, protracted inhalation of air deficient in oxygen, whereby the centres are not vitalized. Nerve tire; to which may be added civilization, refinement, culture, which create new and abnormal responsibilities, new anxieties, every one of which brings on additional mental strain. The mind of highly civilized man is ever on the alert. The brain has no rest; nutrition of other tissues is diverted to repair the waste of nerve-tissue, and sooner or later inevitably comes the anæmia or exhaustion. It is undeniable that anæmia of nerve-centres increases with civilization, and that diseases of the brain, spinal cord and ganglionic nerves are alarmingly on the increase.

Among the most prominent of these causes is worry, struggle, real or imaginary; this gives rise to a grave loss of nervous energy and anæmia of nerve-centres. *By it* the united brain, in tone, strength, capacity is seriously impaired; *by its* wearying, gnawing, exhausting influence, the organ is devitalized and irretrievably suffers; *by it* the whole machinery is thrown out of gear, and exercise, recreation and amusement become painful and destructive. The victim of worry is on a precipice; if he escapes, it is something providential. Worry is disorder, and nature abhors it. The energy employed in any pursuit under a state of worry gives a small result and speedily becomes exhausted. Under it the faculty of recuperation is arrested; the failure of the appetite soon takes place and the effort to work is laborious; the task of fixing the attention grows increasingly more difficult; thoughts wander; memory fails; reason becomes feeble; prejudice takes the place of judgment; brain disturbance very apt to supervene and a crash is likely to follow, with mental disquietude and distraction.

Next to worry we have mental strain, incessant attention for hours in bank officers, railroad employes, merchants, etc. No one who has any practical acquaintance with the human brain can fail to recognize the fatuity of a policy which entrusts the

safety of their lives and fortunes to the integrity and precision of the mental function performed by one brain, continuously engaged for several hours in succession; the keeping of the brain on the stretch for long intervals; the sustained attention of onerous duties weakens its integrity and it becomes anæmic. In the nature of things, physical memory fails; mind wanders; and if it were not for habit, the task probably could not be performed. The higher cerebral centres are relieved by the strain put upon them by delegating their power to the lower automatic centres; but if with this relief the tension is excessive, and the way in which the ease is purchased by habit, is in itself a source of peril. Acts that do not call the reasoning power into operation and form a judgment; acts that are merely routine or habitual, are dangerous. It is critical for man's brain to work automatically or by habit; it leads to anæmia.

In anæmia of the nerve-centres, produced by over-study, there is usually irritability and excitability of manner and an utter impossibility of concentration. When intellectual exertion, if monotonous, is carried on beyond a certain point, the brain becomes fatigued and anæmic, and the nutrition in the ganglionic cells of the cortex become impaired, diseased, altered from health; then headache becomes not an infrequent concomitant of the case, and indicates a still more advanced condition of an irritable and exhausted brain. Headache is indicative of cerebral debility, whichever of its two great factors be present, anæmia or congestion. A great deal of the present amount of anæmia of the nerve centres is due to brain starvation, as well as overwork, worry and strain. It is simply preposterous for a nation of brain-workers to live on vegetables and starch. Our present diet is poor in phosphates. A brain-worker should eat freely of corn-bread, oatmeal in some form, and boiled white-fish, which are true brain and nerve food. If no deleterious compound is introduced into them they give or afford pabulum for lost nervous energy; they relieve lassitude, refresh the nerves when tired by any drain, strengthen the failing memory and give renewed vigor in nerve-tire.

Cerebral starvation is also brought about by adulteration of food, as the use of baking powders, which destroy the phosphates in flour, corn, buckwheat, and the introduction of diabolical, disease-generating food, as pork, oleomargarine, glucose, which should certainly be prohibited by rigid laws. This insufficiency of brain elements in food tells dreadfully upon the offspring in the production of infantile brain anæmia, and it is doubtful whether it is not of more importance in whittling down the nervous system to the very lowest ebb than over-stimulating

diet, tobacco, literature and other assigned causes. Under the absurd name of hysteria we find a large percentage of anæmia of nerve-centres in ladies. This is due to a variety of causes, such as their extreme susceptibility to impressions, to their indoor life, monotony or sameness, sedentary habits, which necessarily gives rise to a deficient aeration of blood, a deviation from a natural type, and causes a marked characteristic, which condition is aggravated by literature and surroundings. All morbid states of the body directly or indirectly tend to produce brain anæmia. This is explained by reflex action. Masturbation is a dual cause, a direct drain and irritation superadded.

Symptoms.—To lay down a train of symptoms is impossible; there might be forgetfulness, loss of memory, nervous debility, indifference to the world, white face, dilated pupil, nerve-tire or irrepressible languor, sleeplessness, irritability, heats and colds, burning in the hands and feet, vertigo, noises in the ears, specks and spots before the eyes, phosphates and chlorides in the urine, abnormal sensation in the skin, seminal weakness and loss of power of the generative organs, or, in other words, no definite symptoms can be laid down, depending a great deal on the so-called disease present, or that develops itself. Hypochondriacs, cranks, nervous dyspeptics, confirmed invalids of all sorts, widely scattered over the entire country, paralytics, monomaniacs, hysterical subjects, bed-ridden, sleepless, helpless victims, the result of abuse and erroneous treatment, worn and wasted, a burden to themselves and their families; subjects who may or may not suffer from some local disorder, if none, the exhaustion, prostration, difficulty of progression, and general nervous disturbance incident to the anæmia will be paramount. As a general rule, whatever the phase in which it presents itself, there is wasting of the fatty and muscular tissues combined with the anæmia; the patient having lost all healthy appetite and power of digestion and assimilation, there being scarcely enough eaten to keep vitality alive. Patients suffering from cerebral anæmia, whether it be the monomaniac, hypochondriac, hysteric or dyspeptic type, have their sympathetic system highly excited and are highly emotional, constantly craving pity, sympathy, which they usually obtain to a degree prejudicial to their welfare, and monopolize it until the entire household and neighbors become victims to their morbid selfishness. One doctor is tried and another, one cure, water-cure or spring, and even different sections of the country are utilized with no good.

Treatment.—In cerebral anæmia our usual medical treatment is almost useless, and this very fact necessitates a complete change of procedure, a change that involves not only great ex-

pense but considerable inconvenience, as it involves the removal of the patients from the unwholesome moral atmosphere in which they have been living, away from sympathizing friends and neighbors; by a renewal of the patient's vitality by baths, brain food, and other nutrition, and causing its assimilation by positive muscular exercise; by resorting to peripheral stimulation, thus stimulating the reflex centres, causing an increased cutaneous circulation, and thus improving nutrition. The treatment is physiological, and up to the latest discoveries in medicine, and involves the following heads:

1. *Seclusion and Rest.*—This is absolutely indispensable to carry out the entire treatment in its most minute detail; the entire seclusion of the patients under a competent nurse, and their removal from old scenes, associates, and the morbid atmosphere of invalid habits which encircles them. Unless the patient is entirely removed from the injudicious sympathy and constant waiting on of friends, it is impossible to obtain the necessary control over them which is requisite for a cure. This point is to be made absolute; sever the connection between them even if it seems harsh and strange; no compromise on this point can be made, and if it is impossible to secure the removal, the isolation and perfect seclusion of the patient, better to have nothing to do with the case and its peculiar treatment, for even if they are isolated in a separate room in the same house under a competent nurse and visited by no one but the medical attendant, the case does not do so well as when apart.

There should then be a perfect separation from all moral and physical surroundings; the change is beneficial, and aids immensely in the cure. Following this is rest in bed, absolute repose, no reading, talking, looking at pictures, no sewing or knitting, not even allowed to feed themselves for at least six or eight weeks. Under this condition of rest the whole system becomes regenerated, and new tissues begin to form; it acts like a brain or nerve food; it restores lost energy, refreshes the nerves tired by worry, excitement or strain, and gives renewed vigor to the whole body. After this condition of absolute repose has existed for six or eight weeks, it may be broke or lessened, and then the patient be permitted to sit up several hours daily, and gradually this is to be extended. The old diseased habits are to be discarded and a new life to be inaugurated while the above is being faithfully carried out; the essential part of the treatment is also being fulfilled in the form of—

Massage.—Simultaneously with the condition of seclusion and rest being commenced, this, the really indispensable part of the treatment, should also be inaugurated: the entire surface of

the body of the patient morning and evening to be thoroughly sponged off with castile soap and water, and well dried by the nurse, and thus made ready for the massage. This is to be performed by a young, healthy, vigorous person, full of vital force, intelligent, and well posted in his or her work. Massage should be commenced the first day, half an hour in the morning, and same length of time in the afternoon, the duration of time increased daily, until two and a half hours are thus occupied morning and evening, making five hours altogether daily, and after its performance each time, one-half or three-quarters of an hour of electrical manipulation to follow. This massage is to consist in taking a leg and thigh, beginning at the toes, foot, leg up to groin, first rubbing from the extremity up; then grasping the parts between both hands, from foot up, moving each joint as you go along; then a careful, pains-taking kneading from the sole of the foot up, manipulating the joints well; this is to be followed by beating or patting with the fingers of both hands coming down on the part at the same time, and the whole to be followed by a rubbing with the points of the fingers, always moving the joints. After one limb has been well done, then the other; then one arm, then the other; the back, and laterally the abdomen, spending upon each a little over half an hour. If there is great sensitiveness, it is often best not to spend the entire time on one member at once, but to go from one to the other, going over each several times. The intensity of massage will depend altogether on the sensibility of the patient. In no case is there any violence or roughness to be used; neither is the skin to be irritated nor much redness induced. During this manipulation, the patient is to remain perfectly passive—not to make a single effort; all to be done by the operator. This systematic shampooing, grasping, kneading, patting, beating and exercise of all the muscles and nerves of the body, extremities and trunk, has a magical effect. Its advantages are, the peripheral nerve stimulation carried to brain, cord and other centres, raising the standard of central vitality, the vital force or stamina of the operator is planted into the nervous system of the patient by reflex emanation; all his reserve vitality accumulated are thus given to the devitalized. Nerve action in all cases is vibratile; in anæmia of brain an abnormal series of nerve vibrations are set up. This is at once changed by massage, which restores the healthy, mechanical vibrations to the nerve; carrying the same state of vitality to the centres, it thus relieves wandering, erratic pains and neuralgia, strengthens the nerve centres, and gives renewed vigor in all diseases of nervous exhaustion or debility; it stimulates the cutaneous circulation, the muscles are

exercised without the expenditure of nerve force; the reflex stimulus carried to the medulla oblongata gives greatly improved vitality, and the psychological condition of the manipulator, as well as his vitality, is implanted in the patient. To do it effectually, requires a well-educated person, of fine mind, strong will, solid determination, sound vigor, and of high vitality. The party who does the massage should have nothing else to do but walk around, eat well, and acquire all the vitality possible, so as to communicate it to the patient. The regular nurse, tired and wearied with his peculiar avocation, should never be permitted to perform the massage. There is to be no oleaginous body used by the operator, as that destroys or breaks the vivifying current.

After the first application the patient will feel sore and stiff, but this will soon wear off in a few days. Although we inculcate gentleness, still it must be efficient; this feeling of soreness will soon pass off, when the patient will enjoy the manipulation amazingly, and after it is performed will have a pleasant sense of exhaustion followed by refreshing sleep.

Electricity.—This should follow the massage, and is to be used simply as a means of exercising the muscles. The interrupted current should be employed twice daily, from half an hour to three-quarters of an hour. The poles armed with wet sponges squeezed out of salt water, so as to carry the electricity away down into deep parts, are to be placed on the muscles to be operated on in turn, beginning at the leg and going up, taking each muscle in turn. The sponges with the poles should be placed four inches apart and moved slowly up and down the muscle until it contracts fully and freely. This is somewhat painful and annoying, but is of unquestioned utility in long-standing cases of cerebral anæmia, especially where there is wasting or muscular paralysis. It is not to be used about the neck or head, and it should never be rubbed about indiscriminately, but simply applied to the muscles.

Regimen and Diet.—These form an important and essential part of the cure. All this class of patients are but living skeletons, skin and bone; white, anæmic, wasted, emaciated, neither able to sleep nor walk; suffering a living death, mocked at by ignorant physicians who are too superficial to understand their case. And it is perfectly astonishing to see how the treatment tends to recuperate and rejuvenate them. Once the patient is secluded, it is well to cleanse out the bowels and begin with a milk diet exclusively for a few days. This should be given every two hours in sufficient quantities, which they are able to consume and perfectly assimilate, usually from three to four ounces. After

two days of the massage, the amount can be increased to eight or ten ounces, so that within the twenty-four hours from two to three quarts of milk will be consumed. There is no difficulty in getting rid of that quantity even if there are dyspeptic symptoms, for they disappear like magic, and flesh, strength and increased weight are visible to the eye from day to day. As soon as the manipulator reaches five hours of massage and an hour and a half electricity daily, one-half in the morning and the other half in the afternoon, then the diet is to be increased by the following additions, which are greedily taken, thoroughly digested and assimilated into brain, muscle and other tissues. The following schedule will give an imperfect idea of the diet list or something near it:

Every evening during the treatment there should be made beef tea, say a pound and a half of fine lean meat, chopped fine, and water sufficient to obtain ten ounces; this should stand over night, so as to be ready for use at five a. m., when, after the patient is sponged off, a portion of it should be taken with a soda-cracker. This meat extract should be seasoned to suit the taste, and parsley, if in season, added to it.

At five a. m., beef extract with cracker, to be followed with two and a half hours massage and half an hour electricity; to be followed with a bowl of oatmeal porridge and cream.

A nine o'clock a. m., breakfast, consisting of toast and butter, soft-boiled eggs, corn bread, boiled beefsteak and coffee.

At eleven a. m., milk.

At one p. m., dinner, consisting of boiled white-fish, chicken, mutton chop, broiled beefsteak, vegetables, fruit and cream.

At three p. m., milk, to be followed with massage and electricity for three hours; to be followed with beef extract, fish, biscuit or milk.

In other words, a system of feeding consisting of brain elements, and that to excess.

In this treatment, which is so successful, the massage is the dominant agent, and the question is—How does it work? The vital stimulus of the rubbing, patting, kneading, shampooing, is imparted to the superficial nerves. This passes along the nerve tubes by means of the pulp to the gray matter of the spinal cord, where, by the influence of the ganglion through which it runs, the supply of blood to the nerve cell is regulated. In the cell of the gray matter of the cord a vital electrical condition is established which travels along the spinal cord to the brain, which is toned up and receives more blood. Every rub, every vibratory thrill gives a myriad of tonic phenomena, and causes the anæmic capillaries to become filled with blood rich with brain

elements, and a renewal of life in the weakened tissue promoted. This treatment, simple as it looks, needs the supervision of a medical attendant of great skill. The time necessary to accomplish a cure is usually about twelve weeks, unless in old cases of paralysis, which may require a longer period.

Is this treatment reliable? Assuredly it is. Not only reliable, but endorsed by the highest medical authorities, and thousands of hopeless cases of disease have been cured by it. It is no experiment. The nervous system is the controlling agency by which development is perfected, and the animal magnetism of the operator is the mysterious force that rouses it into action. No drug, no remedy whatever can quicken the benumbed and paralyzed limb or faculty like the invigorating stimulus of intellectual animal magnetism. There is an affinity in all cases of debility to absorb or draw from the stronger around, to imbibe their nerve vigor and thus rouse their own dormant activities. The system of cure as laid down above comes right in among a class of diseases in which all remedies fail. For there is no drug or mechanical contrivance that can induce a healthy vibratory action of the nerves with living, thinking matter, and bring a new power to the deadened nerve forces but this.

The disorders of the sympathetic or of the great sympathetic ganglionic system, which in the white man is so profusely reflected to the face, lungs, heart, spleen, liver, and genito-urinary organs of both sexes, in which the moral nature of man, emotions, desires, affections and passions reside, or what some term his visceral brain or soul, have not as yet been elucidated, and therefore not classified. The immense amount of rich gray matter in the sympathetic ganglia and its connection with the organs of animal life, with the united process of nutrition, blood formation and reproduction, exercise an immense influence on the circulation through the medium of the sympathetic, by which the neuric manipulations are produced, and any deviation from health in any of the organs of chest and abdomen leads to anæmia of cord and brain, especially so if the complex generative system is affected. It may be called reflex irritation, or irritation carried along the sentient gray matter to the cells of the cord, which in time wears them out and the influence of repeated or abnormal vibrations exhausts completely the central cells and the non-vital condition is established, with the weakening and disturbance of the electrical condition of the cord and brain. The superiority of the gray cell of the sympathetic, its intrinsic sentient matter is apparent, its growth and development in man being coeval with his moral responsibility; and when any organ it freely covers is affected, as the uterus, the penis, the left kid-

ney, spleen, mesentery, heart and lungs, then rapid changes do occur on the supervention of the irritation. In such cases we see the rosy hue of the cheeks becoming pale; the graceful gambols of the child giving way to the distortions of chorea; we hear the sad gurgling of the epileptic, or the fierce ravings of mania, or the moanings of melancholia. Once the affections of the sympathetic are classified, we will be better able to treat the diseased manifestations of those organs under ganglionic control. *

It is not our purpose to speak of evolution, or of the opposite state, dissolution. Suffice it to say here, that the order in which the principle organs of the body are evolved, are as follows: Heart, brain, eye, ear, mouth, nose, digestive organs, organs of special sense, moral qualities, reason and higher faculties, and lastly the reproductive organs, and the faculty of abstract thought.

It is a principle of evolution that functions, when not disturbed by disease, decline, wither, decay, atrophy, and disappear in the reverse order in which they are developed.

The functions of the human body, that are last in the order of development, are the reproductive, or procreative, the power to reproduce the species, and the power of abstract thought.

Puberty in the Caucasian is not reached till fifteen years of age, but even then the male is not mature till he is twenty-five, and the female till she is twenty-one, and few persons attain the power of reasoning earlier. Before that period the human progeny are simply imitators.

It is a fundamental rule in physiology, that it is the sexual organs that make the man—that it is upon them manhood is built up.

The nervous system of man is intrinsically the most valuable substance in nature, and when thoroughly matured in either sex, between twenty-five and forty-five, it is the most difficult to devitalize, but when impaired it is the most tardy in recuperation;

*The most brilliant results have been obtained in the treatment and cure of chronic and hitherto deemed incurable, nervous disease, by the use of vitalized massage, electricity, seclusion, rest, over-feeding, glycerite of kephaline, avena sativa. Sanitariums are best adapted for carrying out the treatment in all its details, and affording a complete rejuvenation of the patient. In the United States we have a few which excel, in magnificence in the profound ability of its attending physicians, and in their therapeutic appliances, anything in the world. In the East, The Flower Medical Hotel, 417 Columbus Avenue, Boston, Mass.; in New York State, the Sanitarium of Dr. Gleason, of Elmira; and Dr. Dewey, Clifton Springs; in the West, Prof. Skelton's Sanitarium, at Bloomfield, Iowa, and Prof. W. T. Burks, M. D., Napa City, California.

the great nervous ganglia with the reproductive organs are late in maturing; and when there is any wreckage or disease, the genital organs and intellect suffer first.

This law holds good, subject to some variations of temperaments, idiosyncrasies, hereditary conditions, or perversion of the intellectual faculties.

The genital organs are the first to suffer in all cases of nervous debility; they are the first to feel the slightest disturbance of the nervous system; the first to feel the shock; and this sexual impairment is soon followed by heats and colds, by feebleness of memory, more or less general depression. Nerve shock, nerve tire—worry, struggle for existence, operate actively, keenly upon the reproductive organs, giving rise to such conditions, as spermatorrhœa, the flowing away of semen in the urine or otherwise; different grades of impotence, even to a want of power of intromissions; irritable prostate, with dribbling of urine, or frequent micturitions; oxaluria, phosphuria, lithæmia, often existing months or years without the knowledge of the individual; but sooner or later, other functions will suffer, as digestion, power of mental concentration, irritability of the spinal cord, torpidity of liver, Bright's disease.

Disease of the brain, cord, great sympathetic, makes the individual sick all over. No one can have any form of nervous disease and be well, and absolute impotence may exist and the individual be to all intents and purposes well.

The explanation is, that the function of generation being the last to be developed, is the first to give way, or decay—it has nothing depending on it—it is simply a twig, a branch, not a main trunk like the brain; it is a periodic function, capable of long intervals of inactivity, not of short intervals like the digestive organs, or constantly active like the heart or lungs.

A man may enjoy excellent health, and his sexual apparatus dormant, without being capable of reproducing; without exercising the function of abstract thought; without general activity. These functions are of late development.

There is a border line of local sexual debility that cannot be passed without bringing suffering to the entire body; so sexual neurasthenia leads to nervous dyspepsia, constipation, liver, kidney and heart disease, and numerous other morbid conditions.

True, in the sensitive, in those of high mental culture, in the highly developed, this border line is speedily reached as they have little power of resistance; little, much less reserve of vital force than those of a more rugged constitution.

The muscular man is stronger, more vital, offers more resistance, has greater vital tenacity, is in other words impregnable to ingress of disease, to depressing influences.

If the neurasthenia is induced by masturbation, the individual so devitalized loses his manhood, and all the attributes of virility long before old age; his beard and hair fall off; his genital organs atrophy; his sexual appetite and desires disappear; his voice becomes feeble and altered; his body loses its force, vigor, energy—he becomes effeminate, he acquires the habits and attributes of a woman.

But there is in modern society other elements aside from masturbation existing, operating, devitalizing, which might be termed sexual perversion, which exhibits itself, in unnatural forms of coitus, even worse than self-abuse. These we need not enumerate, suffice it to say that the wearing of condoms and the common practice of both single and married men resorting to premature withdrawal in the act, is the worst, the most blighting; the practice gives rise to irreparable damage to the prostate, perverts the sexual appetite, causes early impotency and nervous disease. Certain trades, occupations, as photographers, riding on horseback, reading dime novels, give rise to seminal losses or leakages, general genital excitation, prostatic disease; under which the generative organs atrophy, grow smaller, feeble; the desire, power of intromission by and by ceases; courage and manhood disappear.

Sexual neurasthenia, in all cases, leads to feeble-mindedness, or imbecility, epilepsy, inebriety, insanity. The practice of masturbation or perverted sexual appetite, however gratified, gives rise to phrenal incapacity, which leads to insanity, preceded by melancholy, a state which leads its votaries to lunatic asylums. Genital losses depreciate, destroy, the intellectual and moral nature, they demoralize, wreck, throw out of gear the entire intellectual fabric.

An unmarried man in apparent good health may occasionally have emissions; they are evidence of weakness, debility; they are exhausting, have a debilitating effect on the body and always bring on nervous disease, and if they are combined with any form of sexual perversion induce anæmia of the brain and cord. Masturbation and all forms of sexual perversion are ruinous, the involuntary oozing or loss of the seminal fluid is disastrous in the extreme.

True spermatorrhœa, or the flowing away of semen, either nocturnal or diurnal, or its loss at stool or in the urine, indicates debility of the parts, and of the sexual appetite or sense at the base of the brain, and is a frequent and persistent symptom of neurasthenia. Such states are very common among the highly civilized American. The *urine*, aside from the general feeling of languor, is a barometer test of the true state of the system, and

the amount of urates, oxalates, phosphates, etc., present, indicates the degree and intensity of neurasthenia.

Our habits, our literature, our highly oxygenized atmosphere, mould us into sexual neurasthenia, and when induced, there is genital debility, less or more impotence, spermatorrhœa prostration, irritable prostate, structural nervous disease.

Numerous complications or deviations arise in all cases, no two being alike; in some there is the loss with stinging pain; in others the testes atrophy, penis is cold, erections slight; in others erectile power is increased abnormally, prostatic secretion or seminal fluid scanty, priapism and aspermatism may exist, owing to excitation of the cord.

The desire for sexual intercourse is the most powerful passion of human nature, indispensable for the perpetuation of the species, yet how few understand the importance of that function.

Normal sexual intercourse is a sedative tonic, promotes sleep, removes the cobwebs on brain, calms, strengthens the nervous system; if in excess it exhausts, wrecks the whole body, but if the sexual act is perverted by unnatural methods, whatever they may be, whether they be prolonged, or a dalliance, or a withdrawal in the act of ejaculation, or in the use of condoms, or other methods, too diabolical and soul-perverting to enumerate, it shatters the vital elements of being, of existence. In order to have a healthy race of children, a man should never have masturbated, nor resorted to unnatural methods to gratify his sexual appetite; all are bad, but I cannot too emphatically condemn the practice of married men, withdrawing in the act of ejaculation, also the very common practice of dalliance or prolonged coitus, which is much more injurious than when frequently repeated; all such and too many other obnoxious methods are fearfully hurtful to the offspring.

The diagnosis of neurasthenia is not difficult, the presence of general nervous debility at all periods, year in and year out, with no special disease, if any. The brain is chiefly affected, usually phrenal disturbances manifested in a thousand ways; if the sympathetic ganglia are implicated there will be emotional disturbance, religious hallucinations, hysterical conditions; if the cord is affected loss of power will be predominant.

But it may penetrate further and deeper, special neurosis of nutrition central, with a collateral loss of power in the lymph canals, and pink marrow where the degradation of living matter takes place with the disease germ tubercle; further and deeper, this nervous debility may be so great that the primary elementary molecules may be degraded into the diseased germ vibrios in which typhoid fever appears; besides, there is always likely to occur a spinal neurosis of weakened parts or organs.

In the diagnosis of sexual neurasthenia, every appliance known to science should be brought to bear upon the case, the ordinary physical signs as to spermatorrhœa or leakages must never be neglected; the examination of the urine, that great barometer, should never be overlooked. Determine the sensitiveness of the prostate by introducing the index finger of the right hand into the rectum, press firmly against the prostate, if it is healthy the pressure causes very little pain, but if the individual suffers from sexual neurasthenia there is pain, tenderness of an acute character, often excruciating pain; sensitiveness may exist without enlargement, irritable bladder or rectum, frequent micturition, aching testicle, pains in the lumber region, etc. The more highly developed the nervous system the more serious the effects.

A very high grade of neurasthenia may exist without tuberculosis—there is a border line to be reached before a degradation of bioplasm takes place into the disease germ tubercle.

In making the diagnosis we must bear in mind that life begins in a homogeneous fluid; from this is developed the varied forms of living beings. There is a life force inherited from a pre-existing life which builds up matter into living tissues and holds it together for a time, and the tenacity with which this force holds organized matter together does not depend on size or strength or muscular development, but on an even balance of the several parts, on an entirety of vital force.

Neurasthenia is not incompatible with intellectual greatness, for the greatest men in science, art, literature have been so afflicted. Our aim should be to leave the body better than we found it, and to transmit improved vital force to posterity, which true evolution will do, making death the beginning of life.

Treatment.—General principles must guide us, the predominating idea being to improve vital force. True a general alterative and tonic treatment is always of utility, and frequent changes of treatment are indispensable. Besides a well-grounded faith in the action of drugs that they will aid vital force, we shall briefly enumerated the essential points of treatment by which neurasthenia can be wiped out in individuals and nations.

Clothing for those affected with general nervous debility from the cradle to the grave should consist of flannel next the skin. It should be fine, not to irritate, and sufficiently thick to be comfortable, free from all drugs, which simply render it most deleterious and toxic. The use of such an agent over the entire surface is to stimulate vitality, its reflex action is superb; it generates vital electricity which is reflected to the nerve centres; it, directly over the abdomen, keeps up continuous ganglionic

action from the million of little brains located there; a barometer of force, besides it protects the keenly sensitive neurasthenia from the vicissitudes of change of temperature.

We not only insist upon flannel over the entire body during all seasons of the year, but during night in bed asleep, when the nerve centres are drawing or draining living vital force from the centre of all force. The affected individual should sleep between blankets, which are highly vitalizing; if the climate does not permit of such, silk is most excellent.

Diet.—Obviously man was made to eat a mixed diet, including both animal and vegetable food. The grade of civilization, country, climate, development, peculiarity of individuals, eccentricities, determine the kind, quality, supply and demand.

The theory of evolution aids us in providing our drugs and also our food, because food is medicine, it supplies material which the vital forces can organize into living matter, to aid and nourish nature in the cure of disease.

The earth itself feeds on grasses; fruits and cereals feed on the the earth; the lower animals feed on fruits, cereals and other animals; man, according to this gradation should feed on the lower animals, with a small proportion of fruits and cereals. In proportion as man becomes civilized or diseased, he, through those conditions becomes sensitive or nervous, he should diminish the quantity of fruits and cereals, which are far below him in the scale of evolution, and increase the quantity of animal food which is nearly related to him in the scale of being, as these are more easily assimilated. The best food for all suffering from nervous debility is beef, mutton, lamb, game, poultry, milk, eggs, boiled white-fish, oysters, butter, etc. Lean, tender meat is in all cases to be preferred to fat, because fat is a non-vital element and is of very low organization,—all fats except butter. Beef animals are nearer to him in the scale of evolution, and an excess of it, mixed with other articles, contains more brain elements, is the best food for brain and muscle workers, and is in most perfect harmony with the theory of evolution.

Just as civilization advances, as the human constitution increases in development, the diet should be still closer, nearer to man in the scale of development. Flesh meat of some kind should be the main staple or factor of diet, and on this alone is it possible to maintain the highest working capacity for brain and muscle.

As a rule the nervous debilitated are unable through sheer lack of force to digest food, at least enough to maintain the wear and tear of the body, hence it is of the utmost utility to either administer some reliable preparation of malt or pepsine after every meal.

Thorough mastication, an active liver and a normal evacuation of the bowels once every twenty-four hours are indispensable.

The rule is food of the best, even over-feeding is justifiable. Poor food or poverty of food is productive of debility. It is true, the human constitution possesses great elasticity and will tolerate poor or bad for a long time, but lessened vitality inevitably follows ill nourishment, and the heart is an organ that suffers vastly with irregular action under poor food. One thing is positively certain, that modern diet is insufficient to maintain the activity of brain work, and we need a thorough reform; our dietetics should be prepared for nutrition of the brain, for that organ becomes more complex, its cells gain greater power, as civilization progresses.

The first essential of life is good food. The majority of people are underfed and a large proportion are improperly fed. Lessened vitality inevitably follows impoverished blood and ill-nourished tissue.

Massage is of the greatest efficacy. It should be performed for at least one to two hours daily. It is valuable in stimulating the nutrition of the entire body, but especially by its reflex action in promoting activity of the brain. Under massage the brain cells become more active, they grow and gain greater power, a higher evolution or development of the nervous system takes place, the assimilative process becomes more active, patient gains flesh and strength.

In all cases of under nutrition of the brain, the cerebral areas are much enlarged by massage. It should, in all cases, be performed systematically and regularly, and by highly vitalized manipulators, and is always beneficial in correcting irritability of the nervous system, in overcoming defective nutrition. Massage, when properly performed, is a never-failing remedy in causing an improvement of tissue, by which all is strengthened and degradation of tissue prevented.

It is a means in itself, if the directions are closely followed as laid down in the domestic practice, that will cure many forms of nerve disease and effectually overcome nervousness and prolong life to an indefinite period.

Electricity is a powerful constitutional tonic, a local stimulant of no mean value, an excitor of nerve force, valuable in exhaustion of the brain, spinal and great sympathetic; and in cases of genital debility. It is a remedy that should be applied with great care.

The faradization of the superficial muscles of the entire body is attended with the most happy results. It enables the vital forces of the body to draw renewed life from the centre of all force.

It should follow the massage.

While using this excitator of nerve force the bed or table on which the patient is placed should be thoroughly insulated by glass castors, the head placed to the north, in order to conform with the magnetic law of the earth, and thus prevent the escape of the vital electricity of the body.

It should be used under the auspices of an experienced physician.

Bathing the entire body, at least once daily, is always attended with the most happy results. It is efficacious under all possible conditions, cold or tepid baths, and, if near the shore, salt-water bathing.

After the bath the individual should be well dried, and either well rubbed with the dry hand or massage performed; the latter being the best.

If the patient is a child, bathing twice a day will be beneficial.

Location has much to do in the production or cure of neurasthenia. Inhabitants of cities all manifest a typical type of degeneration, whereas denizens of the country are highly vigorous. The sea, or in close proximity to it, as well as mountain tops, imparts great life, strength to its people, chiefly from the atmosphere of ozone which surrounds them.

Next in value to mountain air is well-directed sea bathing during the summer months, associated with abundant exposure to the sun and the open air of the seaside. Sea bathing is best with repeated plunges; or the dashing of the surf over the body is the best natural douche.

No condition or location that favors isolation, monotony, sameness, should be selected, as those states directly induce vital deterioration by wiping out the typical fissures of thought in the brain.

Exercise, moderate in kind and never exhausting, should be inculcated. Walking, riding, rowing, fishing; there should be incorporated an aim, an idea, and in no case persevered with till fatigue ensues. *

* Although we would insist upon moderate exercise, never to the slightest fatigue, still it must ever be remembered that sedentary occupations and habits are most pernicious.

There are certain kinds of exercise highly injurious to the nervous. One of those is bicycle riding, the perineal pressure, the jarring, the succession of shocks, the movements are conveyed to the spinal cord, having a disastrous effect on the prostate. It is more prejudicial to growing boys, because it interferes with the nutrition of that gland, first causes hyperæmia, then atrophy or wasting, and a general withering of the genital organs, leading to an increase of masturbation in the timid, or early sexual indulgence and impotency. Even horse riding is bad to the neurastheniacs, causing prostatic disease, atrophy or enlargement, with impotency in the strong, robust or

Rest at different periods of the day, should be taken in the recumbent posture, but especially after exercise, or bathing or massage.

Sleep should be prolonged to eight or nine hours out of the twenty-four. If bathing, massage and exercise is not sufficient to procure refreshing sleep, then every artifice should be resorted to to procure sleep—prolonged, refreshing sleep. All worry, care, struggle, tension and nerve tire must be wiped out.

Amusements, of a most healthy kind, are most beneficial to the mind. If the theatre, never tolerate anything but the healthy drama. Variety shows are demoralizing. History is in all cases to be preferred to trashy romances; religion and morality invigorate the brain, whereas infidelity and vice lower, deteriorate, wipe out the fissures of thought, of deity.

Change in all things is vitalizing,—change of occupation, of society, of location, of habits, of diet. Change creates a higher grade of mental and physical being; whereas, monotony, sameness and isolation are deteriorating, produce a cerebral wreck; every gland, organ, tissue succumbs to the devitalizing effects of sameness.

Travel.—Change of scene is good, provided it is not carried to fatigue.

Work, labor, and the prospect of work, an aim in life, is a remedial force—with rest, recreation and vacations.

The usual avocation, if healthy, is the best; it is rooted in the system by years of toil, devotion and costs, as a rule, comparatively slight cerebral force, because it runs in well-worn grooves, with very slight friction, and therefore is less exhausting, but, while we recommend holding on to their trade or profession, we would inculcate abundance of relaxation and pleasure, gentle exercise and no strain.

Marriage with its duties must be restricted within proper bounds; and an interval of weeks should take place between the sexual act. Most cases are benefited by it, while others are positively injured.

Coitus to some brings prostration, while to others it rouses up

daring—reducing or wiping out the masculine characteristics. It will even change the tone or pitch of the voice, cause the beard or hair to drop off.

All bicycle riders are sexual neurastheniacs; they are effeminate, soft, debilitated, ambitionless, etc., such is the outcome of this form of exercise.

Another modern craze is roller-skating, which, if indulged in for a few years, and to the same extent as at present, will cause hypertrophy of the clitoris in all young ladies who indulge in it, so that nymphomania and masturbation will reign paramount. The modern ballet girls all suffer from enlarged clitoris as a result of their occupation, although the exercise of moderate dancing is free from this objection.

the vital energies, and elasticity reverberates through the entire body.

The medical treatment of nervous debility involves a general tonic and alterative course; the use of remedies all the time, remedies under which a degree of vigor and vivacity is experienced. Faith in the action of drugs must be inculcated, and they should be changed at least once a week; the system should never become habituated to any one drug.

Cinchona and its alkaloids are always worthy of special attention. It should be invariably administered with some mineral acids.

The ozonized glycerite of kephaline must be given in all cases of neurasthenia. It is a brain and nerve food composed of C. P. glycerine and the life-giving principles of the ox brain, the vegetable phosphates of wheat, the most highly evolved of all animal and vegetable substances. It is, without a doubt, the best remedy in all forms of nervousness, or nervous exhaustion, impaired vitality or weakness of any kind in children or grown persons. It is a true nerve food—a true nerve vital essence, indicated in all cases of weakened energy; it gives vigor and promotes nerve supply, a true physiological restorative in all cases of nervous debility. Being such, it is admirably adapted to imperfect development of the nervous system and active brain expenditure.

Ozonized tincture of oats, prepared from the best Scotch oats, has been found by experience to be extremely serviceable in dyspepsia, indigestion, mental and physical exhaustion, insomnia, nervousness. It acts as a nutriment to the cerebral and nervous systems, restoring to their normal condition secretory organs that have been damaged, giving vigor where there has been debility, and renewed strength where there has been exhaustion.

It causes the tiny cells of the nervous system to increase in size, become more elaborate, imparts intellectual vigor, brilliancy and vivacity of thought, a redundancy and freshness of ideas; increases the typical fissures of thought, and creates a higher and nobler type of manhood. It is a remedy that is indicated at all periods of life; in chronic debility in infants and children, in difficult or retarded dentition, where we are desirous of increasing organization and growth of brain and bone.

This phosphated tincture of oats (*avena sativa*) is thoroughly ozonized and highly germicide, and is one of our best remedies in conditions of debility.

Coca et celerina has been in use for many centuries, for nervous prostration, mental derangement, spermatorrhœa, impotency and all debilitated conditions of the generative organs, with the most

gratifying results. It is a most valuable remedy, restoring health to millions, who, had it not been for this remedy, would have died prematurely. The range of action of this preparation is large; being a nerve stimulant it recruits the languid, debilitated, aids the brain to pick up its pabulum from the blood, it rejuvenates the nervous system when exhausted.

The wine prepared from the coca leaves is never failing in all forms of neurasthenia, its daily use is attended with the best results; it strengthens the system, restores lost vigor and exhausted vital power, debility of the brain, feebleness of digestion, conditions inseparable from high civilization.

The action of coca upon the ganglia of the sympathetic is admirable, it introduces strength, while it nourishes, sustains, refreshes, being an antidote to exhaustion. It is thus prepared:

Sherry wine, one pint; fluid extract coca, two ounces. Mix. Dose. From one tablespoonful to a wineglassful every three hours. A powerful nerve stimulant.

The cocaine suppository is of great utility in all cases of nervous debility, or lack of nerve force, especially if there is sleeplessness or mental distress dependent on an enfeebled condition of vital power, attended by some of the following symptoms:

Tenderness of the scalp and spine; severe itching all over the skin, especially on the legs and arms; dryness of the skin; movable pains; restlessness and sleeplessness; great disturbance and palpitation of the heart; great prostration after slight exertion; extreme sensitiveness to changes in the weather; profound melancholy and exhaustion; local anæsthesia or hyperæsthesia of the skin; continued pain in the back, shoulder or side; spermatorrhœa; complete impotence, etc.

We cannot too strongly urge upon those afflicted with sexual neurasthenia the use of these suppositories.

We recommend them in all the worries and vicissitude of life, in over-indulgence in eating and drinking, in the abuse of alcohol and sexual excess, in the high pressure of civilization. It is an open fact, that the pathological condition of all forms of nerve exhaustion is impotency. The desire for sexual intercourse may be great, but in those cases there is an inability to perform, owing to an insufficient nerve stimulus to produce an erection. The man is nervous, his heart flutters, his desire may be good, but to his utter amazement and mortification the organ fails to perform its legitimate function, and despondent and humiliated he seeks relief. Medical science has been appealed to in vain, till the introduction of this cocaine suppository. The use of this in those cases is attended with the most happy results.

The loss of semen, the most highly vitalized fluid in nature,

enervates, emasculates and degenerates, produces the most alarming exhaustion. This cocaine suppository arrests this leakage, and invigorates the whole man.

The combination of *coca-calisaya* is a superb and agreeable tonic, a safe excitant, gives great vigor to the muscular system, sustains the brain under extreme tension, produces rapid recuperation; as a remedy in neurasthenia, loss of nerve power, it is one of the best combinations, being invigorating and exhilarating in over exercise of the brain or intense study. It aids essentially the evolution of the nervous system; enables the vital force to attain further development.

The true *damiana* is a most efficacious remedy in all forms of neurasthenia, but especially the sexual.

It is the most powerful invigorant ever introduced. Permanently restores those weakened by early indiscretions, imparts youthful vigor, restores vitality, strengthens and invigorates the brain and nerve. A positive cure for impotency and nervous debility, prompt, safe and sure.

Damiana is beyond a doubt the most reliable, useful and permanent tonic to the genital organs of both sexes known; acting, as it does, directly upon the nervous system, it restores, as it were, the debilitated functions of the principal organs of the human frame, and is unsurpassed as a nervine. Its merits are well established as a powerful, permanent and positive aphrodisiac, as well as an alterative aperient of remarkable fine quality.

It has acquired the distinction of being, not only a simple, pleasant and convenient vegetable remedy, but one that is endorsed by all medical men, and relied on as an invaluable remedy for nervous dyspepsia, debility and all weakness which would disqualify the human race from the arduous duties of civilized life.

It is highly recommended in mental over-work, sexual debility, impotency, and decidedly beneficial in cases of nocturnal emissions, the result of excesses, mental apathy, or indifference, and in an enfeebled condition of the general system, with weakness or dull pain in the lumbo-sacral region. In disease of the reproductive organs of the female, and especially of the uterus, it is one of our most valuable agents, acting as a uterine tonic, and gradually removing abnormal conditions, while at the same time it imparts tone and vigor; hence, it is of value in leucorrhœa, amenorrhœa, dysmenorrhœa and in removing the tendency to repeated miscarriages.

It is a safe, certain and speedy cure for nearly all the varieties of seminal and physical debility of the generative organs of both sexes, whether constitutional or acquired. The indiscretions of

youth, which produce such injurious effects upon both mind and body, can be rectified, and the nervous system healthfully invigorated, where the qualifications of manhood have been impaired.

Although we give a decided preference to kephaline and *avena sativa* in nervousness, mental and physical exhaustion, there are cases in which the compound hypophosphites of soda, lime and iron are beneficial, they act as food to the nerves. Every mental and physical act, every motion, every thought, is attended with waste, literally renders effete portions of the brain. In nervousness there is an excess of waste of the phosphate, and especially is this augmented where the intellectual duties are arduous. So that in some few cases this remedy may be used with advantage.

The sole aim of all treatment is the elevation of the standard of vital power; the improvement of the race; every means to aid an evolution of a higher and nobler type of mankind; all remedies, all means, an aggregation of all science and art, in atmosphere and earth; every thing to give us a pristine vital force, a larger area of phrenal life.

Besides the condition of general nervous debility involving the whole body, we have neurasthenia of special parts or organs, so that while we are treating a general state by alteratives, tonics and special agents to build up the brain, the specially weakened part requires attention.

Neurasthenia in special organs is termed a neurosis, as of the brain, heart, stomach, bowels, bladder, uterus, prostate, eye and lungs.

To a few of those we solicit attention in the order of their frequency.

Neurosis of the Anus. A common disorder of adults of both sexes, and may co-exist with pruritus of the genital organs. In the large majority of cases this affection consists in the presence of itching, without any characteristic morbid appearance, which causes intolerable annoyance, especially when heated; in a small number of cases, the anus becomes infundibuliform from indurations; its mucous surface excoriated; its cutaneous borders seamed, puckered, eroded, fissured, often complicated with eczema. Piles, ascarides, chronic prostatitis, rectal impaction, unnatural vices, diabetes; insanitary states, morbid secretions, bowel ulcer may all be responsible for their occurrence.

Although no appreciable morbid appearance can be seen or even detected in the large percentage of cases, still there are ele-

ments in the blood and nervous system which give rise to this local nervous jarring or neurosis; there is something out of gear, a deviation from the normal state; it may be obscure, latent, still there is a source from whence it springs.

In all forms of neurosis, we must recognize a failure of the general health, the presence of a diseased germ, aggravated by the nocturnal exacerbation, perverted nutrition incident to the continuous teasing of the nervous system, or from germ-laden blood, or a morbid mind.

The degree of success in treatment is in proportion to the skill with which it is managed. The gastro-intestinal tract, the liver, kidneys, bladder, uterus, prostate gland, rectum, should be seen to by placing the patient upon an alterative and tonic course, with every possible means to improve the general health.

The substances which have been topically applied are most numerous, as hot baths, lotions of hot water, or alternately hot and cold, medicated by the addition of sodic bicarbonate, or biborate—the carbonate and sulphuret of potassa, the anti-bacterial microbe powder. Some of the following formulæ are excellent:

Hyposulphite of soda, half an ounce; carbolic acid, forty drops; distilled water, four ounces; glycerine, two drachms. Mix by shaking. First bathe the affected parts with castile soap and hot water; dry well off. Then either paint on or apply the above. That failing, then try:

Resorcin, half an ounce; boroglyceride, three ounces; water distilled, half a pint. Mix.

Spirits camphor, one ounce; boracic acid, one ounce; water, half a pint. Mix.

Sulphuret potass, half an ounce; spirits camphor, half an ounce; glycerine, two ounces; water, half a pint. Mix.

Solution resorcin, concentrated ozone, of each one ounce; water, half a pint. Mix.

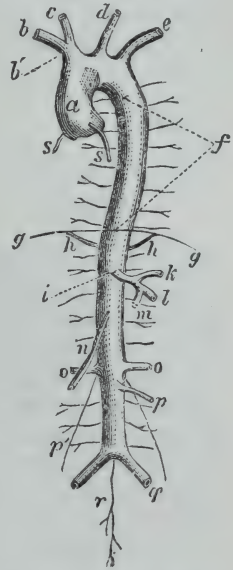
All for external use as a lotion, or to be applied on lint; one grain of morphia or hydrochlorate of cocaine added to each.

Various other valuable formulæ may be made by adding boroglyceride, or sulphur water, alum, chloral hydrate, hydrocyanic acid to a sufficient quantity of water; lime water and tincture of iodine; a lotion of peroxide of hydrogen is most effectual; menthol and thymol act well in some cases. As a rule, ointments or oils do not operate well. If desirous of trying one, take one ounce of ozone ointment, one drachm of gum camphor and the same quantity of chloral hydrate. Mix; or hydrochlorate of cocaine, dissolve it in glycerine of the strength of one-tenth of a grain to the drachm; painted on the part is most effectual in some cases.

**Neurosis of the
Aorta.**
(*Descending.*)

Aorta is the name given to the large vessel which arises from the left ventricle of the heart, and thence conveys the arterial blood by numerous branches to the various parts of the body. It is an elastic

tube about three inches in circumference at first, but afterwards becomes considerably narrower. In the first part of its course it is nearly vertical; it then forms an arch and, curving from right to left, and from before backwards, it descends through the diaphragm into the abdominal cavity, and then divides into two terminal branches called the iliac arteries. From the upper portion of the arch arise three great trunks the innominate, left carotid, and left subclavian, which supply the head and neck and upper extremities with blood. From each side of the descending aorta are sent off numerous branches which supply the lungs, and the thoracic and abdominal walls, while from the anterior aspect in the lower part of its course, vessels are given off which convey the blood to the stomach, liver, kidneys, pancreas, spleen and intestines. As people advance in age, or when their blood becomes impoverished by disease, the walls of this artery are liable to decay through receiving insufficient nourishment, and degeneration of the coats takes place in consequence. As a result of this the vessel becomes more rigid, and there is difficulty in the conveyance of the blood to the various organs; sometimes a uniform dilatation of the aorta occurs, at others a bulging of the wall takes place at one spot, and gives rise to an aneurism, a state attended with great danger. Aneurisms more frequently occur in the ascending part of the aorta than in the rest of its course, as here the strain upon its walls from the impetus of the blood current is the greatest. People who are subject to gout, or who indulge in drink, or those who have kidney disease, are liable to have degeneration of the coats of the vessel. Great exertion tends to cause dilatation of this vessel. Malformation of this vessel sometimes occurs in foetal life; it is in rare cases given off from



The aorta; *a*, arch of the ascending aorta; *aa*, coronary arteries; *b*, innominate artery; *B*, right subclavian; *c*, right carotid; *d*, left carotid; *e*, left subclavian; *f*, thoracic aorta; *g*, *g*, diaphragm; *h*, *h*, phrenic arteries; *i*, celiac axis; *k*, coronary or gastric; *l*, splenic; *m*, hepatic; *n*, superior mesenteric; *o*, *o*, renal arteries; *p*, inferior mesenteric; *p*, spermatic; *q*, common iliac; *r*, middle sacral.

the right ventricle instead of the left ; for such cases no treatment can be of any avail, and death generally takes place in early life.

In neurasthenia, or spinal irritation, or exhaustion of the lumbar portion of the cord, the state of debility, with other causes of neurosis, gives rise to a relaxation, pulsation in the descending aorta, which is often mistaken for aneurism.

The fact that it occurs in hysterical women, or effeminately created young men, should at least put a physician on his guard as to its origin.

The treatment for neurasthenia is appropriate.

Neurosis of the Bowels. Involves either constipation or diarrhea, with some pain.

General treatment consists in the administration of virg. stone crop, in alternation with ozonized liquor cerri.

In addition to the general treatment as already laid down, tonics and alteratives and special remedies to stimulate a renewal of life in the reflex centres. We find it a good plan in all neuroses to resort to repeated applications of blisters to the nape of the neck an inch square, one on each side of the spinal column for six hours at one time, twice weekly. They are of great utility in all cases of neurasthenia.

It is difficult to explain their action on such a limited area, but they cure and control morbid conditions located in the periphery in distant organs, by rousing up the fibrillary connection into activity between the cord or nerves conducting motor or sensory power to organs.

The ailments that yield to this kind of stimulation of the cord are all forms of diseased germs in the human blood, all nervous affections, neuralgias, paralysis, hysteria, nervous dysmenorrhœa, reflex states, vomiting pruritus, all forms of nervous irritation occurring in paroxysm, and sexual hybrid states, as chorea, epilepsy ; asthma and bronchitis yield readily.

Neurosis of the Brain. Neurosis of the brain often takes place, there are certain well defined symptoms which exist, peculiar to this condition.

The general health is poor, the function of the body and vigor impaired ; digestion weak, circulation feeble. The entire nervous system is in an unstable condition, and the patient irritable, restless, excitable and depressed or despondent.

General nervousness, with headache, pains and tremors, with a failure of mental power, feeble and defective memory, with intellectual aberrations. The physical suffers, nutriment is imperfect, skin pale, muscles flabby, motor power enfeebled, culminating in paralysis and some endless type of mental deviation.

**Neurosis of the
Clitoris.**

(*Nymphomania.*)

Constant and distressing desire for sexual intercourse, with an erectile condition of the clitoris; may arise from disease of the brain, spinal cord, inflammation of clitoris, from masturbation, or excessive venery, sedentary habits or occupations, and, above all, by the vascular excitement that is produced by our abominable sensually exciting literature.

Treatment.—Removal of cause, plenty of exercise, or hard work; daily shower bath, well regulated bowels, sleep on straw or hair mattress, light covering; cold water hip-baths, and vaginal injections of cold water, except during menstruation; large doses of green root tincture of gelsemium and bromide of potass at bedtime, or camphor, belladonna, and conium, to cut off sexual desire; alteratives and tonics administered persistently. The best of all remedies is the fluid extract of black willow, to harmonize the nervous energies of the organ; should be administered persistently for six months. A strict avoidance of all light literature; a pure, moral atmosphere; same treatment as for masturbation in male. The amputation, or partial destruction of the organ with caustic potassa, is of doubtful benefit.

In cases of inflammation, rest, open bowels freely, hot poultices, and general treatment for fever.

**Neurosis of the
Genital Organs**

is an exceedingly severe and distressing form, as the affected parts are very apt to be rubbed or scratched, in order to obtain relief from the itching sensation; orgasmic effects and pollutions are often produced in early life and extreme age, whose moral effects are degrading. All parts of the genital organs of both sexes may be the seat of the neuroses.

Independent of the malarial, syphilitic tubercular, cancerous germ, search should be made for ascarides of the rectum or vagina; saccharine urine; uterine or ovarian disturbance; urethral and prostatic damage, or a perverted sexual appetite may lie at the origin of the trouble. There may be associated with it thickening, erosions, a squamous condition, etc.

Neurosis of the Heart is manifested in a variety of complications, as an aching heart, an irritable, sensitive, unsteady organ, characterized by intermissions, irregular action and intermittent pulse. This is brought about by anæmia of the sympathetic that so profusely covers the heart. Emotions, desires, affections and passions must be controlled, great self-denial exercised, else the heart will become permanently out of gear. All excitement, mental or muscular, with the use of tea and malt liquor must be avoided, coffee is not objectionable; good, rich, wholesome food should be taken in moderate quantities and frequently. Fasting is prejudicial, giving rise to indescribable exhaustion. The nervous power of the heart is sensitive to over-work, to the least failure of power, and requires a renewed stimulant, as cinchona, cactus and *avena sativa*. No indigestible article of food permitted; forbid nuts, pies, salt meats, pork and cabbage. Protect the body with silk or flannel from cold, damp and wet. Harmony and equality of every vital function or process, so that the nervously exhausted heart may neither long for new support nor be over-taxed with work. Struggle, anxiety and pecuniary care abolish. Try *matricaria*, *cerebrin*, *avena sativa*, *cinchona*.

Neurosis of the Larynx.
(*Laryngitis Clericorum*.)

The larynx is the organ of voice; the organ by which sounds or primary elements of speech is produced; it takes part in the respiratory process, as all air passing to and from the lungs, must pass through it. Its construction is most perfect; its various parts of the highest possible organization; so perfect that the slightest alteration of its mucous surface, of its chords, nerves or muscles is invariably accompanied by a change of voice, either in its intensity, tone or modulation.

No mucous membrane in the body, so richly organized, so finely studded with nerves as the larynx—none to which the microbe of syphilis, tubercle, diphtheria have such a strong affinity.

The larynx, like all other parts of the body, is liable to suffer a condition of partial death; hence we meet with acute laryngitis in males of a high nervous organization, and chronic forms of laryngitis in both sexes.

Chronic laryngitis exists in many forms, which have certain symptoms in common, such as loss of voice (aphonia); cough and expectoration, and in the sputum the disease germs, single or hybrid, which is pathogenic of that in the blood.

If the laryngeal irritation be due to cold, damp, exposure, the *amœba*, the degraded bioplasm of nutrition of the air passage, is present in breath and sputum; if due to syphilis that microbe is present; if to tubercle, that bacillus is there; if to the blighting effects of masturbation, the aphonia, the squeaky voice, in the breath, the degraded bioplasm of nerve nutrition, the vibrio is present; in all cases of preachers, with aphonia, due to a want of harmony in volition, the same germ is present.

The larynx, like all other parts of the body, can be improved and developed, up to a point in which there is an inadequate nerve-supply, hence development ceases and atrophic changes begin.

How the larynx can be developed will be seen from the following: By massage, exercise, faradization, a system of over-feeding the muscular system can be developed in whole or a part; the arm of the blacksmith often is greatly developed. The penis from a mere withered stump can be made to grow to a well-developed organ; the testes, the mammæ under the influence of the saw palmetto will often attain an enormous size. As there is a perfect anastomosing of the nerves of the reproductive organs and the larynx, if the former is healthy, the latter can be indefinitely developed.

Experience tells us that the larynx can be developed by the use of the laryngotome to the finest, one of exquisite modulation. The laryngotome is an instrument for breathing through by spells, say half an hour at a time, taking prolonged inspirations of the nascent chloride of ammonia—a germicide of great power.

Whenever the will is not brought into a unison of action, or exercise of any muscles without the will harmonizing, there is apt to be a neurosis, or degeneration of structure.

The vocal chords are made up of a series of fine muscles, abundantly supplied with nerves from brain, spinal cord and great sympathetic, to enable man to express his thoughts. The brain gives the stimulant, the nervous energy, and thus gives the motive power; but this motive power must be in perfect co-operation with their exercise—a will, an intellectual effort with volition in the delivery of a discourse, if it is duly carried out, and all ranting avoided, the vocal chords will improve in their vital integrity.

The disease is common among a class of clergymen who are wrought hard and poorly paid, who find it often difficult to put an intellectual effort into their words.

The symptoms in the early stage are simply hoarseness and loss of voice, with no apparent change in the mucous membrane;

but after a while a follicular degeneration can be detected, with congestion and ulceration of the mucous follicles.

In some cases it is ushered in with a complete loss of voice; in others it originates in a sort of uneasy sensation in the upper part of the throat, with an inclination as if there was something to swallow; cough, and the larynx painful on pressure; expectoration of a thin, viscid mucus, occasionally pus, with gradual loss of voice or diminution of its power; hoarseness towards evening, which gradually merges into complete aphonia with ulceration, or unhealthy granulations, or even vegetations. As the disease advances, it gradually merges into tuberculæ, and terminates, if not in recovery, in lung consumption, caries of cartilages.

Symptoms are nearly identical with chronic laryngitis,—aphonia, cough, and expectoration.

The diagnosis is important; the history of the case is always of great service, one who exercises the vocal chords without the will effort, the presence of the microbe of neurasthenia in all cases.

In the treatment of this neurosis, we have of late years introduced some most valuable remedies.

The first and most essential remedy is rest of voice, with a most liberal diet; and attention to every means which will improve the general health.

Follow with a general alterative and tonic course, for alteratives, the comp. saxifraga and phytolacca are most efficient; for tonics, no remedies can excel the avena sativa, glycerite of kephaline, matricaria, Warburg's tincture, con. tincture kurchicine, wine of erythoxylon coca.

A class of special remedies, as terebene, distillation of the pine, creosote, naphthaline, dioxide of hydrogen, comp. oxygen.

Either administered internally, or by atomizer, or otherwise, are most efficient laryngeal stimulants and bactericides.

The irritating plaster to the nape of neck, or else electricity every other day, is of rare value in all cases.

It has long been demonstrated that the

Neuroses of the nerves of the nose, subjected to irritation,
Nose. give rise to certain symptoms of difficulty of breathing.

Subsequently a large number of other general symptoms have been traced to some abnormal condition of the nasal fossæ or their lining membrane. Thus it has come to be recognized that affections of the nose, though apparently slight in themselves, may exercise an important influence on the general health.

Certain diatheses, such as the gouty and rheumatic, appear more liable to these attacks. Besides polypi, such conditions as hypertrophied mucous membrane, foreign bodies, and chronic catarrh may induce attacks of asthma, neuralgia, cough, migraine, hay fever, brow-ague, and certain vaso-motor phenomena, such as temporary redness of the cheeks and nose, giddiness, rhinorrhœa, and even epilepsy. We consider that the posterior portion of the middle and inferior turbinated bodies, with the corresponding part of the septum, are the seat of these disturbances; whereas others consider they can only take place after the anterior part of the lower turbinated body has become turgid.

The duration and frequency of neurosal attacks are very variable. Sometimes patients may remain free for months: but, on the other hand, the attacks may recur frequently, and continue intermittingly till removed by suitable treatment. As a rule, the prognosis is favorable. The treatment will consist in removal by operation or medical treatment of the exciting cause. Cocaine in powder or solution, mild electric currents, inhalations, sprays, with internally, quinine, iron, arsenic, or bromide of potassium have in my own practice proved at times very beneficial.

Douches of boroglyceride solution, alternated with resorcin, of great utility.

Characterized by a constant and distressing erection of the penis.

Neuroses of the

Penis.

(Priapism.)

It may be due to some injury of the spinal cord, as fracture, concussion, occurring at the lower portion of the dorsal or upper lumbar vertebræ, or at the origin of the nerves in the brain; subacute inflammation of the corpus cavernosa, or effusion of lymph or blood into that structure. Both conditions may be caused by venereal excesses, or masturbation; that is, effusion may take place into the corpus cavernosa from the irritation of the hand, and the irritation is transmitted to the spinal cord and brain, the reflex centre.

Treatment.—If due to fracture of the spinal column at the point mentioned, or disease of the brain, all that can be done is to afford relief until the cause is removed, if it is possible; when due to masturbation, if the practice can be discontinued, a cure is usually effected. Our chief dependence is to be placed upon large doses of tincture of the green root of gelsemium, with bromide of potass. The dose here must be large and carefully regulated. The gelsemium, in doses of from thirty to sixty drops every three hours in divided doses, so as to watch it. The bromide, in from thirty to sixty grains during the same period,

with a few grains of bicarbonate; it may be given at one dose. At the same time, suppositories of belladonna and camphor, this could be followed up by a long and persistent course of administration of the fl. ext. black willow.

If due to effusion in the corpus cavernosa, arnica lotions and iodoform suppositories are of utility.

Diet regulated. Cold is sometimes of utility to penis, or ice to lumbar portion of spine. There is little good in camphor, coca, Indian hemp, lupulin, etc. A course of vegetable alteratives and tonics should always be resorted to.

**Neurosis
of the
Prostate Gland,**

is most prevalent, and may exist from a slight irritation, to a grave interstitial inflammation, with atrophy and impotency. a deficient prostatic secretion, as well as an absence of spermatozoa—a state inseparable from sexual neurasthenia—one that requires (in addition to the general treatment) the long continued use of the saw palmetto, a nutrient tonic, a promoter of glandular growth, most efficacious in wasting or atrophy of the testes and prostate. This remedy persevered with, in connection with general treatment, will restore those glands to their original integrity and size, even after they have shrunk into nothingness. The restoration of those important glands to their pristine condition rejuvenates the whole man; the pitch of the voice is strengthened, the masculine elements are built up; vitality recuperates itself, and the man is as it were born anew. Saw palmetto and kephaline are the necessities of our age and our clime, we must not forget it, nor permit our condition to ignore it.

**Neuroses
of the
Sexual Appetite.**

The object of medical science is to ameliorate suffering, and prolong human life, as such it is necessary to examine the causes at work that give rise to chronic inflammation, with enlargement of the prostate gland in 85 per cent. of all Americans over fifty years of age, and in numerous instances much earlier, even at thirty.

The causes at work are bicycle riding, horse-back exercise, sedentary avocations, vicissitudes of temperature, cold, wet, gouty diathesis, gonorrhoea, gleet, strictures, introduction of bougies, strong injections, masturbations; unnatural methods of coition, as dalliance, withdrawal, use of condoms, prolonged intercourse, falls, blows, running, jumping, prolonged retention of urine and

excesses of all kinds, the tear and wear of life, the struggle, the tension due to a highly civilized state, worry, etc., damages the sympathetic, which is so freely distributed over the anterior surface of the genital organs, and in itself gives rise to aching at the neck of the bladder, and loss of the vital fluid at stool, and enlargement.

Chronic inflammation of the prostate, enlargement, and other morbid states are inseparable from impotency.

Impotency, partial or complete, resolves itself under the following divisions :

Failing power, with slight deficiency of desire and capacity.

Deficiency of capacity, with increase of desire, blended with spinal anæmia, seminal emissions or oozings.

Profound deficiency of both desire and capacity, power of erection weak or wanting, penis usually cold, benumbed, testicles shrunken or wasted, prostate hypertrophied.

An abnormal increase of erectile power, with or without wasting of the enumerated tissues, and *no discharge of seminal fluid*.

No two cases are alike, nor can they be treated in the same manner. Each individual case requires a special treatment of tonics and alteratives, and besides these a special course, involving electricity, nux vomica, ergot, damiana, iron and kephaline or brain food. This latter is essential to brain life and activity. The majority of our people have thin brains, under-fed; as a result, brain vitality is feeble, the organ suffers from impoverishment, hence impotency, national effeminacy.

All cases of lost sexual power are benefited by coca, in some one of its varied forms; coca strengthens, exhilarates, sustains, refreshes, aids digestion imparts new energy to the worn-out or exhausted genital organs, excites to healthy action; besides it is a specific for all nervous complaints, as headache, neuralgia, wakefulness, loss of memory, tremors, loss of appetite, depression of spirits. To every impotent man there are elements of strength, of vitalization in coca, as it increases brain nutrition. No matter what the cause of impotency may be, kephaline and coca possess the necessary qualities for curative treatment, by causing a full and continuous supply of nervous or vital force. This brain essence increases the nutrition and growth of the marasmic, atrophied, or wasted genital organs, restores them to their pristine vigor, their full natural size.

Saw palmetto is indicated whenever wasting of glands has taken place.

Administered internally and applied locally either in the form of an ointment or suppository. Electricity, applied for half an hour each application; thrice weekly.

Neurosis of the Skin.

This is a condition characterized by exaggerated sensibility, unattended with structural changes. It may be either idiopathic or symptomatic, general or partial, unilateral or bilateral, variable in degree or intensity.

In very mild cases, there is merely an unusual sensitiveness of the cutaneous surface to the contact of foreign bodies, a waft of wind, the passage of a feather, even some kinds of clothes may give rise to intolerable uneasiness, or be a reflex manifestation or warning of some nervous disease or explosion of nerve force, as chorea, epilepsy, hysteria, tetanus, paralysis. *Its chief manifestations are itching and pain.* Active symptoms of cutaneous congestion give rise to heat, formication, tickling, dripping or pouring of liquids.

Pruritus is essentially a neurosis, a functional disorder of the nerves of the skin; a state in which the sentient nerves are teased, altered, irritated or otherwise damaged, *characterized by itching.*

The causes which give rise to pruritus are disease germs in the blood, as the presence of the microbe of syphilis; the bacilli of tubercle; the germs of carcinoma, malaria, variola, etc., or the fungus of diabetes; most common reflex causes are disturbance of the alimentary canal due to intestinal worms; hemorrhoids; genito-urinary disorders of both sexes; dietitic and medicinal agents, depressing passions, mental distress, etc.

All forms of neurosis of the skin should be treated by soothing applications.

Neurosis of the Spinal Cord.
(*Hysteria.*)

A peculiar nervous disease that attacks both sexes, but especially females between puberty and cessation of the menses. It consists in peculiar, nervous hyperæmia, which occurs in paroxysms, and simulates other diseases.

Causes.—It is, or has been, caused by some irritation of the genito-urinary organs, as exciting the sexual organs to irritation by works of fiction, lascivious thoughts, luxurious living, sedentary habits, causing congestion; heated rooms, tight lacing; undue excitement of sexual organs, masturbation. The sympathetic nerve covering the front of the uterus is often involved, so that depressing passions may be regarded as a cause; besides, it is a general symptom in all uterine diseases, and is thus caused. The patient commonly is of a nervo-sanguine temperament, with a weakened reflex centre, involving both cord and bulb; and there is, or has been, an irritation in or about the uterus, which

is, or has been transmitted to the seat of reflex action. It is a genuine nervous malady, of grave importance. It is not necessary for a cause that there should exist present irritation; it may have been twenty years ago, but it has left an indelible impression on the centres that is easily roused into action by the slightest nervous ruffle, or tire.

Symptoms.—The common characteristic symptoms are convulsive movements of the trunk and limbs; beating of the breasts with clenched hands; or tearing the hair or clothes; shrieks, screams, violent agitation; a feeling of suffocation, as if a ball was in the throat (*globus hystericus*); the attack probably ending in an outburst of crying, sobbing, or laughter, or hiccough. The patient may fall to the ground insensible and exhausted; soon recovering, tired and crying. The urine is of a low specific gravity, 1010, or even less, and may be passed involuntarily during the excitement. The portion of the cord down to where the sympathetic emanates is chiefly weakened, consequently we find organs supplied with spinal nerves from that part exhibiting or simulating disease, as loss of voice, cough, pleurisy, consumption, paralysis, suppression of urine and affection of the lower parts. Passive paralysis may take place; even increased sensibility of the parts supplied with special spinal nerves, as tenderness of uterus, ovaries, and even loss of sensibility may take place. The appetite is generally diminished; still it may be increased, or even depraved, the most extraordinary substances being craved and eaten.

In some cases the expression of the countenance is peculiar: fulness of the upper lips; drooping of the upper eyelids. Abrupt in manner. The menstrual flow usually irregular, and there is generally leucorrhœa, or some uterine trouble. Symptoms are not always feigned; they may be exaggerated, but there is a real morbid condition at the base, and that may be a nerve prostration, or nerve tire, from some old disease. A not uncommon form of hysteria is where they take to the bed. They are languid, cheerful, have good digestion, but lie in bed, and greatly appreciate the attention of kind, sympathizing friends. They are fully convinced that their disease is of the most serious character, and involves the spinal cord or womb. Menstruation may be normal, or there may be endometritis, with leucorrhœa, or some form of displacement, or perhaps coccygodynia. Any defect must be rectified, and the case managed on the general treatment.

Many of the confirmed invalids scattered far and wide over the country, who have been to one doctor and then another, and subjected to all kinds of uterine medication, mechanical and

otherwise, with no lasting improvement, and have become chronic sufferers, a burden to themselves and families, have had originally uterine mischief; for we cannot minimize the local irritation on the general health, but the cases have drifted from their original condition. The pain, the backache, the leucorrhœa, the uterine partial death, the difficulty in locomotion, the disordered menstruation, which are the usual attendants, have ended in a general disturbance of all the bodily functions. The nervous system is profoundly affected, the blood impoverished and the general nutrition at the lowest ebb.

After the disease has become confirmed, or chronic, there are a few prominent symptoms that are well marked. One of the most common is wasting of the fatty tissues of the body, combined with anæmia, loss of appetite. Associated with this we often find chloral, morphia or stimulants resorted to; exercise is abandoned, and the patient becomes confined to the house or bed. Her vitality is at a low point; her emotional or hysterical condition craves sympathy, and the whole household becomes victims of her morbid selfishness.

Same treatment as for neurasthenia.

**Neurosis of the
Vagina.**
(*Vaginismus.*)

An altered condition of the nerves that supply the mucous membrane and sphincter muscle of the vagina. An irritable, spasmodic condition of the sphincter muscle of the vagina, with such excessive sensitiveness of the parts and of the surrounding tissues as to form a complete barrier to coition.

It may exist in various forms or degrees. In some cases, it is a mere tenderness, or increased sensibility; in other cases, the sensitiveness is great, amounting to a distress, or severe agony, the slightest touch giving intense pain. This super-sensitiveness is due to a pure neurosis from altered nutrition, and we can find nothing tangible to account for it; or the cause may be clear, as some irritation, which causes inflammation of the mucous follicles above the vulva, and spasm of the muscular fibres; a true closure, or tonic spasm of an involuntary muscle. What the irritation may be that gives rise to this is somewhat varied. There are various examples of spasm, or contraction, to be found in the uterine appendages; for example, irritation of the clitoris causes contraction of the uterine horns; irritation of the urethral orifice causes contraction of the fundus of the bladder. In the largest number of cases of painful or difficult connection, the trouble is not discovered until sexual intercourse is attempted,

and then the mere touching of the parts throws the woman into a paroxysm of intense agony.

In the more simple forms, nothing can be detected in the lady to lead us to suspect its existence. It may even come and go, and its coming and going has nothing whatever to do with the sexual appetite, because it is not necessary for conception that a woman should have sexual desire. Women affected with painful connection may conceive and have a child, and the birth of the infant may not cure the disease; but it generally happens that the great distension and laceration of the vagina causes it to become less.

In a large proportion of cases the true condition is found, in newly married women, in a redness, or fissure, at the anterior margin of the perinæum, or in the fossa navicularis around the hymen. In some cases a true ulcer or an imperfectly ruptured hymen with ulcer which may heal and break out again and again and form little hypertrophies at seat of hymen, which are intensely tender and irritable. These ulcers are of a lupoid or eczematous character generally. It is only when pain and sensitiveness exists, and are extreme without textural difference that the condition may be said to exist.

In all cases the patient should be placed upon a general alterative and tonic course of remedies, as comp. saxifraga; aleteris cordial; glycerite of kephaline; avena sativa. Vaginal injections of either boroglyceride, creolin, resorcin, naphthaline, are of great benefit, much superior to lime-water and tincture of iodine, or bicarbonate of soda and gelsemium.

Cones prepared from boroglyceride and cocaine, rarely fail to effect a radical cure. Pastiles of boric acid and cocaine are also excellent.



There may be a neurosis of every organ of the body.

Neuroses of Various Organs.

Neurosis of the bronchi, very common in our latitude, and the affected regard the weather as a natural foe, their bodies are a subtle meteorological machine, they keep in a warm room for long periods, become additionally enervated. No exercise, thus the liver is deprived of its proper stimulus. The bronchitis is a bronchorrhœa. There becomes engrafted in the brain a decided hypochondriasis.

Neurosis of the stomach, manifests itself under a general condition, technically termed dyspepsia, which arises from deficient brain elements, so that the microscopical cells or bladders which profusely cover the lining membrane of the stomach are scantily

or deficiently filled with gastric juice, and other acids essential ; a brain failure reduces this active living principle so indispensable for chylification to a minimum. In such cases the *avena sativa*, from oats, and kephaline, with some bitter tonic, will supply the stimulus until the neurosis subside.

Neuroses of the teeth, due to the want of phosphates in the food, which early give rise to tooth-starvation, caries of the teeth, overcrowding of the teeth ; abnormal state of the gums preventing their egress ; the presence of disease germs in the mouth.

This is a peculiar condition of the nerve centres, consisting in a true anæmia of the brain and sympathetic system. It is impossible to locate it precisely, although the co-ordinating chemical centre at the base of the brain is chiefly affected.

Nightmare.

(*Incubus.*)

The exciting causes are indigestion, debility, late and heavy suppers, great fatigue, worry, over-study, breathing impure air, sewer gas, badly ventilated room, intoxication, sleeping on back, food indigestible, anything that would be likely to load the blood with any impurity.

Symptoms.—The patient in sleep feels an oppression, a weight about the stomach and breast ; he groans, is in great distress, dreads suffocation ; he fancies himself in imminent danger, and tries to escape, but cannot move ; he imagines himself about to fall over a precipice, to be drawn into a river, or eaten by wild beasts, or consumed in a burning house, etc.

Treatment.—The affected person should eat a very light supper or none at all ; keep the mind free from care and anxiety ; no study ; have a well-ventilated room to sleep in, free from gases, growing flowers ; must sleep on right side ; have a daily bath and massage ; bowels to be well regulated and abundance of exercise in the open air.

It is to be looked upon as a true condition of cerebral debility, so the diet is to be essentially of a brain-nourishing kind ; oat-meal porridge, boiled white-fish, animal food, steaks, chops, poultry, eggs, corn bread, fruit and vegetables. He must eat no pies, pastry, cabbage, nuts, salted meat or fish, nor any red fish, like salmon, for that abounds in oil, and, although very stimulating and nutritious, is heavy and does not agree well with a weak stomach.

As remedies, glycerite of ozone, kephaline, aromatic sulphuric acid and quinine, and other tonics.

The accumulation of fat a non-vital element, **Obesity.** under the skin, around the viscera on the posterior abdominal walls, constitutes what is termed obesity. It must in no instance be confounded with what is termed fatty degeneration. There are certain conditions, aside from hereditary, which give rise to it, as indolence, prolonged sleep, over-eating; the consumption of large quantities of fluid; the excessive use of fatty, farinaceous, saccharine foods, malt liquors, an avoidance of care, worry, anxiety.

Obesity is not by any means conducive to longevity, as the increase in weight and bulk impedes the working of vital organs like the heart and lungs, as the presence of fat diminishes both mental and physical activity, disturbs respiration, circulation and digestion; greatly affects the elaboration of the blood, causing it to become deficient in vital elements. Usually the victims of obesity suffer from gout and neuralgia.

Partial obesity, as fatty tumors, fat around the heart, fatty omentum, is common.

In the removal of fat from the body, the first thing which should be attended to is the regulation of the diet, which should consist of meat, white-fish, green vegetables, biscuit, dry toast, tea without sugar, at the same time forbid as much as possible all articles which contain starch—potatoes, puddings, beets, beans, peas, bread, milk, butter, broths; moderate exercise, and if patient can afford it, horseback exercise. Bathing should be resorted to daily, it should be alkaline and followed by the most thorough massage for over half an hour. Sleep must be restricted to six hours out of the twenty-four. Bowels stimulated by salines to two evacuations per day.

The medical treatment to get rid of fat are few but reliable. The best is unquestionably the fluid extract of the fucus vesiculosus, a bactericide of some power, from the fact that it is highly charged with dioxide of hydrogen, iodine and bromine.

From one to two teaspoonfuls administered thrice daily in water, regulating the dose by the loss sustained by the patient, one pound per week being about the proper amount.

Other remedies, as liquor potassa, iodide potass, are very apt to give rise to irritation of the stomach.

Old Age. Of 1000 cases, one-half men, the other women, between seventy and ninety years of age, the immunities from disease and failure of particular organs are in favor of the women. Affections of the urinary organs preponderate in men, being more than twice as frequent as among women. Brain affections are more common in men.

Bronchitis is the dominating malady, and superadded to it, *debility*. It is the most frequent malady at all times of life. In the aged it is persistent, increases gradually with enfeebled circulation and general weakness. The demands on the activity of the respiratory functions are diminished in the aged in proportion to the diminished activity of the nutritive and other processes.

Heart, some irregularity and intermission of pulse, attributable to atheroma and calcareous degeneration.

Brain affections are the most remarkable, passing attacks of unconsciousness, a suspension of cerebral activity, with no permanent diminution of mental power. Motor power impaired.

We are often astonished to find grave attacks in the aged, not infrequently recovered from.

While considering this point we do not forget that in the aged person the brain is gradually and progressively shrinking, and the interspace between it and the skull caused by this shrinkage is being filled by fluid effusion in the sub-arachnoid or pia mater tissue; and there may be temporary irregularities and imperfections in this compensating adjustment of pressure of fluid on the surface and of the blood circulating in the interior, which would to some extent account for these cerebral attacks, and also for the recoveries from them. The senile alterations in the arterial coats must also be an important item; but our knowledge of the physiology of the cerebral circulation is at present scarcely sufficient to enable us to make clear deductions respecting its pathology.

In only 11 out of the 340 returns of men between 80 and 90, and in only 1 of the 92 returns between 90 and 100, is *prostatic disease* said to have existed; in one of these it had existed several years, and in others two, three, and four years respectively. In one the affection is said to have given less trouble than formerly. The condition of retention relieved by frequent use of the catheter may be extended with care over many years; but the enlargement of the prostate, with its associated bladder-symptoms, is, I fear, a malady from which recovery, even in old age, is scarcely to be expected. It is something to find that our reports confirm the view that it is a malady from which age gives, after 70, a gradually-increasing exemption.

Fifty-two were troubled with *rheumatism* in some of its many forms, which include pains in the limbs, aching in the bones, etc., for which, I suppose, a remedy is not very easily to be found. Indeed, it is difficult to define precisely, or clearly account for, the various pains, rheumatic and other, which old people often complain of, and which disturb their comfort without materially

affecting their health. The women suffer from these even more than the men, probably in consequence of the nervous system in them being more on the alert; 5 of the men and 6 of the women had gout, all these being between 80 and 90.

Two cases of *senile gangrene* were noted. They were in men above 90.

The severe forms of *malignant disease* are rare. One man, above 80, had rapidly advancing sarcoma of the shoulder; 5 women, between 80 and 90, had cancer of the breast; 5 men and 1 woman had epithelioma; and 1 man and 1 woman had rodent ulcer. None of these maladies are mentioned in the men or women above 90. Still, although the very aged appear to be less liable to some of the more severe diseases, such as cancers and diseases of the urinary organs, they are, on the whole, rather more liable to the ordinary maladies, the proportion of those above 90 who were altogether exempt from malady being 34 per cent., while the proportion of those between 80 and 90 was 43 per cent.

With regard to the *eyes*, 8 per cent. are stated to suffer from cataract, 80 per cent. are said to have good sight, although 83 per cent. use glasses. Some have used glasses for many years, which is confirmatory of what has been stated regarding centenarians, that "the occurrence of presbyopia does not seem to be associated with, or to be a prelude to, inconvenience or impairment of sight beyond that which may be corrected by glasses."

The more frequent failure of the organ of *hearing*, which is noted in more than one-half (56 per cent.) of the returns, is probably due in great measure to the liability to impairment of the delicate mechanism of the middle ear—the tympanum with its membrana tympani, its ossicles with their joints, its muscles, its eustachian tube, and its lining membrane—in consequence of colds, shocks, and a variety of causes. But in comparing the organ of hearing with that of sight, in this respect, we must not forget that the lessening of elasticity and muscular activity—which we must assume to induce defects in hearing in old persons corresponding with the visual defects classed under the term presbyopia—does not, like the latter, admit of alleviation by an early applied physical apparatus. At least, nothing corresponding to the portable and convenient lenses for presbyopia has yet been adapted to meet the auditory defects which may be attributed to a presbyotic condition.

In 4 per cent. only is the *digestion* said to have been bad. In 71 per cent. it is reported as good, and in the remainder moderate. Very few were troubled with constipation. In 62 per cent. the

appetite is reported to be good; and by far the greater number are stated to be good sleepers.

I am continually seeing and hearing of instances confirmatory of the inference as to the reparative powers of the aged after fractures, wounds, and ulcers, which were based upon the returns furnished in reply to collective investigation inquiries. These inferences are so contrary to preconceived notions, indeed, to probabilities, that it takes some time and effort and frequent repetition to obtain for them a fair measure of acceptance; but I think the reparative powers of age are becoming more accredited, and that we shall ere long cease to have age adduced as a reason against the hopeful, and therefore careful treatment of fractures, wounds, and sores in the octogenarian, the nonagenarian, and even in the centenarian.

What is even more remarkable than the healing powers of the aged after local lesions are the reparative powers evinced by them after illnesses, as shown by numerous examples of those between 80 and 100, and also by some of the centenarians. Indeed, the recoveries from severe attacks of bronchitis, pneumonia, apoplexy, and paralysis indicate the reparative powers after illness as well as after accident to be among the most interesting of the senile features. It is certainly strange that, when the other nutritive forces are failing—wearing out, as it were—those which are concerned in the work of repair, which may be regarded as, next to development, the highest effort of nutrition, should hold their ground so well. Instanced some other conditions in which the same contrast is observed, notably that of the healing of the stump after separation of a part following gangrene senilis, where the structures next to those which were unable to maintain their vitality at all often evince so much granulating and cicatrizing energy.

High breeding in most animals conduces to a marked diminution in the bodily recuperative capacity; also that the higher bodily recuperative capacity shown to be possessed by all men living in a rude state, whether in the form of savages or in the gypsy or tramp wanderer among ourselves, arises from the fact that the refining influences of civilization materially diminish the animal recuperative capacity. We are familiar also with the great reparative powers exhibited in some of the lower animal forms as compared with those in the higher animals. It would seem that the greater sensitiveness—that is, irritability or susceptibility of the nervous system and of the tissues generally—which is associated with higher organization, where we may suppose the balances of nutrition to be most delicately swung, are, in a measure, unfavorable to reparative work. We can quite

conceive that the calm, quiet processes upon which it depends are less likely to proceed in an orderly and uninterrupted manner under conditions of high excitability, where stimulus easily engenders disorder, than under lower vitality and less susceptible circumstances. Herein, possibly—namely, in the lower and slower excitability of their tissues—may be found an explanation of those recuperative powers of the aged to which I have referred, and of which it is practically important that we should take due account.

The first cranial nerve is not of such vital importance as the auditory, or optic. In the Caucasian, it may be said, to exist in a refined but very rudimentary condition; whereas in the colored races it is peculiarly large and well developed, probably two-thirds greater than in the white. In animals, and some fishes, as the shark; it is immense in the latter, being reflected over twelve square feet of mucous membrane. The peculiar structure of the cavity of the nose shows that there is one nerve for sensation and another for olfaction—that the lower portion of the nose possesses epithelial cells; the upper portion pigmentation, the latter lying in grooves. In ordinary quick breathing little air enters these olfactory channels, for most of it passes through the posterior nares into the pharynx. If we desire to smell keenly, we instinctively resort to the use of the dilator muscles of the nose, whereby the olfactory channels or grooves are opened or enlarged. This nerve gives us protection against poisonous gases, but does not in all cases prevent their absorption, although not near so active as the salivary glands of the mouth.

The specific stimulation of the olfactory nerves are, odorous gases, scents and odors of flowers, which come in contact with the flattened-out ends of the olfactory, causing a peculiar vibration in the molecules of the nerve, which is transmitted to the brain, where it is appreciated. The sense of smell is often lost in catarrh, polypus in the olfactory channel, also, in injury to the head or nose; disease of brain may exalt or destroy smell. Inflammation of nerve is rare. The nerve may be absent or but very rudimentary, or it may be covered over with lymph, or destroyed with ulceration; and owing to these states, there may be an entire absence of smell, *anosmia*; or from a high state of nervous development the sense may be very keen, excessively sensitive *hyperosmia*.

Functional disturbance of the fifth nerve is very rare, but when it occurs, it gives rise to anæsthesia of the mucous membrane.

The most pungent odors are not perceived, nor do they give rise to sneezing.

The treatment of most use are alteratives and tonics, with mild electrical currents.

Hyperæsthesia is more common, chiefly due to reflex irritation, nasal irritation, itchiness, caused by tape-worms, ascarides.

Anosmia, or loss of smell, may be complete or only partial; in one nostril or in both; and congenital or acquired. A variety of causes may produce either total or partial anosmia, such as absence of the olfactory bulbs, injuries from blows, or compression or concussion of the brain, cerebral tumors, and insufficient nutrition of the mucous membrane, or excessive dryness of the same from paralysis of the fifth nerve. Paralysis of the seventh may also affect smell by paralyzing the dilator and contractor muscles of the nose and the orbicularis of the eye. Any cause which prevents odors entering the olfactory portion of the nose will also have the same effect, *e. g.*, polypoid tumors, hypertrophy of the mucous membrane, perforation of the septum, or presence of foreign bodies. To these may be added dryness of the Schneiderian membrane, careless or excessive use of the nasal douche, inhalation of excessively strong vapors, snuff-taking in excess, over stimulation of the olfactory nerves, and some authors add, absence of pigment.

The *prognosis* is not very favorable unless the cause, such as polypi, foreign bodies, or unhealthy mucous membrane can be removed. The *treatment* should be alterative and tonic, chiefly cerebral and spinal tonics.

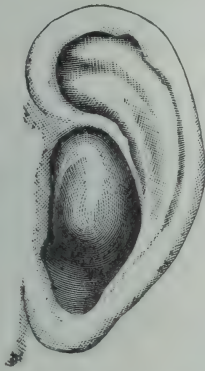
As far as our present knowledge goes, there are only two remedies which have a decided and antagonistic influence on olfaction. Strychnine will exalt, while morphia will impair and deaden it. Strychnine rubbed up in some inert body and used as a snuff, or taken internally in suitable doses, wonderfully increases the keenness of the sense; the snuff is the most effective. It acts so well that it causes a sensitiveness to pungent odors, almost amounting to pain; whereas, morphia confuses the appreciation of odors to such an extent as to produce a kind of chaos. The olfactory nerve is narcotized, and odors appear at an enormous distance. Other remedies possessing analogous properties have a lesser influence; belladonna causes dryness, and pilocarpin the opposite state; both conditions unfavorable for good smell.

The prolonged use of the ozonized wine of erythroxyton coca leaves exercises the same salutary action on the olfactory nerve as it does upon the nerve of taste and vocal chords, being a true vitalizer of all the senses.

Othæmatoma,
(*Sanguineous Tumor*
of the Auricle.)

Othæmatoma, or sanguineous tumor of the external ear, is, with very rare exceptions, solely met with amongst those affected with cerebro-mental disease, and has hence been termed "the insane ear."

Nature and Appearance.—Othæmatoma consists of an effusion of blood from the perichondrium investing the cartilage of the auricle, appearing as a tense and shining tumor of a reddish-blue or livid color, varying in size, and occupying some portion of the concavity of the organ, rarely forming on the posterior convex surface. One such case has, however, come under my observation; here, however, the tumor was not confined to this region. When



Othæmatoma in the acute or *primary* stage. Tumor of moderate size filling up the cavity of the concha; full and rounded above where it is bounded by the ridge of the antihelix, being lost below in the lobule. *Result:* Disappearance with but little subsequent deformity.



Othæmatoma in the acute or *primary* stage. Tumor of moderate size occupying the entire cavity of the auricle, and obliterating its ridges and hollows. Surface uneven, and in parts of a plum color. *Result:* Slow absorption, with extreme contraction, and finally the almost complete distortion of the auricle, and obliteration of its several component parts.

it commences in the concha, the tumor is generally localized above, and externally by the ridge of the antihelix, and extends inward toward the meatus externus, which it may occlude, causing deafness according to the degree of occlusion. In this situation the tumor presents itself as a smooth, and usually even swelling, about as large as a pigeon's egg; when the fossa of the helix is the site of the effusion, it is confined below by the ridge of the antihelix, and the swelling then assumes a somewhat kidney-shaped outline.

In exceptional cases the tumor becomes extended over the en-

ture surface of the auricle, and when this is the case, the various ridges and cavities become wholly obliterated, the hollow of the ear being filled by an egg-shaped swelling, fuller above, and closing itself inferiorly in the lobule, which is never implicated.

As to the etiology of the affection various theories have been advanced. One of the best:

“Under the influence of this profound disturbance of the economy, there occurs a *ramollissement* which plays a considerable part as a predisposing cause in the production of sanguineous tumors.”

M. Bonnet is of opinion that the sanguineous tumors of the ears are veritable congestive apoplexies due to degeneration of the sympathetic, which results in turgescence of the vessels of the ear, and, as a result, the apoplexy is produced.

“The formation of sanguineous tumors of the auricle is most often preceded and accompanied by a general disturbance of the cephalic circulation.”

Pathological Appearances.—The morbid appearances presented by the shrivelled ear differ according to the age of the formation. When a few months old a fine section under the microscope showed it to consist of somewhat loose fibrous tissue with deposits of fine hyalin cartilage, and a little within a centre a triangular-shaped mass of bone containing wide channels with lacunæ and canaliculi. The condition of the ears here, as I have mentioned, was of very long standing, and between this and the organized clot of the earlier stages I noticed fibrous tissue and cartilage in varying degrees of development.

Forms of Mental Disorder in which Othæmatoma Occurs.—Othæmatoma is not confined to any one form of insanity; it has been found in mania, melancholia and dementia, but it occurs most frequently in general paresis, and insanity associated with epilepsy.

In the treatment of such cases, there is considerable difficulty.

In some few cases indeed, where, on other grounds, a hope of final recovery from the mental disorder exists, and when it may be important to prevent the possibility of the after deformity which will in all probability result if the swelling be allowed to run its course undisturbed, the aspiration of the sanguineous effusion may perhaps be attempted, and an endeavor be then made to induce rapid and equal adhesion between the cyst walls. Painting the surface of the tumor with vesicating fluid has been also suggested, and I believe tried successfully in several cases, though as far as I am aware it has not come into extended use.

Otomycosis.

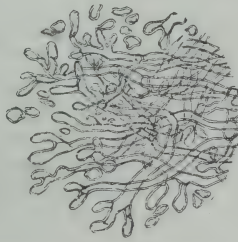
(*Aural Fungus,*
Aspergillus Nigrans.)

Vegetable microscopic organisms are found in the outer ear.

In the etiology of otomycosis the favorable character of the external meatus for the growth of fungi and schizomycetes has to be remembered. The partial occlusion of the canal in ordinary healthful states of it by hairs and cerumen, its shape, the temperature of its walls, the presence of moisture, at once strike us as affording in it a favorable situation for the generation and development of micro-organisms and the occurrence of fermentative changes. In the limited supply of air, in the heat and moisture, we have the most important elements of fermentation. The further tendency to otomycosis and the development of parasitical fungi is increased by the nature of the substances introduced into the meatus. It is chiefly with the object



Aspergillus nigrum ; magnified 400 ; the first appearance of the fungi in the ear.



Aspergillus nigrum ; magnified 400 ; second stage ; fruit stalks or fructiferous hyphae ; the mycelial filaments ; the stigmata on the free ends are the spores.



Aspergillus nigrum ; full-grown spores ; unripe fruit stalks ; the ripe aerial fruit ; fully-grown spores literally drop off in myriads.

of preventing the possibility of the dissemination and engrafting this very painful and obstinate disease upon the community at large, that we call attention to it. In a great number of cases the affection is provoked by the introduction of an oily substance into the external ear, such as olive oil, oil of almonds, etc., at times lard, balsam, or pomade. In employing these oily substances, it is not sufficiently remembered that they all undergo rapid decomposition once they remain exposed to the atmosphere, even at an ordinary temperature ; how much more so at the more elevated one of the auditory meatus. Oils contain in solution azotic substances which, under the influence of the oxygen of the air, provoke special fermentation, becoming rancid. This raises the temperature rapidly ; the neutral fatty matters contained in the oil are changed into glycerine and fatty acids. Thus the spores of the musty fungi, which are abundant, are provided with all that is necessary for their germination,

viz., oxygen, watery vapor (in the air), sufficient heat, organic decomposition, and the acidity which favors their development. The filaments of the mycelium grow rapidly. The acid products of the decomposition on the one hand, and the vegetable foreign body on the other, irritate the ear and set up this inflammatory process, causing the watery secretion, and exciting the formation of the organic azotic substances that are so easily assimilated by these cryptogames.

Various astringent lotions in common use induce this fungus. The presence of cloudy collections of mycelia and spores, which form in those solutions after being kept a few days; bottles not carefully corked are often teeming with these fungus spores.

The fungus when once generated in the ear, encysts itself in a flat oblong bag, completely closed on all sides.

When the fungus has reached its maturity, completed its growth, it becomes encased in an oblong flat bag, closed on all sides; it measured from $1\frac{1}{3}$ to $1\frac{1}{2}$ centimetres in its longest diameter (corresponding to the long axis of the meatus), and about one centimetre in one of the transverse diameters, and half a centimetre in the other. These measurements varied slightly in different cases. One of the flat faces was obliquely truncated at the end, and showed an exact cast of the membrana tympani. The color was yellowish-white in one case, light brown in the second, and whitish-gray, turning to a dirty brown, in the third. These bags were composed of mycelium, sporangia, free spores, and epidermic cellules. On examining such cases the otoscopic aspect is very puzzling, the growth entirely filling the fundus of the meatus, and hiding the membrana tympani. After removal of the bag, which is followed by great relief, the drumhead is found injected, and marked with white specks on a red ground.

In nearly all cases we have small boils or furunculi in the ear. These are the result of a microbe affliction, proceeding from the internal media, the invasion taking place by the cutaneous follicles. The successive appearance of furunculi is due to the migration of cocci.

The micro-organisms most frequently is the staphylococcus, *albus*, *aureus* or *citreus*, all generally found in the boils.

The correct treatment in all cases is anti-bacteric, which may abort the affection and prevent its occurrence.

This is best effected by the ozonized oil of mullein dropped into the ear thrice daily.

Before this is done the ear should be carefully syringed out

with tepid one-per-cent. solution of the dioxide of hydrogen and subsequently the mullein oil dropped in; by this plan of treatment the micro-organisms are destroyed.

Ozæna. A chronic inflammation of the mucous membrane of the nose, characterized by enlargement of the nasal fossæ, and accumulation in the enlarged cavities of crusts, having a peculiarly repulsive odor.

(*Atrophic Rhinitis.*) The affection is so common and so serious that clear notions of its etiology, diagnosis and treatment are absolutely indispensable. Not essentially dangerous to life, its existence is most distressing, as the overpowering fœtor of the breath renders their society a burden to friends and strangers, who both alike turn away from them. Such persons gradually become isolated. They dread meeting others, and often lead aimless and disappointed lives. Until a comparatively recent date all affections of the nasal fossæ characterized by fœtor were grouped under the generic term "ozæna." Improved methods of examination of the nasal fossæ and diagnosis have, however, eliminated these errors, and have placed ozæna as a distinct symptom due to or associated with atrophic rhinitis. There need, therefore, be no difficulty in separating it from syphilitic, tubercular or traumatic ulcerations of the nasal bones, which are also attended with fœtor.

Etiology.—Among the causes which conduce to ozæna, constitutional dyscrasiæ, such as tubercular or syphilis, undoubtedly hold a chief place. Most authors mention the influence of hereditary syphilis, but this, though probable, cannot be considered as absolutely demonstrated. A debilitated or broken down state of the general health is also an important factor in the causation of ozæna. Among the large number of cases which I have seen in hospital and private practice, I cannot recall one in which there were not some traces of either anæmia, chlorosis, scrofula, or inherited specific disease. According to some authors ozæna, and, therefore, atrophic catarrh, is a direct sequence, a more advanced stage of hypertrophic rhinitis, or of ordinary chronic catarrh. This view is undoubtedly correct, as there is an evolutionary link between all three states. As regards the age of patients, adolescence is the period when the disease is most common. It is seldom seen in elderly persons, though I have known cases as late as forty-five years of age. The female sex is more liable to it than the male, in the proportion of nearly two to one.

Amongst immediately exciting causes of ozæna is the entrance

of irritating vapors or dust, especially if from any cause such as undue patency of the nostrils, absence of vibrissæ, or a faulty direction of the nostrils, this entrance should be facilitated. Malformations of the bony framework of the nose, deviations of the septum, narrowing of the nasal passages, with obstruction to the removal of secretion, the relative smallness of the turbinated bones, or the disproportionate size of the nasal fossæ, are all factors in the development of *ozæna*.

The *symptoms* are both subjective and local. Among the former, patients frequently complain of headache, pressure over the brows, impaired power of hearing, with noises in the head. Along with these there is often associated naso-pharyngeal catarrh, characterized by difficulty in swallowing, dryness of the throat, with a constant desire to clear it. There is, moreover, especially in children, a very characteristic type of countenance, exhibiting many of the signs of scrofula. The normal bones of the nose, instead of forming the bridge, are sunk below the level of the frontal bone, so that the nostrils are directed forwards instead of downwards.

The general appearance is that of being intensely tubercular. Smell is either generally diminished or destroyed, so that patients are not aware of their unpleasant odor. The secretion of the nasal mucous membrane is scanty, dries in the form of crusts or concretions in the nose, and are expelled by violent efforts. They are all colors, owing to the germ present, and aerial germs present. The crusts emit a pungent, nauseating odor of putrefaction, *bacillus saprogenus*, pathogenic of the same odor which patients diffuse around them.

The cause of this fœtor has been by no means satisfactorily explained. According to some authorities it is due to the abnormally large size of the nasal fossæ, whereby the force of the current of expired air—the air draught—is notably diminished. Another author, while partially adopting this explanation, considers that the secretions from the sphenoid and ethmoid sinuses are also at fault. In individuals with rudimentary inferior turbinated bones the ethmoid is imperfectly developed, a fact which is in favor of this theory. Others consider atrophy of the mucous membrane and degeneration of the mucous corpuscles with production of fatty acids, as the cause of the fœtor. Other authors, on the other hand, believe it to be due to the presence of a specific *coccus*, formed by the union of the amœba, *bacillus saprogenus pyogenes*, tubercular and syphilitica, and others to a special ferment; while all see “in the physical and chemical changes of the secretion the condition necessary for the occurrence of fœtor.”

The *diagnosis* is at once established by the peculiar and characteristic odor which will be readily recognized, and cannot be mistaken for the stench arising from a foreign body, diseased bone, or syphilitic ulceration. Any strong disinfecting lotion will remove the odor of the ozæna, but not of caries or ulceration. Moreover, the atrophy of the tissues, coupled with the absence of ulceration of the mucous membrane, cartilage or bones, becomes distinctive and characteristic features.

The prognosis is not hopeless, neither is it difficult to effect, under bactericides and the cavities of the nose, to become normal once more. As far as the characteristic odor is concerned, it can be kept completely in check by suitable treatment, and using daily a douche of boroglyceride, resorcin or creolin.

In the treatment of ozæna two distinct objects must be kept in view: destroy the various microbes and build up the general health of the patient.

The former is best effected by the occasional use of the ozone et chlorine wash or douche, which will dislodge the crusts; as this is severe once a month will be sufficient for its use. Excellent bactericide lotions are made of boroglyceride, resorcin, creolin, thymol, benzoate of soda, distillation of jequirity, morning and night. Sprays are very useful of glucozone, sulphur water, iodide of ethyl, oil peppermint.

The improvement of the general health must be carried out on general principles, and such remedies as glycerite of kephaline, avena satina, matricaria, chloride of gold and hydrastis canadensis. Kephaline combined with iron and strychnine most effective. Change of air, seaside.

Moreover the above treatment, as a whole, must be scrupulously carried out night and morning by the patient, for months, perhaps, in succession. With young girls the appearance of the catamenia often exercises an unfavorable influence on ozæna, aggravating both the discharge and the fœtor. It is also a matter of observation that in adult females, the odor is always most intense and obstinate just before or after the menstrual period.

In all cutaneous diseases there is either a microbe, fungus vegetable growth, or parasite present; with our limited knowledge of the habits of disease germs, we are unable to say why some micrococci cause a general erythema, why they swarm in patches, or seek the follicles, and form a papula.

Lichen is a papular affection of the skin, with minute hard, red elevations, either distinct or scattered in clusters, with a

tingling irritation and slight desquamation. The contents of the follicle are usually microbes, either of mal-nutrition, or syphilis, or tubercular, etc.

The following embraces the principal forms :

1. *Lichen Scrofulous*, or tooth rash, or red gum rash ; peculiar to infants and young children, may appear on any part of the body. It is caused by derangement of stomach and bowels, and is characterized by an eruption of minute, hard, red, clustered or scattered pimples.

2. *Lichen Simple*.—Cause, mal-assimilation and bacteria ; eruption red, inflamed papulæ on face, arms, legs and body. There is itching, tingling and fever ; in spring and fall will probably return.

3. *Lichen Pilaris*, or hair lichen, appears at the roots of the hair in young persons, about puberty ; involves the hair sac and root sheath. The general cause is want of cleanliness, mal-nutrition, use of alcoholic drinks.

4. *Lichen Circumscriptus*, or clustered lichen ; patches of papulæ with well-defined margins, and irregular circular form. The eruption consists of rings and small groups of papulæ, which tend to spread at their circumference into rings, the papules forming a bright, well-defined margin, while the skin in centre is yellow, owing to spores of a fungus.

5. *Lichen Agrius*, or wild lichen. Usually a severe form ; rigors, nausea, fever, slight erythema, with the papulæ upon the inflamed base. In a short time inflammation subsides ; skin peels off ; papulæ exhibit intense itching, tingling ; their points become scratched or rubbed off, and cracks or fissures form, which are painful, and discharge a sero-purulent fluid.

6. *Lichen Lividus*.—When the eruption has a purple, or livid hue, and is not accompanied with fever.

7. *Lichen Solaris*, or prickly heat ; due to exposure to heat, before system has become acclimatized.

8. *Lichen Urticatus*, or nettle lichen. Skin presents the appearance of wheals, like those produced by bugs, gnats, mosquitoes, etc. The wheals subside, and leave papulæ, with itching, pricking, tingling.

In the treatment of all papular eruptions of whatever form, the condition of the stomach, bowels, diet, bathing, merit close attention.

Comp. tincture cinchona and matricaria for the stomach ; bowels opened with the cascara sagrada lozenge ; alcoholic vapor bath twice a week, otherwise alkaline baths. If there be fever, aconite and serpentaria. Plain nourishing food, forbidding shell-fish and drinking water from a calcareous base. One of

our best remedies here is the lycopodium tincture ozonized, in ten to twenty-drop doses every four hours, keeping the bowels well regulated.

A partial or complete loss of sensibility, or of **Paralysis.** motion, or of both, in any part of the body. It is said to be perfect or complete when both sensibility and motion are lost; imperfect when one or other is either lost or diminished. The term local is used when a small part of the body is affected, as a limb or hand. It is termed reflex, when it commences in the periphery of a nerve, and is reflected to its origin in the spinal cord, and from thence reflected back to the muscles. There are, in addition, some peculiar forms, due to the presence of special poisons, disease-germs, in which special symptoms predominate, as wasting, tremor, etc.

There are certain general features, which prevail and predispose in all cases of paralysis, either a condition of *hyperæmia*, or *congestion*, or one of *anæmia* of either the brain, spinal cord, or some nerve; both being essentially *devitalized* conditions, and either of these two states are usually associated with an exciting cause, as apoplexy, embolism, or thrombosis; abscess, softening, induration, the microbe of tubercle, syphilis, cancer, poisons of mercury, lead, diseases of the urinary organs, intestines, uterus, prostate, masturbation, epilepsy, chorea, disease of the spinal cord, as inflammation and its results; lesions or compressions by which its working power or conducting medium is impaired. A very large percentage of all cases of paralysis is due to disease germs localizing on weakened nerve tissue, and to the direct action of such poisons as lead, mercury, nitrate of silver, bismuth.

The condition of general paralysis cannot exist without death, although occasionally cases do occur in which general loss of sensibility and motion are much impaired, not wholly destroyed, but nearly so.

The general division of all cases into one of congestion or anæmia is a good one, on which to base a scientific treatment.

Paralysis of one-half of the body, extending
Hemiplegia. from the crown of the head, clean down through the median line, involving one side, arm and leg, half of the face, tongue. It is the most common form, and usually spoken of as a paralytic stroke or attack. The left side is more frequently affected than the right side, and the arm somewhat more than the leg. Occasionally we meet with cases

of transverse or crossed paralysis, due to accidental conditions—the causes either due to congestion or anæmia. Under the former, we must look carefully for apoplexy, clot, tumor, nodule of tubercle, cancer, etc.; under the latter for chronic inflammation, white softening, epilepsy, chorea, blood poisons, etc. A distinction or true line of demarcation is important as leading to correct treatment. Cases due to *congestion* are accompanied with headache and other symptoms of plethora, and are sudden in their seizure, whereas those due to anæmia exhibit such symptoms in the white face, nervous temperament, etc., and come on slowly and insidiously.

Symptoms.—In both are the same; muscles of the side of the face and brow affected; paralyzed cheek drops loosely; mouth is drawn to one side by non-contraction of paralyzed muscles; tongue usually implicated; when protruded, point turned to the paralyzed side, owing to the vigorous action of the healthy muscles; articulation is imperfect. Third nerve not involved in the common form of hemiplegia, but temporary lateral deviation of both eyes, and persistent turning of the head to the sound side in severe cases. As the hemiplegia is either due to the effects of congestion or anæmia, the pathological result usually takes place at the base of the brain of the right side, or on the side opposite from the one paralyzed, so the condition of the eye, as to contraction or dilatation of pupil, closed or staring open, will depend on the location of the difficulty. The arm is always more paralyzed than the leg, and recovers more slowly. Paralyzed limbs are soft, flabby; in rare cases, rigid. The muscles of the chest and abdomen may not be affected chiefly in sensation, if at all. The mental faculties are less or more damaged—reason, judgment, memory, a tendency to shed tears. In effusion of blood from congestion, muscles often rigid or contracted; in anæmia, with white softening, the softening or degeneration descends the cord from want of nutrition, and the muscles waste or shrink away. Where muscles waste, case is hopeless. When the leg regains power first, the case is very hopeful; whereas, if the arm before the leg, always unfavorable.

Some cases of hemiplegia occurring in persons advanced in life occur without cerebral lesion in individual suffering from subacute and chronic nephritis.

Treatment.—In all cases, whether due to congestion or anæmia, the following is to be recommended: Secretions from liver, kidneys, bowels to be promoted; skin to be daily bathed with alkaline washes; feet to be kept warm by capsicum; head cool; sleep to be prolonged to nine or ten hours by extract of hyoscyamus; the efficacy of repeated blisters, say for six hours at a time, three

times per week, or the irritating plaster constantly exciting free suppuration of both sides of the spine below nape of neck can never be doubted. The most satisfactory results are to be obtained from this proceeding. We need not ignore the fact that at least two-thirds of all cases are due either directly or indirectly to the syphilitic germ in the blood irritating a weakened patch of brain, and thus causing the paralysis. If satisfied that it is due to congestion, cerebral hemorrhage, effusion, active cupping to neck and shoulders, free action of bowels, and a persistent perseverance in alteratives and tonics, with iodide of potassa; the idea being, if possible, to procure absorption. If due to anæmia, or softening, then no cups nor free purgation, but a treatment highly constructive, rich diet, excess of phosphates; and to rectify the defective nutrition or anæmia, the glycerite of kephaline in alternation with the tincture of *avena sativa*.

An alterative and tonic course is often beneficial, such as the comp. *saxifraga* and *phytolacca*, and such tonics as *columbo*, *cinchona* administered.

A very large percentage of this form of paralysis is due to phrenal syphilis, the microbe burrowing in the brain. This fact is often overlooked by the physician either through delicacy or otherwise.

The copper-colored appearance of the roof of the mouth, the nocturnal languor, insomnia, point to syphilis, it is unnecessary to call for a history of the case, but invariably to push a course of treatment which will kill the syphilitic germ, with massage, electricity, etc.

Paralysis of the lower half of the body.

Paraplegia. There are two forms, one due to congestion, the other to anæmia or want of nutrition; the former may be caused by falls, mechanical violence, causing spinal meningitis, myelitis, with effusion of blood or lymph on the membranes or substance of cord, causing a thickening, tumor, tubercular, cancerous, or syphilitic deposit; the latter, defective nutrition, caused by masturbation, sexual excesses, disease of kidneys, uterus, and other parts, a condition in which, in its first stage, the reflex impressibility of the cord is increased—due to an insufficient amount of blood in the cord.

There is a form of reflex spastic paraplegia due to uterine displacement, very common during the child-bearing period of life. This is easily seen when we look at the nervous relation of the parts.

We have, therefore, to return to the sympathetic or reflex causation, and in considering this the nervous supply of the uterus

and its ligaments must be noted. This is, to a large extent, through the sympathetic system, which is also intimately connected with the spinal cord. Thus the uterus derives its nerves from the hypogastric plexus, which is in connection with the twelfth dorsal, and first, second, third, and fourth lumbar nerves, and also from the pelvic plexus, which is in connection with the second, third, and fourth sacral nerves through the fifth lumbar and upper three sacral sympathetic ganglia. The round ligaments derive their nerve supply from the genital branch of the genito-crural nerve. Thus there is a wide area of the spinal cord in intimate relation, through the sympathetic ganglia, with the uterus and its ligaments; and the phenomena which are present can all be traced to the same region of the cord. Further, there is the fact that when the uterus is replaced in position the symptoms vanish at once, which would not be the case if any severe pathological lesion had been at the root of such cases.

Symptoms.—If not due to mechanical violence, it comes on slowly and insidiously, with great weakness, numbness and tingling of the feet and legs. These symptoms increase until there is a total loss of sensibility and motion in lower extremities, paralysis of bladder and sphincter ani follow, decomposition of urine in bladder, involuntary movements of the legs, often very distressing, marked deterioration of general health.

Note special symptoms—if the congestion or pressure or nodule be on the membranes of cord, there is severe pain in limbs or back, especially on movement or coughing, resembling rheumatism, reflex movements sometimes exaggerated, paralysis of sphincters later.

In myelitis, dull pain, sensation as if there were a cord around the body; paraplegia more decided; reflex action in parts below segment attacked; often exaggerated; sphincters early affected.

In the anæmic forms symptoms are less definite; worse on being in recumbent posture. When not due to mechanical irritation or reflex action, as in spinal irritation, often syphilis is the cause, which will be recognized by its concomitant symptoms.

Treatment.—The first point in the consideration of treatment is—Is it one of congestion or anæmia? The land-marks must be carefully drawn as to that point.

If there is congestion or inflammation, with increased determination of blood in the cord, there will be symptoms of irritation of motor nerve fibres, as convulsions, cramps, twitching, priapism, with indication of sensitive nerve fibres, as itching, crawling, pricking sensations, heat and cold feeling alternately, and symptoms of irritation of vaso-motor or nutritive nerve

fibres, as wasting of muscles, bed sores, alkaline urine. There is also pain corresponding to the upper limit of congestion, tenderness on pressure, or a burning or sore feeling on the application of a hot sponge or pole of battery.

In treating these cases, the quantity of blood sent to the cord must be diminished, and the normal integrity of the cord restored; apply cups, blisters, irritating plaster; better than all the galvanic cautery on both sides of spine above and below the difficulty, followed with hot poultices or continuous application of irritating plasters on both sides of spine, two inches wide on each side, subsequently belladonna plaster, or some stimulating liniment. Internally, iodide and bromide of potass, with calabar bean; to be alternated with belladonna, ergot, salol, camphor, henbane, conium, Indian hemp, to relieve distress and procure sleep; as case progresses, glycerite of kephaline and oats, erythroxyton coca. Skin, liver, bowels, kidneys to be well stimulated, and diet to be generous to a fault, containing as much phosphates as possible. The nutrition of limbs must be maintained by olive oil inunction, friction, shampooing, at least twice or thrice daily, for twenty or thirty minutes.

In the paraplegia due to *anæmia* or white softening, the object in view is to cause an increased determination of blood to the cord and its membranes and restore its vital integrity if possible.

The diet should be such as will liberate brain elements, animal food, boiled fish, oatmeal, corn-bread, extract of meat.

Local stimulants should be applied to the spine, concentrated ozone with chloroform; irritating plaster, very efficacious in causing a determination of blood. Our best internal remedies are the glycerite of kephaline, *avena sativa*, quinine, *nux vomica*, *matricaria*, concentrated tincture of *kurchicine*.

If the paraplegia be due to rheumatism, salol, manaca, should have a fair trial.

If it can be traced to syphilis, *saxifraga* and *phytolacca*, with bactericides over the spine, as menthol or thymol dissolved in chloroform and alcohol and applied; ammonia can be added, which will increase its power.

Paralysis,

(*Due to Excessive Formation
of Connective Tissue.*)

The paralysis of *ataxia* is due to an excessive formation of connective tissue, with wasting and disintegration of nerve-fibres of the posterior columns

of the dorsal and lumbar portion of the spinal cord, which gives rise to a peculiar form of imperfect paraplegia.

It is supposed to be caused by sexual excesses; the germs of syphilis tubercle; by the poison of gout, rheumatism, exposure to cold, damp; falls or blows being simply exciting causes.

It is almost invariably met with in males about the middle period of life. In well-marked cases there is atrophy and disintegration of nerve-fibres of posterior roots of spinal cord, with formation of amyloid corpuscles, and great hypertrophy of the connective tissue of the cord. The lesion is not, in all cases, confined to the posterior columns of the cord. There is often a gray degeneration of cerebral nerves, of spinal nerves, and various lesions of gray structure.

Sclerosis of lateral columns of cord, or excessive formation of connective tissue, with wasting and degeneration of nerve-fibre of lateral columns; invading also the anterior cornua of gray matter.

The symptoms are gradual paralysis of muscles and contraction of limbs; no loss of sensation; the sphincters often unaffected. Treat same as *ataxia*.

Disseminated Sclerosis.—Patches of sclerosis in different parts of brain and cord.

In this there is a general loss of power, with tremor and agitation of the muscles whenever they are called into exercise. Lips and tongue tremulous in speaking; chin kept on breast to avoid the effort of supporting the head, which brings on tremor. Limbs quiet till moved, then agitated.

The inhalation or absorption of mercury produces a characteristic form of palsy, chiefly affecting the nerves that supply the voluntary muscles, causing a convulsive agitation, which is very much increased when volition is brought to bear upon them.

Paralysis. (Mercurio.) It is much more common than is generally supposed. The finer soluble preparations used by physicians acts very deleteriously on their patients. The amalgam used by dentists is made up of pure mercury, and the coloring matter of much of their vulcanites is of the same metal. Besides, the workmen are exposed to its fumes in various mechanical and scientific pursuits, as looking-glass makers, button-gilders, glass and metal-platers, barometer-makers, etc. Chemists are much exposed, and should observe the greatest precautions to avoid the inhalation or absorption of this deadly poison.

The symptoms of mercurial poison of nerve-tissue are variable, but embrace impairment of articulation and mastication, and often the power of locomotion. Delirium and acute mania are often

present; the use of the hands are almost entirely lost; often epilepsy; great weakness and restlessness; skin acquires a dirty brown hue; soreness of gums; teeth turn black and decay; other bones become affected with inflammation, caries or necrosis, or nodes form on them; anæmia. All symptoms aggravated by a change in the weather.

Treatment.—Removal of cause. Very liberal and nutritious diet, attention to bladder and bowels; baths, sulphur or else sulphuret of potassium with electricity; chlorate of potassa as a mouth-wash, of which some may be swallowed; due attention to other symptoms. From the moment of its recognition till weeks after recovery, *iodide of potassa* in doses of from five to fifteen grains thrice daily in sweetened water. The iodide unites with the mercury in the body, forms an insoluble compound, which is readily eliminated by the kidneys and to some extent by bowels and skin. In some cases it is advantageous to combine it with bicarbonate of potassa or carbonate of ammonia. No drug is of any real value but the iodide.

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Lead exerts a very deleterious influence on the nervous system and blood. Its poisonous effects seem to manifest themselves on the finer nerves that supply the muscles of the forearm and duodenum. It usually finds access to the body by inhalation, in water, food and through the skin. Lead poisoning is more common than is generally supposed. The inner surface of the lead water-pipes of cities, oxidizes and finds its way into the water and is drunk. Lead enters into the composition of culinary articles, as glazed earthenware. Acetate of lead is freely introduced in claret wine, and sailors who drink water from casks that once contained claret are often affected with lead poisoning. Operatives in lead mines, workers in lead, either as metal, medicinal or chemical agent, paint, all suffer to a great or less degree. Those engaged in preparing the finer preparations, as carbonate, acetate, oxide, etc., are more common victims than plumbers, painters, oil-cloth workmen, paint-grinders.

Symptoms.—General indications of debility, with paralysis of the nerves that supply the muscles of the forearm and hand; extensor muscles of hand and fingers get paralyzed and hang down by their own weight when arm is stretched out—called wrist-drop. Frequent attacks of lead colic. Taste and breath have a lead odor. Formation of a blue line on the edge of the gums just where they join the teeth is nearly always present and is typical of lead poisoning. It rarely affects lower extremities. If

the patient's vital forces are impaired by drink and excesses, or frequent attacks of gout or rheumatism, it may cause death.

Treatment.—Same as for *mercury*. Iodide has the same action on lead as on mercury. All operatives in lead should be strictly temperate; use no alcoholic drinks, endeavor to maintain a high standard of health, promote the function of skin by daily alkaline bathing, and should drink sulphuric acid lemonade daily.

Paralysis Agitans. Shaking palsy, characterized by an involuntary tremulous agitation of muscles, which is independent of exertion and goes on while the muscle is at rest. Usually makes its appearance from fifty-five to sixty-five years of age; generally met with in men.

Its cause and pathology are unknown. It commences in the hands, chin or knees, and gradually extends over the entire body. Fingers and thumb generally in contact, as if taking a pinch of snuff. Associated with great nervous debility, restlessness and sense of heat; muscular power greatly diminished; intellect and senses damaged. Disease progresses slowly, usually taking about seven years before general paralysis and white softening set in. When well advanced, agitation or tremor may be so bad as to prevent sleep; deglutition and mastication performed with difficulty; a propensity to bend the head forward and to pass from a walking to a running gait; inclination of the body forwards, with bending of chin on sternum; slobbering, involuntary escape of urine and fæces; delirium, fatal coma.

Treatment.—Cases are so utterly hopeless that few remedies are of much avail. Nevertheless, a general alterative and tonic course should be inculcated, with baths, friction, shampooing, local stimulation to spine. Diet to be very generous, containing an excess of vegetable phosphates.

Paralysis Infantile. The essential paralysis of children, from its being thought to be peculiar to early life; not infrequently do we find it in adults. It is, properly speaking, a systematic myelitis, a circumscribed, well-defined lesion of the cord, not involving neighboring parts. It is usually confined to the anterior horns of the gray matter of the cord; hence the term anterior poliomyelitis has been applied to the disease, whether occurring in infants or adults. As it occurs in infancy, or to children under two years of age, who have received a fall, blow, or suffered

from teething, worms, there is following a febrile excitement, one or more or all of the limbs become paralyzed; the muscles of the trunk being also sometimes involved, and very exceptionally those supplied by the medulla oblongata. There may have been convulsions, coma or a transient loss of cutaneous sensibility, or temporary trouble with bladder or rectum; but to a great extent the brunt of the disease falls upon the motor power of a limb or limbs. After the attack, the limbs does not generally become more paralyzed; on the contrary, after a few weeks or months there is a gradual clearing off of the difficulty, as regards some of the limbs, one or more remaining unimproved. Many of the affected muscles begin at once to waste, and lose all power of contractility (degeneration sets in); others again resume their tone and function. The paralyzed muscles are soft and flaccid. After a variable period, there may be a gradual return of power, and some recover, while others rarely do so. In the end, in the affected muscles, atrophic changes are well marked, which may be so wasted as to leave the limb in a skeleton-like condition, or fatty substitution may mask the real loss of muscular substance, and give a false air of plumpness to the limb. The development of bone is also arrested, so that in several years after it may be shorter and thinner than its fellow. There is diminution of the calibre of blood-vessels, leading to comparative coldness and blueness of the limb, which often shows a strong liability to chilblains. The tonicity of unaffected muscles would seem to increase and overpower those whose function is destroyed, giving rise to deformities which no efforts can reduce.

In treating cases of this kind, the cause, if possible, should be removed, the mouth examined, and gums lanced, if necessary; confine the patient to bed for many months. Bromide of potass and ergot should be given early; muscles tested electrically for the first few weeks; any electrical treatment better to be avoided; discourage all attempts of voluntary movements of the damaged muscles or limbs, as it tends to excite action in their antagonistic muscles, and thereby increase the deformity; baths, oil inunctions, shampooing twice daily; stimulating liniments to spine; secretions attended to, and the general health built up; a general alterative and tonic treatment persevered in; diet rich in fibrine and phosphates.

The best agents of this class are the glycerite of kephaline, alternated with the ozonized wine of coca erythoxylon; the tincture of oats, alternated with some preparation of cinchona. A persistent use of those remedies, with massage, effects excellent results.

The microbe, amylobacta of rheumatism, Paralysis, may be a cause of paralysis, by exciting an Rheumatic. hyperæmia, excitation, or exaltation of the sensory and motor nerves, either the nerves themselves or their origin in the spinal cord.

The same treatment as laid down under the head of rheumatism.

The ptomaines of the microbes of diphtheria Paralysis, and typhoid fever are highly toxic alkaloids, Diphtheric. which have a special affinity to poison and paralyze nerves, more especially those of a fine or delicate character, as the facial, laryngeal, pharyngeal, cardiac, etc.

In some instances they cause irreparable damage; more generally, with rest, country air, good diet, they make a good recovery.

Paralysis from the ptomaines of diphtheria should be treated by the administration of glycerite of kaphaline, nux vomica and quinine, or by the tincture of oats.

Wasting Paralysis. (Progressive Muscular Atrophy.) Wasting paralysis involves, as its name implies, a gradual wasting of the involuntary muscles. It is well known that in cases of lead-poisoning, wrist-drop is apt to occur from atrophy of some of the muscles of the fore-arm. In this affection, however, the atrophy or wasting is much more general. As a rule it begins in the arms, and is often most noticeable in the upper arm and shoulder, so that the patient is prevented from raising his hand to his head. It affects both sides, and extends pretty equally on both sides.



Microscopical appearance of the nerves, exhibiting a sclerosis of the neurilemma in wasting paralysis, with muscular atrophy.

Causes.—These, at present, are not understood; it may occur in children as well as in adults; it has been known to be hereditary in families, so that several children of the same parents have been carried off in turn. It is though a very rare disease, nor is it yet determined whether it depend on an alteration of the nervous system or of the muscular system, although most authors are in favor of the former view. It is a disease which is very chronic; it goes on gradually from worse to worse, until finally

the muscles of respiration become involved, and death may ensue from suffocation.

Symptoms.—The first symptom generally noticed is a wasting of the muscles of the arm or leg, but more commonly the former; the fingers are used awkwardly in picking up anything; there is a numbness and tingling in the extremities, and occasional twitchings of the muscles of the part. In time the wasting is more marked, and the loss of power is proportionate to the amount of wasting. The patient cannot raise his arm nor flex it properly; if bent, he cannot resist any one trying to unbend it; he cannot make his hand reach his head without assistance. On examining the parts chiefly affected, great wasting will be noticed, and the bones can be felt through the emaciated tissues; when the muscles of the shoulders waste, the head drops forward slightly, and the patient has a high-shouldered appearance. In a similar way the legs waste, so that walking is performed with difficulty, and finally the sufferer has to keep his bed. Yet all the while the general health is not much impaired; he can eat, drink, and sleep well; the mental faculties are not affected, and his chief distress is the progressive weakness. But in time other parts get affected; as long as only the extremities are atrophied, loss of power alone ensues, and locomotion is rendered difficult; after a while, the muscles of the chest will begin to waste, and the patient becomes short of breath. As this goes on, the expansion of the chest is interfered with, and the sufferer is liable to bronchitis and congestion of the lungs; he has not strength to spit up the accumulated phlegm in his air-passages; exposure to cold or damp air makes him have a distressing cough and aggravate his symptoms. Hence it is always a bad thing for them to have catarrh or bronchitis, as it generally carries them off suddenly; in very severe cases hardly any expansion of the chest-walls occurs, and death really occurs by suffocation.

Treatment.—For this disease, when once developed, but little good can be obtained by any drug. Iron, quinine, strychnine, kaphaline, avena, and various tonics have been tried, but none of them seem to have any influence in checking the onward progress of the disease. Shampooing, electricity and massage should be tried, and for a time benefit seems to result. The general health should be kept up by a nourishing diet; the body should be kept warm, and flannel must be worn next the chest. All exposure to cold and wet should be avoided, and although



Appearance of the gray matter of the spinal cord in a wasting paralysis.

out-door exercise should be taken when fine and dry, yet such people should not go out after sunset nor risk an exposure to the night air, as they might in that way catch cold or obtain some lung complication. In the later stages the patients have to be propped up in bed, as they are too weak to support themselves; in such cases all that can be done is to adopt any means that may please or give comfort to the patient, and so render more easy the inevitable end.

Local Paralysis.
(*Various Forms.*)

There are many varieties of local paralysis, extending from the head to the foot, and dependent on very varied causes—such as facial; paralysis of the muscles of the eye, supplied by the third nerve; ptosis; immobility of eyeball; outward squint, double vision, dilated pupil. Of external rectus, supplied with sixth nerve, inward squint, etc. Paralysis of fingers and thumb in needle-women, of the supinators and extensors of the fore-arm and hand in dish-washers; hemiplegia of penis often present in the sensualist.

It is unnecessary to go over all; the point is to ascertain their cause and remove it: If due to congestion, an active counter-irritant and antiphlogistic course; if to anæmia, rest, stimulants, etc.

Nearly all forms of local paralysis about the face are due to syphilitic disease at base of brain; some due to other blood-poisons; others to sameness, overwork, excess. General alteratives and tonics seldom fail to benefit.

Paralysis of the Bladder.

Paralysis of the bladder may be due to irritation of the spinal cord; to the presence of the bacillus of rheumatism, tubercle, syphilis; to the urate of soda of gout; to over distension of the bladder, and excessive stretching of the muscular coat, brought about by retention of urine; to debility, old age, enlarged prostate; and in ladies by the long-continued pressure of the head during labor.

Symptoms.—When the bladder is paralyzed its contents are retained; but when the distension becomes very great the muscular fibres of the contracted sphincter are stretched apart, and the urine begins to dribble away by the urethra; hence the inexperienced are apt to be led astray, taking it for a case of incontinence. But if the hand be placed above the symphysis pubis the bladder can be felt, as an immense enlargement. Urine is

highly ammoniacal, loaded with mucus, pus and phosphates. Pain at the neck of the bladder and glans penis is not to be depended on as a symptom, because the bladder loses its sensibility, and the desire to void urine is not experienced.

The constitutional disturbance is usually severe; the pulse becomes quick, wiry, feeble; the tongue coats; appetite fails; great restlessness and depression; vital power grows feeble, and the patient, if not relieved, sinks into a state of stupor, and dies of exhaustion.

In such cases the bladder should be immediately emptied by the catheter, and then washed out by injecting it with a tepid solution of boroglyceride.

The cause, if possible, should be removed, and the case treated with such remedies as avena, kephaline, nux, matricaria, comp. coca, erythroxyton, iron, quinine. With general alteratives and tonics.

Constriction of the foreskin behind the
Paraphimosis. glans penis, due to an irritation of the nerves that supply the circular muscular fibres of the foreskin; there is a preternatural contraction, but the tight prepuce is behind the glans penis, that is drawn back over it, whereby the head of the penis becomes constricted, swollen, and in some cases so engorged with blood that the prepuce cannot be replaced.

The causes are the same as phimosis.

Symptoms.—Great swelling before and behind the constriction at the neck. The mucous membrane forms a thick, brawny girdle, like a tightened rope. Great congestion of glans penis. Pain, inflammation, ulceration, gangrene of head, if neglected. Violent constitutional disturbance.

Treatment.—Hot bath; then warm hip-bath, with tobacco; enemata of lobelia; then sit patient down in a chair, the physician or operator sitting opposite with a yard of silk ribbon in his hands, the width of the glans penis. Place the centre of the ribbon on the dorsal or upper aspect of the glans penis, drawing each end downwards, forming a loop; then place one end of the ribbon round the second finger of the right hand, to form a loop; the other on the same finger of the left. That will leave the index finger and thumb on each hand free for manipulation; then tighten, compress glans gently but firmly; keep compressing steadily, and as soon as you perceive a decrease in size taking place, persevere still, and while thus compressing, catch the constricted prepuce with index finger and thumb of each hand, still compressing; pull the prepuce over the glans penis.

If you are unable to accomplish that, a notch, although we are partial to incision of the prepuce at several points, if only one, let it be a free one, at the tight, preputial collar.

If several incisions are made, say five or six, it is equal to circumcision, for in the process of healing, the foreskin entirely disappears.

Unless there is some legislative enactment made to prevent the spread of syphilitic disease, it would be well to reinstate one of the best and wisest methods of protection or prophylaxis, the Mosaic sacrament of Circumcision. There can be no doubt but that the circumcised are a highly-favored and chosen people, having a great immunity from this terrible disease-germ.

The term parasite is applied to living creatures which take up their abode on or in another living substance and feed on it. The animal or plant which supplies food and lodging to a parasite, is termed its host.

Parasites are common in both the animal and vegetable kingdom, when there is a state of vital deterioration present, when vitality is low, the soil poor. Parasite existence is very complex, presenting every extreme, every variety of gradation between one case and another, every form of dependence between the parasite and its host, the benefit or injury one receives from the other. Usually the benefit is one-sided, the parasite deriving its entire means of subsistence from the metabolism of its living host, or from its tissue, while the host receives nothing but injury in return—the parasite drawing off its nutritious means of growth and reproduction from it—and also giving rise to mechanical, chemical and reflex changes, which are productive of disease.

The maladies caused by the presence of parasites are most numerous, from simple states of innervation to violent convulsive attacks.

Some parasites, by means of their spores, ova, germs, may be transferred from their host to others and produce disease, and these maladies may be transferred from host to host and others in which it will produce disease.

Parasites may be said to make a selection of the host which they will occupy; it will attack one host, thrive well in him, refuse altogether or grow less vigorously in another; the choice of a host by a parasite, is marked by a one-sidedness; a narrow cycle of affinity; the physiological causes of these preferences are an inherent predisposition to weakness, debility.

Parasite affections of the skin possess many features in common, all induced by a parasite of either vegetable or animal origin, and as a consequence characterized by special features. They involve the skin or its appendages.

They are all contagious, induced by local and tangible causes.

The fact that there is often associated with entozoa, more especially trichinæ and tape-worm, epilepsy, chorea, convulsions and other nervous affections, has induced some observers to imagine that these parasites, like disease-germs, emit ptomaines, alkaloid bodies, such as are isolated from pathogenic bacteria. This idea has not been confirmed.

The predisposing causes as to why parasites take up their abode in or on the body, is some depressed, weakened or devitalized condition, for in a condition of perfect health, no disease-germ, parasite or fungus can germinate or breed in the human body.

There is no such thing as spontaneous evolution of a parasite, in all such cases, the larvæ, spores or eggs must find their way into the body by the skin, breath, drink or food.

Spores, ova, find their way into the alimentary canal, hatch, and produce a parasite of its own kind or species, giving rise to some of the following symptoms: These are variable when worms exist; still, the following are nearly always met with: capricious appetite, acid eructations, pains in the stomach, grinding or grating of teeth during sleep; fetid breath, coated tongue, picking at the nose, white or pasty appearance of the countenance, dark ring about eyes and mouth, hardness of abdomen, griping pains about umbilicus, itching at rectum and fundament, irregularity of bowels; an indescribable feeling of debility, often heats and colds; short, dry, hacking cough; general emaciation; often febrile paroxysms; irregular pulse. Reflex symptoms; epilepsy, convulsions, chorea, twitching. In girls, even very young, leucorrhœa; in boys or men, irritation of the ejaculatory ducts, spermatorrhœa, or masturbation. The only conclusive sign of worms is their passage, or a joint of them in the stools.

In the *treatment* of all varieties of intestinal parasites general principles must guide us, ever bearing in mind that the reason they have lodged and hatched there has been owing to the poor health of the individual, so that the greatest possible attention should be paid to the improvement of the general health.

Remedies calculated to give tone and strength to the bowels; to improve assimilation.

Special remedies, in each individual case, should be administered for either the expulsion or destruction of the parasite. Germicides or bactericides are not as a rule efficacious, except in some rare instances, we need here parasiticides.

We employ germicides, parasiticides outside of the body, without regard to anything but their power to destroy microbes, yet when we use them for intestinal parasiticides, we must consider the effect they will produce on the organism.

When the contents of the stomach are undergoing decomposition, either from the yeast plant, sarcinæ or bacteria, we may then get good results from the use of creosote, carbolic acid, salol, naphthaline, resorcin; because these agents in small doses will disinfect the bowels, and render the intestines uninhabitable for parasites. In very many cases, when one of those drugs are administered regularly in intestinal parasites, and the bowels thoroughly disinfected, the parasites leave. The usual treatment is parasitical.

A very common variety; white, thread-like;

Ascarides. very slender, and only from one-fourth of an inch
(*Seat-Worms.*) to an inch in length. They possess great celerity
in their movements, and, when touched, contract
to about half their length. Their seat is the large intestines, and
are most abundant near the termination of the rectum, although
they are occasionally met with higher up.

Signs of Ascarides.—Irritation, and intolerable itching and pricking sensation, and often some swelling at the extremity of the rectum; occasionally congestion, even inflammation, and discharges of blood, with tenesmus; often heavy muco-purulent leucorrhœa.

Treatment for Ascarides.—In addition to the general management of the case, enemas are of the greatest utility. It is impossible to effect a cure without them, such as injections of salt and water, lime-water, camphor-water, aloes, gentian, golden seal, etc., in infusion. Any of the above will kill and remove them from rectum.

Resembles the common garden or earth

Parasite. worms, in appearance round and white, like
(*Lumbricoides.*) a goose quill; varying in length from six to
twelve inches. Their principal seat is the
small intestines, but they are occasionally found in the colon and
rectum.

Signs of the Lumbricoides.—Pricking and rending pain about the umbilicus; colic, with rumbling noise in the abdomen, occa-

sioned by the worm nibbling or irritating the mucous membrane with the sharp, cutting point of its head.

In the treatment our best drug is santonine, which acts upon the worm with powerful certainty. In the administration of santonine, always see if it is of a snow-white color; if it is, it is good; if yellow, or even slightly so, it is worthless—perfectly inert. It is a peculiar drug; acts on the brain, the coats of stomach and bowels, as a bracing tonic; improves assimilation, and thus aids nutrition. On account of its irritant action upon the brain in larger doses, especially upon the children of highly-civilized parents, it should seldom, under five years of age, be given in larger doses than a grain every other night; from five to ten years of age, in two-grain doses. Dissolve in a little hot water; cool, and give before retiring. Early next morning a dose of compound licorice powder, or neutralizing mixture, or oil, sufficient to move the bowels; continue this treatment for two or three weeks. Santonine may chemically destroy the worm, or it may mechanically tear it up in shreds, which will float on top of water, if poured into the chamber.

or commonly known as tape-worm. Of

Parasite. this species of worm, some 250 are said to
 (*Tænia Solium*), exist, and out of that number some eight or
 nine have been found to exist in the alimentary canal of man; still, none of these, except the *tænia solium*, have been able to maintain an independent existence, and if it were not for his hooks and suckers he, too, would not long be a denizen of the human bowels.

The tape-worm is a true parasite, restricted to vertebrated animals, which derive it from the hog generally, but also from other sources. The cysticercus cellulose, or pork measles, is the larva or scolex of the *tænia solium*, consequently it is very common among pork eaters. A heat of 212° F. effectually destroys it. The imperfect cooking of pork, its conversion in a partially raw state into sausages which are eaten, is a fertile source of the parasite. Early vegetables, as lettuce, spinach, onions, cabbage, are often sources through which the ova or eggs reach the intestines, as they are frequently manured from cesspools teeming with the ova of this parasite. All drinking water into which sewage enters is literally loaded with millions of the eggs of this worm, and acts disastrously upon the inhabitants who are compelled to drink it, and is a prolific source of this parasite in man and animals.

Every tape-worm passes through several distinct phases during

its life history. There is no doubt but insanitary states, bad food, eating of rats, and drinking water are common sources from which pigs swallow the eggs; and the moment they are transferred to its stomach they hatch out from their egg shells, bore their way through the living tissue of the animal and lodge themselves in the fatty portion of the flesh to await further transformation. The animal becomes measled, its flesh constitutes measly pork. In this state the parasite is partially developed, drops its hooks and awaits developments. It is called the *cysticercus cellulose* as in the annexed cut.

Whether from the hog or from water impregnated with sewage or from vegetables, the ova find their way into the human body by the mouth, but the eggs do not hatch until they reach the duodenum; in that delicate, velvety, eider-down bed it germinates and makes an attachment. There may be a large number



The *cysticercus cellulose* as seen in the fat of the hog.

of eggs swallowed, as they are very minute even when the shell is broken and the cestoid worm set free; with its microscopical hooks it may hold on, but it possesses the power of migration, and even at that embryonic period can perforate the stomach, get lodged in the capillaries, from which it may extricate itself by perforation, wander around until it finds a suitable place in some of the tissue, serous cavities, flesh or some organ like the brain, liver, spleen, kidneys, and once domiciled it rapidly increases in size, and, if in a vital organ like the brain, causes death.

The common tape-worm derives its name (*tænia solium*) from the idea that there is only one, which is not always the case, as three or four have been found in one patient, varying in length from ten to thirty-five feet.

The natural history of this worm is of the utmost importance to mankind and domestic animals, as when it is present there is always danger.

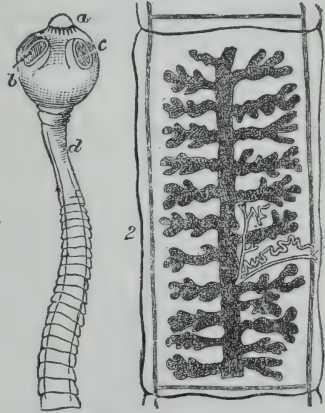
The cestoid worms in a perfect state are really compound animals, like many zoophytes and ascidians. They have no mouth, but are nourished by endosmosis from the surrounding medium. The head of a cestoid worm is furnished with organs by which it affixes itself to the inner surface of the intestines of a vertebrated animal.

At first there is the egg, its hatching, its getting into proper position, and as soon as fixation takes place it begins to develop joints which appear as transverse striæ and gradually increase in size, form segments or joints, each of which is a perfect ovary

loaded with eggs. Each joint of a cestoid worm is androgynous. As the posterior joints are thrown off new joints are continually forming in the part nearest the head. When segmentation takes place from the parent the various joints thrown off are a living mass, possess some independent motion, can creep on grass, plants, or humid ground, but they soon burst, and the eggs or embryos begin their career by getting into some solid or liquid which is eaten or drank, and then develop.

In the ordinary colonial or tape-worm state it is termed the *strobila*; the separate joints of which the strobilia is composed are termed *proglottides* or zooids. The anterior segment forms the head and remains barren; those of the neck and front part of the body being sexually immature during the process of strobile formation. The mature proglottides, at the caudal end, are capable of realizing an independent existence, and the eggs which they contain develop the six-hooked embryos in their interior. These bodies become metamorphosed with scolices or nurses, representing the cysticercal state, which, in its sterile or aborted condition, forms the common hydatid.

The true tape-worm, *tania solium*, may be distinguished from all others of the group, by the possession of a small distinct head, furnished with four round or oval suckorial discs (suckers) and with a more or less rostellum (proboscis), placed at the summit of the median line. This prominence when largely developed is retractile, and when not in use is lodged with a flush-shaped cavity, lined by a sheath, and supplied with special muscles; it is also armed with a single or double crown of horny chitinous hooks, often five or six circular rows of these. The head is usually about the size of a pin's head, with black pigment engraved on it. The joints or segments represent the body, and each segment contains both male and female organs of generation. The entire series of joints is traversed by a set of vascular canals, constituting the aquiferous system which consist of two main channels, one passing down either side of the worm, both connected with narrow vessels which coalesce at every joint.

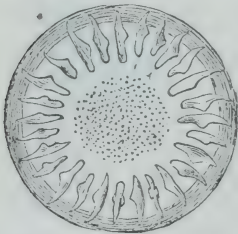


1. Head, neck and upper joints of *tania solium* magnified; *a*, the circle of hooks; *b* and *c*, two of the sucking discs; *d*, the neck. 2. One of the lower or sexually mature joints of the same, showing the water-vascular canals and the branched uterine organ gisted with ova.

It is only in the alimentary canal of man that a tape-worm can live along for years and reach the highest pitch of maturity. No doubt millions of eggs are daily finding ingress into the stomachs of large masses of our people and, simply because they are vital, there is *no* hatching out, *no* attachment. It is only on weakened tissue, reduced by disease, medicine or errors of diet of a highly civilized state, where the worm can flourish, and how fortunate it is that fecundation never takes place before being discharged.

The mature segments are usually passed off or expelled at the rate of six or eight daily. Their greatest danger consists in their liberation in the rectum, and finding their way into other and more vital parts.

Signs or Symptoms of Tænia.—General languor, lassitude, debility; a dark circle around the eyes and mouth; fetid breath; transverse fissures on the tongue; livid complexion or else pale and doughy; dilated pupils; vertigo, nausea, often vomiting; a feeling as if there was something alive in the bowels with a sense of weight; a biting sensation at pit of stomach; abdomen swells and subsides at intervals; appetite may be capricious, usually voracious; the presence of the parasite may by reflex irritation give rise to convulsive tremors, spasms; epilepsy, if it occurs,



The double crown of hooks highly magnified.

usually very severe; small portions of the worm pass with the *fæces* like gourd seeds.

Treatment.—The armed tapeworm is found exclusively in the human subject, and it is often difficult to effect its expulsion, as it is completely armed so as to hold on tenaciously to the mucous membrane; besides, it must ever be borne in mind that the parasite propagates from segments of the neck, that it is of vital importance in its removal to effect its entire expulsion, especially the head. As every physician has his or her own remedy or formula for causing its expulsion or death, a brief enumeration of the remedies will suffice. Pomegranate root-bark, pumpkin seeds, kousso, male fern, kamula, turpentine, naphthaline.

The properties of those remedies is due to an active principle termed valdivine, or to an alkaloid pelleturin. These active parasiticide elements are more abundant in the pomegranate root-bark, kamula, and male fern. Valdivine and pelleturin are the most reliable and elegant preparations ever introduced, very positive in action, seldom failing to bring the worm, head and all.

The bark of the wild or sour pomegranate is much richer in tænicide properties than the cultivated. The bark is sometimes administered in powder or decoction, the latter is preferred. It is made by macerating two ounces of the pulverized bark in two pints of water for twenty-four hours and then boiling down to one pint.

Before drinking the above the patient should fast twenty-four hours, and drink the pint inside of an hour; follow with a brisk purge. The decoction will nauseate, cause emesis, and often purges.

The following is a good formula for the expulsion of the worm:

Pumpkin seeds, crushed, one ounce; ergot pulverized, two drachms; pomegranate root, pulverized, one ounce; water, one pint. Macerate twenty-four hours, then boil down to four ounces and strain; then add: croton, two drops; gum arabic, two drachms; male fern, two drachms. Mix. After fasting twenty-four hours, give little by little so it is all taken in.

For the valdivine, as its properties are very volatile, it is best to be given in soft capsules, the entire quantity inside of half an hour, followed by a large dose of castor oil.

The experience of six thousand physicians confirm all we have urged in favor of this remedy, the best criterion of all is the remedy bringing away the head in nearly all cases.

Parasite.

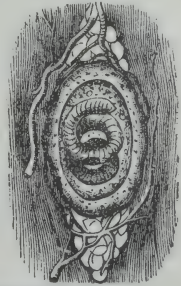
(*Trichinia Spiralis*).

Trichiniasis is the name of a diseased condition induced in man and animals, by the ingestion of food or water containing the trichinia spiralis, a minute

worm, measuring one-sixteenth of an inch in length and one one-hundredth of an inch in breadth, a minute cyst, scarcely visible to the naked eye. These cysts are more or less covered externally with calcareous matter according to the time in which they are encysted and the degree of degeneration their walls have undergone.

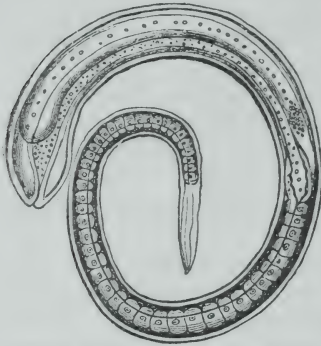
Cysts are often absent. These larval worms exhibit a well marked digestive apparatus, and afford evidence of the presence of reproductive organs, which are often sufficiently developed as to enable the observer with a small magnifying glass to determine the sex of the parasite.

The number of the larval trichinia that may exist at one time and in one case is enormous, being estimated at twenty millions.



The worm lying coiled up in muscle.

A single trichinous pig, if its flesh is eaten without being subjected to a heat of 212° F. for some time so as to destroy the vitality of the larval trichinia, may establish a local epidemic of the disease.



Sexually mature female trichinia spiralis magnified.

Suppose an animal was fed with flesh containing the larval worm and is killed a few days afterwards, there will be found in the intestines a large number of minute worms; on closer examination, the larger ones are the female, and the smaller the male. On the second day after being swallowed, the trichinia attain full sexual maturity, and in six days the females contain innumerable perfectly developed and free embryos.

The female is a slender worm in length from one-eighth to one twelfth of an inch. The anterior end presents a beaded appearance, from which the intestinal canal proceeds; the posterior portion three-quarters is mainly occupied by the reproductive organs, which are filled with eggs and free embryos in various stages of development. When the embryos attain maturity they pass out of the genital aperture and begin life on their own account. The accompanying diagram shows the embryo in various stages of development. The males are less numerous, and shorter lived than the females.



The embryo of the trichinia.

How pigs acquire the trichinia is unknown; beet-root, earth worms, moles, rats, have been suggested as their infectors, but nothing is really known how widely this parasite is diffused through the animal kingdom.

By ingestion of food of rare pork, underdone sausages, and flesh in which the larvæ of this worm are present, the following symptoms would be likely to put in an appearance in a few hours after being swallowed—loss of appetite, nausea, vomiting, with great languor, lassitude, debility—general undefined prostration.



Sexually mature male trichinia spiralis magnified.

These symptoms last about a week, when pain, stiffness in all the joints and muscles supervene; then œdema of the face, repeated rigors, fever, with high temperature, and frequent pulse; great thirst, nausea and vomiting continue. Constipation with a most offensive diarrhea, copious fetid perspiration. The tongue exhibits great gastro-intestinal irritation.

Synchronous with the trichinous brood migrating from the stomach and bowels into the muscles, the second stage commences when the patient lies on his back like one paralyzed; pressure or any attempt to move the swollen muscles is attended with most excruciating pain; sleep is impossible, even respiration is difficult and prolonged; the œdema of the face disappears, which is replaced by a swelling of the feet, which proceeds upwards to the body. The tongue still presents the appearance of one with gastric fever, and diarrhea often prevails; urine scanty, loaded with lithates.

In about the fourth week of the disease, the trichinia may be regarded as having permanently settled and of having completed their destructive action on the muscles.

Now begins what is termed the third stage, which is characterized by extreme exhaustion, the gastric symptoms abate, appetite returns; in favorable cases, the muscular pains and swellings gradually diminish and disappear; while in some cases this third stage is the most critical, the diarrhea is often severe, and accompanied with tenesmus; involuntary discharges of fæces and urine; pailor of the skin, which becomes enormously distended with fluid. Various complications very apt to set in as aphonia, pleurisy, pneumonia, peritonitis, etc.

The fourth and last stage, that of convalescence, takes place about the fifth week, sooner or later, and may last a few weeks or even months. No definite line can be drawn. Death may occur at any time.

The diagnosis of the disease rests chiefly on the history of the case, the gastro-intestinal irritation when the parasite burrows through the mucous coat of the stomach and bowels, then it bears a strong resemblance to cholera, or typhoid fever; the muscular pains resemble rheumatism; the œdema or swelling, Bright's disease.

No reliable treatment can be laid down, as poor success has attended the use of our best remedies.

More recently, an effort has been made to destroy or sterilize the parasite by the use of germicidal remedies.

Such bactericides as glucozone, naphthaline, salol, would be of some utility if the parasite were located in the bowels; but when encysted in the muscles, they fail to reach it.

The human body may be infested with three different kinds of lice; the head-lice, body-lice and crab-lice.

Parasite.
(*Pediculosis, Lice.*)

Uncleanliness, insanitary states, perverted nutrition of skin, bad food, filth, etc., give rise to a depraved condition of skin, which render it a chosen pasture-field, or seat, for the hatching and breeding of the larvæ of those parasites. The three species are oviparous, the eggs being known as *nits*; sexes distinct; young are hatched in five days, and in eighteen days are capable of reproduction. The numbers of eggs laid are immense. Each of the three has its favorite location or abode. On the head they are very easily got rid of by daily washing and using vaseline or ozone ointment as a hair-dressing; on the body, it should be thoroughly bathed and lightly sponged with tincture of lobelia. The crab-lice, on pubes, axillæ, eyebrows, may be got rid of at once, by washing thoroughly, drying off and damping the affected parts with a lotion of two grains of corrosive sublimate to an ounce of water. The stavesacre, or cocculus ointment, is excellent.

Peroxide of hydrogen makes an exceedingly efficacious remedy for all varieties.

To destroy the larvæ on head, body, pubes, warm vinegar is very efficacious, applied morning and night. Bedclothing, and also body-linen, should be boiled and subjected to a strong heat with hot iron, and all due precautions taken for thorough destruction.

Itch or psora, a contagious vesicular disease of the skin, attended with great itching, which is increased by warmth and use of stimulants. All parts of the body, except the head are liable to be affected, but the most common seats of the disease are the wrists and hands and finer portions of the skin between the finger. Commences as a papular, vesicular, or pustular eruption, with an itching sensation, which, upon minute examination is found to proceed from a minute conical vesicle, while the adjacent portions of epidermis present a more scaly appearance than natural.

Parasite.

(*Acarus Scabiei.*)

The cause of this condition of the skin is due to the presence of the *acarus scabiei*, a microscopical animal parasite, which burrows within the epidermis and excites the cutaneous vesicular, irritation, and as it is utterly impossible to refrain from scratching, the vesicles get more or less broken, causing patches of excoriation.

The itch is always communicated by contact, shaking hands,

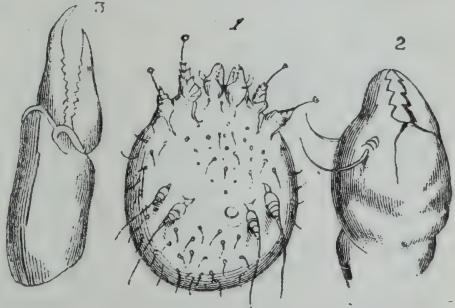
articles of clothing, sheets, blankets, towels, drinking vessels used by a person suffering from the disorder.

The female is much larger than the male, and after impregnation burrows herself beneath the skin, and forms a furrow or ditch, in which she lays her eggs.

The males have itinerant habits and wander about the skin.

The diagnosis of the presence of the itch insect is most important. Rupture a vesicle, place the exudation under a microscope, and the figures in the annexed cut will be seen.

Eczema, prurigo, and lichen are affections most likely to be confounded with it; but eczema, though a vesicular disease, presents round, and not conical vesicles, and at most only a pricking sensation, and nothing like the irritation of the itch; while prurigo and lichen are papular disorders, and are not



Itch-mite. 1, abdominal view of female itch-mite, magnified 65 diameters; 2, one of its manibles, magnified 65 diameters; 3, manible of male sugar-mite, magnified 390 diameters.

accompanied by the presence of vesicles, moreover none of those disorders are contagious.

Different names are applied to it in various sections of the country, as the prairie or lumberman's itch.

Treatment.—As it would be somewhat of an expensive cure to resort to vaseline, ozone ointment, glycerine and oil of bergamot, or the like, which are destructive to the parasite, the cheapest plan is to take two or three pounds of common lard, deprive it of its salt, and stir into it as much sulphur as it will hold, still retaining its properties as an ointment. The patient being bathed all over with an alkaline wash, into which a handful of lobelia has been introduced, well dried, and the sulphur and lard well rubbed into every part of the body except the head. He must be put in a clean bed, and his contaminated clothes either fumigated with sulphur, or else washed with sulphurous acid water. This process is to be repeated every night for three or more nights in succession, on each occasion the body to be thoroughly washed before the application of sulphur and lard. The immersion of the body-linen, bedclothes, or ordinary clothing in water, acidulated with sulphurous acid, is sufficient in all cases to destroy the larvæ and the parasite; so is a heat of 212° Fahr., either in boiling or by hot irons. There need be no detention

from business; the first application could be made on a Friday night, and the two succeeding ones on a Saturday or Sunday evening.

The following is highly esteemed:

Lard, one hundred parts green soap, fifty parts; naphthaline, fifteen parts; white chalk, ten parts. *Mix.*

The same may be used in acne with success.

One of the following formulæ may be substituted for the ordinary sulphur ointment:

Sulphur flor., twelve drachms; potass. subcarb., six drachms; adipis, nine ounces.

Styracis, liq., one fluid drachm; petrolei, ol. olivæ, of each, half fluid ounce; balsam. Peruv., two and a half fluid drachms; spts. sapon. virid., five fluid drachms.

Potass. sulphuret., five drachms; sapon. alb., twenty drachms; ol. oliv., four fluid drachms; ol. thym., fifteen drops.

Sulphur. sublim., balsam. Peruv., of each, half a fluid drachm; adipis, one ounce.

For use especially in the scabies of children:

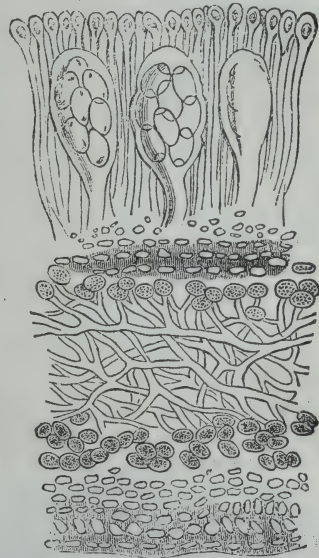
Styracis liquid., one ounce; adipis, two ounces. Melt and strain.

Styracis liquid., one fluid ounce; spts. rectificat., two fluid drachms; ol. olivæ, one fluid drachm. *Ft. liniment.*

An affection due to the presence of the vegetable parasite *trichophyton tonsurans*.
Parasite *Trichophyton.* Most common on hairy parts—especially the scalp—but non-hairy parts may be affected; the nails may also suffer. Most common in children, and spreads readily by contagion. Hence common in schools, where it may be conveyed from one to another by means of combs and brushes, hats, towels, etc.; the spores of the parasite have also been found floating loose in the air of schoolrooms. May last for years if untreated, being especially obstinate when attacking the hairy parts.

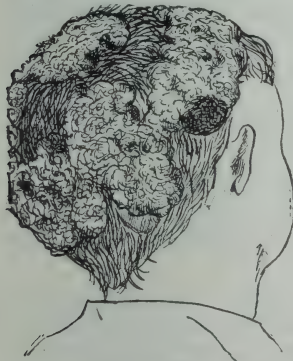
Ringworm of scalp (*T. tonsurans*) begins in circumscribed patches, with redness of skin, which becomes covered with slight scales. Tendency to assume crescentic or ringed form. Slight itching. Hairs brittle and break off, leaving bald patches, over which numerous stumps of hair are seen. Ringworm of the beard (*T. barbæ*, *T. sycosis*) is similar in appearance; often confounded with ordinary sycosis. In many cases of ringworm of scalp diagnosis often obvious at once. The bald patches covered with broken stumps of hair present a marked contrast

to the smooth, perfectly bare "billiard ball" patches of alopecia areata. Absence of discharge or crusts will differentiate from eczema, though either may occur from irritation in long-standing cases. Diagnosis only rendered certain by identification of parasite under microscope. On scalp or beard, extract broken stump with forceps, place on glass slide with a few drops of liquor potassæ, and examine with quarter-inch—preferably after soaking for a few hours in liquor potassæ. Rows of spores of parasites seen on hair and between its fibres, splitting them and making hair appear thicker than normal. Parasite invades the hair bulbs on the one hand and the epidermis on the other, where mycelial filaments may be found between fine epidermic scales.



A microscopical appearance of a section of the skin in which the trichophyton has made its appearance.

On the non-hairy parts of the body the affection is known as *T. circinata* or *T. corporis*. Slightly raised reddened patches are seen. These are frequently more or less rounded, and may attain an inch or more in diameter. Their margin is red and elevated; often papules or vesicles seen on it. The centre becomes yellowish and desquamates. When the eruption attacks the



Tinea capitis.

inner side of the thigh, genitals, or perinæum, it is known as *Eczema marginatum*, and presents a somewhat different appearance. Owing to the natural warmth of the parts and the friction of the opposing surfaces, the presence of the parasite excites more or less inflammation (eczema), and this may persist even after the parasite has been destroyed. Not merely vesicles, but pustules and crusts are frequently to be seen on the margins of the patches. In *T. circinata* the presence of the parasite may usually be readily ascertained by scraping with a pen-

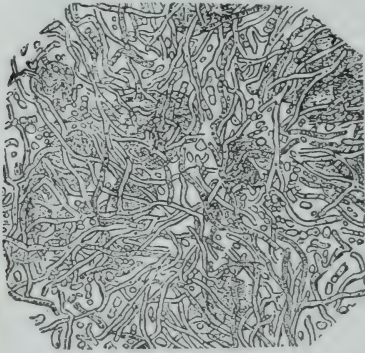
knife some scales from the inner edge of the outer ring, placing

them in a drop of liquor potassæ, and examining them under the microscope. Long slender irregularly-jointed threads of mycelium are seen and spores occurring singly or grouped.

Ringworm of the nails is very intractable and is, fortunately, not very common. The nails become thick, soft, opaque, and assume a yellowish tint.

Of all the vegetable parasites of the skin, the *trichophyton* is the most common; it produces three distinct forms of skin disease, *tinea circinata*, or ringworm of the body; *tinea tonsurans*, or ringworm of the scalp; and probably a special form on the face. This parasite gives rise to considerable irritation of the skin, which results in the formation of circular, circumscribed patches of various sizes, slightly elevated above the level of the skin, of a dull red color, and usually covered with brassy scales, while round the edges, there may be found vesicles, and sometimes even pustules.

On the scalp, ringworm shows itself as one or more circumscribed patches of a grayish or slightly ruddy color. The hair of the affected parts is short, lustreless, easily drawn out, breaks readily, and the extremities are ragged and uneven, the skin is covered with numerous thin white scales, and occasionally with crusts.



Trichophyton (ringworm).

In all these three situations the trichophyton presents similar microscopic appearances.

The parasite is frequently met with in both children and adults of both sexes, wherever overcrowding exists, schools, charities, reformatories. It is highly contagious, but yet requires a suitable soil for its growth and development. The most common methods of transmission are close contact, brushes, combs, sponges, towels, clothing, domestic animals, as dogs, cats.

The indication for the relief of the disease is the destruction of the parasite, and the improvement of the general health of the individual.

Prominent among the parasiticide remedies may be enumerated ozonized sulphur water, ozonized boroglyceride; solution of hyposulphite of soda; tincture of iodine; iodized oil; solution of thymol in chloroform; ointments of iodine of sulphur; ozone ointment; ichthyol; chrysarobin; gutta percha, dissolved in chloroform with resorcin added and painted on; iodine crystals

dissolved in oil of tar. Among the most recent and effective remedies in ringworm is the tincture *seigesbeckie orientalis*; equal parts of this drug and glycerine rubbed into the affected parts morning and night, immediately kills the spores. The parasite breaks up into isolated dead patches, and these speedily peel off, leaving the skin underneath slightly red, which disappears in a few days.

Older remedies are chrysophanic acid dissolved in chloroform; may be painted on and will soon prove effectual. In ringworm of hairy parts, difficulty arises from impossibility of reaching seat of disease. Applications to surface of scalp do not reach roots of hair. To facilitate treatment, cut hair short; in severe cases, shave. Then apply some parasiticide regularly once or twice a day. Most authorities recommend frequent washing of head with soap and water; others oppose. Various opinions of value of epilating broken stumps. Local remedies innumerable. Following amongst most useful:—Unguentum hydrargyri ammoniatum, unguentum hydrargyri oxidum rubrum, unguentum acidi chrysophani, ten grains to one ounce; hydrargyri oleatum, five or ten per cent. solution in oleic acid, sulphurous acid, U. S. P. acid used as a lotion with equal part of water, head being covered with cap to prevent evaporation, salicylic acid as lotion dissolved in rectified spirits, twenty to forty grains to one ounce of acetic acid, painted on with brush. Any or all of these may be tried in succession in severe cases. Spontaneous cure sometimes by formation of *kerion*, which is the name applied to a boggy swelling formed by inflammation of the hair follicles. Resembles subcutaneous abscess. Parasite perishes in inflammatory process, and, not unfrequently, some destruction of hair-bulbs also occurs. In chronic cases it may be desirable to produce *kerion* artificially by painting scalp with croton oil or other irritant, watching the process carefully. No case of ringworm of scalp must be pronounced cured till absence of the parasite proved by careful and repeated microscopic examination. If any left it may spread again over the whole scalp and be as bad as ever. After the parasite has been completely removed a scurvy condition of the head is frequently left.

Parasite.

(*Microsporon Furfur*,
Tinea Versicolor.)

This is a cutaneous affection occurring chiefly upon the trunk, neck, upper and lower extremities of adults of both sexes, characterized by irregularly reticulated, macular lesions, yellowish

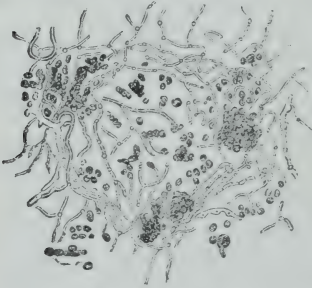
or brownish in hue, over which the epidermis may exfoliate in delicate scales, owing to the presence of the cryptogamic plant, the *microsporon furfur*.

In warm weather it grows most luxuriantly, in beautiful, mottled, copper-colored patches over a portion or the entire body, which is covered; in cold weather it contracts and often disappears.

This vegetable parasite makes its habitation in the pigmentary gland. Hidden in its recesses, below the cuticle, it is difficult to reach with antiseptics. This also renders its capabilities for contagion far inferior to other vegetable parasites.

The disease is propagated by scales or spores, prevails in middle life, irrespective of social position and personal cleanliness.

It is easily recognized by the microscope, by the history of the case, by the fact that it never invades hairy parts; avoids light and air, its characteristic yellow, or fawn-tinted color, the exfoliation of the epidermis, which it excites by its superficial penetration of the outer layer, producing a mealy, brawny, flaky, or roll-like exuvium, will enable any one to diagnose it from chloasma or liver spot. The germ of syphilis upon the skin may be mistaken for this plant, but the microbe of syphilis encroaches anywhere, is more diffuse, creeps over the face, hands, feet, and there is likely to be



Photograph of the micrococcus versicolor—small cocci which are seen form iridescent colonies—growing in the form of yellowish beads.

either adenopathy, alopecia, mucous patches, palatine hyperæmia, polymorphic tendency. The nature of the sensations, with its initial growth copper-color patches might be due to liver torpor.

The destruction of the microsporion furfur is not invariably as successful as it might be, owing to its location in the pigmentary gland, below the cuticle. In order to be successful this must be either weakened or removed. For this purpose, for three or four successive nights, the patient should be immersed in a hot bran bath, in which abundance of bicarbonate of soda has been dissolved—he should be thoroughly macerated, and subsequently well rubbed or scrubbed with a flesh brush, then dried and bathed with cider vinegar, in which boroglyceride has been dissolved. This is often successful in an entire rooting out of the parasite.

If this is not efficacious, proceed as above, but try half an ounce of the hypophosphite of sodium dissolved in a quart of water—this also often removes the last vestige of the germ.

Other parasiticides, very popular, are ozonized sulphur water, sulphuret of potassium; boroglyceride combined with resorcin; iodine, chrysarobin.

In all cases the inner clothing should not be worn after the bathing and application, until it has been immersed in water acidulated with sulphuric acid. When untreated, the parasite, after quite a lapse of time, undergoes spontaneous exfoliations, the fungus fails to find in the epidermis the nutriment upon which it thrives.

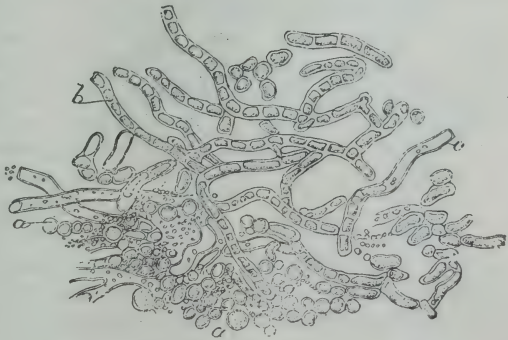
Parasite.

(*Achorion Schonleinii*,
Tinea Favosa.)

honeycomb in the form of small, dry, yellow, cup-like crusts, commonly traversed by hairs.

Under the microscope, the fungus presents this appearance. Take a particle from any small scab or crust in the root sheaths, or bulbs, or the hairy filaments.

It is easily destroyed in either of the following methods. Packing the affected part for a few consecutive nights with boroglyceride paste, or chrysarobin is very effectual in an ointment, or sulphur in almost any form, ozonized sulphur water; or thymol dissolved in ozone ointment, or painting it over every third day with iodine crystals, dissolved in oil of pitch, or rhinacanthin rubbed up in petroleum ointment; ichthyol also is of great service, naphthaline.



Achorion schonleinii; a, spores; b, c, sporophores.

Parasite.

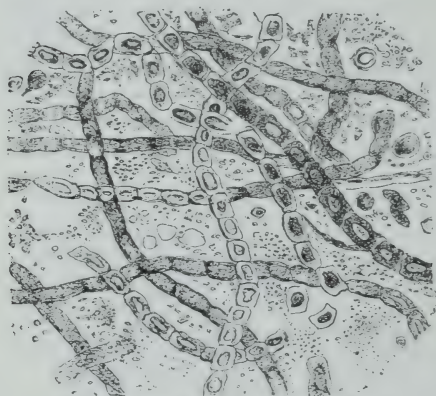
(*Fungus Trichophyton*.)

Tinea sycosis, or barber's itch, due to the presence of the fungus *trichophyton* in the beard of the adult. This parasite is readily recognized by its location, its fig-like appearance, by the irritation or itching. Its presence gives rise to the presence of macula, papula, vesicular, pustular or tubercular lesions—it has greatest growth in devitalized individuals and blonds; extremely contagious.

The chin and beard are its favorite locations.

In the destruction of this parasite, the patient should for several consecutive days macerate the eruption with olive oil, then shampoo it effectively, that is, wash off all crusts, with castile soap and water as hot as can be borne; this tends to reduce the inflammation of the perivascular spaces, removes the incrustation.

Beard to be shaved, and a saturated solution of boroglyceride should for several minutes be applied to the entire beard and face,



The fungus trichophyton of barber's itch.

affected, have proved wonderfully effective in destroying the germ, and promoting a rapid cure; although any one of the above is brilliantly effective in destroying the fungus.

In the morning, whichever application is used should be washed off and the boroglyceride wash reapplied; when dry the anti-microbe powder should be freely dusted on during the day, and in the evening a re-application of the hot bathing, boroglyceride and the selected ointment. This should be repeated for several weeks after all appearances of the parasite has ceased to exist.

The following formulæ are used by some: If the beard is not shaven, first wash with an antiseptic soap and apply night and morning.

Ung. simp., 20 parts; resorcin, 2 parts; hydrarg. bichlor., 0.05 part.

If the beard is shaven, a zinc paste, viz.:

Ung. zinc. benzoat., 90 parts; terræ siliceæ, 10 parts may be substituted for the ung. simp. in the above prescription.

If the disease is very superficial it may be sufficient to touch the part with sublimate or resorcin pencil, or use a spray of:

Resorcin, 5 parts; hydrarg. bichlor., 0.05 part; aq. cologniensis, spiritus, of each 50 parts; ol. ricini, 1 part.

followed by some one or other of the following ointments, to be kept applied over night: either the iodide of sulphur ointment; or thymol; or ichthyol; naphthaline, chrysarobin, resorcin, sulphuric acid; gunpowder made into a paste by the addition of lemon juice, and applied and reapplied. More recently equal parts of tincture of siegesbeckie orientalis and glycerine, rubbed well into the parts

When the disease is deeper and nodes have formed, the following plaster mass should be applied and bound down :

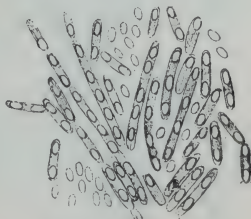
Empl. hydrarg., 10 parts; ac. carbolici, 10 parts; sublimate, 1 part.

Epilation should be practiced if pustulation has occurred, but not otherwise.

A high standard of health is proof against this and other micro-organisms ; if it were not so the frequenters of our barber shops would be more generally affected.

An eruption consisting of bullæ (blebs, blisters) of varying size, seated on a more or less erythematous base. Some vesicles may also be present, intermixed with the bullæ. The eruption is often preceded by itching and tingling, and may be accompanied by some fever. The bullæ are more or less flattened, frequently irregular in contour, and may reach the size of an egg. They contain serum, which, clear at first, soon becomes opaque, and contains pus. The serum is effused into the malpighian layer, where it accumulates between the filaments uniting the cells, but finally makes its way to the granular layer. The bullæ are bounded externally by the horny layer of the epidermis. In a few days they begin to lessen in size. Many burst, allowing escape of their contents ; the outer epidermal coat of bullæ then drops off in a few days, leaving reddened patch, on which epidermis soon forms again. The attack may be acute, and terminate in a few days in spontaneous recovery, or successive crops may occur, and the eruption thus be prolonged for days or weeks (chronic pemphigus). Pemphigus may occur on any part of the body ; the syphilitic form (syphiloderma bullosum) is more commonly seen on the palms and soles. It may occur at any age. In new-born children it is termed *P. infantilis*, and may proceed to gangrene, in which case it is generally rapidly fatal. Repeated attacks are not without danger, especially in old people, or where an extensive portion of the surface is attacked ; in such cases patients may emaciate, and be reduced to a very low state.

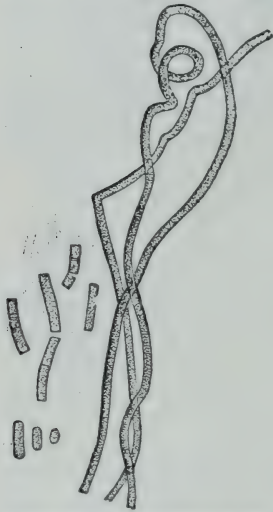
P. foliaceus is a rare and peculiarly obstinate form, which may last for months or years. It is said to be incurable. Successive crops of bullæ form and burst, but after the detachment of the epidermis in flaky scabs it is not reformed, but a raw surface



Bacteria of pemphigus.

remains, to which fragments of epidermis may be seen adhering. In cases of long standing, almost the entire cutaneous surface may be affected, and but little epidermis be seen remaining. The patient passes into a hectic condition, and the eruption usually ends fatally. Another variety of pemphigus occurs on the hands (occasionally on the feet) and is known as *cheiro-pompholyx*. It is termed *dysidrosis*, and is due to obstruction of sweat-ducts. It is now regarded as a neurosis. Consists of vesicles as small as a pin's head, or larger blebs, and makes its appearance on or between the fingers. The vesicles or blebs have a peculiar translucent appearance, and burst in a few days.

All varieties may be met with in either an acute or chronic form, and all characterized by the production of a series of pea



Microbe of pemphigus syphilitica.

or egg-shaped vesicles, variable in size, the smallest being about a pea, the largest that of a large egg, irregularly distributed over the surface, from a few to some hundreds, filled with serum or blood, loaded with bacteria.

The causes which give rise to this rare cutaneous affection are poverty of nerve force, nervous prostration or debility, mental worry, exhaustion from sexual excesses, the presence of syphilitic germ in the blood, the empirical use of the mercurial preparations, visceral disorders, impairment of nutrition, squalor, filth, uncleanness.

The presence of such prodigious herds of the bacteria in the blood and their migration in colonies to the skin is usually attended with either continuous remittent or intermittent pyrexia, appearing with each crop of vesicles. There are always headache, pains in the back, gastric and intestinal disturbance.

The contents of the bullæ or blebs consist almost entirely of bacteria; arranged in chaplets or joints interspersed through it are cocci.

Like all morbid states dependent on the presence of a disease-germ, it is highly contagious and infectious. Bacteria are ubiquitous, ever present in atmosphere in a range of fifty feet around the patient.

The treatment is essentially constructive and germicidal. The stomach and bowels merit attention; diet should be rich, generous, blood-forming; such remedies as iron, oats, quinine, nux,

matricaria compound are unexcelled; the latter remedy is deemed the best, as it destroys the micro-organism and stimulates a renewal of vital force.

The sulphide of zinc in alternation with ozonized sulphur water are the best remedies to give internally.

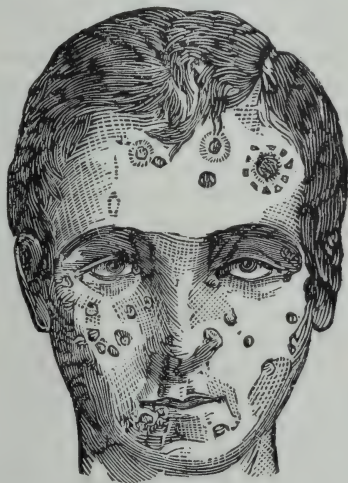
The syphilitic form requires the general treatment for syphilis.

Locally puncture the vesicles with a fine needle, and with a sponge saturated either with a solution of boroglyceride or resorcin, wipe up the germs as they exude from the puncture. Then all over the collapsed bleb, dust on the anti-microbe powder. The aim of all treatment is to raise the standard of vital force, so as to prevent further degradation of bioplasm into a disease-germ.

When the microbes die in the vesicles, they dry up into black crusts or scabs, become flattened, then the affection receives another name—*rupia*.

Those crusts, after a time, may fall off, leaving deep, perforating sores, which may heal, or again fill up. If the case is properly appreciated, by a reconstruction of vital power, they heal up rapidly. They receive different

names, according to their size, consistency, and tendency to eat in, as *rupia simplex*, when the crusts are thin, small, superficial; if crusts are large and prominent, *rupia prominens*; if deep, extensive and still penetrating, *rupia escharotica*.



Rupia.

Perineal Pressure.

(*The Disease of the Scythians.*)

testes, dropping of the beard, and change in the pitch of the voice.

If, then, these sad results are the outcome of immoderate equitation, where there are an extensive seat and a stable foot rest, and where the adductor muscles of the thighs are used, what are we to look for, where our boys of ten and upward spend the greater part of their own time riding bicycles, and get

Horse riding causes complete impotence in the strongest and most daring men, with wasting of the

over thousands of miles in the year, perched upon a saddle no bigger than the hand, which conveys every jolt of the machine to the body; where the jolts are a thousand times more numerous than those experienced by the equestrian, and occurring without any approach to rhythm, are conveyed unexpectedly to the person?

Cycling is doubtless a very healthy and pleasant mode of exercise when used in moderation, but now that tens of thousands of our boys ride bicycles daily, and "get up records" of thousands of miles in the year, it may not be out of place to point out some alarming evils which are likely to arise from this abuse of an otherwise healthy pastime. Some time ago it was pointed out that obscure nervous complaints would probably be developed by the continual jarring, the succession of shocks conveyed to the spinal column in bicycle riding; and this, I believe, has proved correct in many instances, notwithstanding. "Arab springs" and "rubber cushioned" machines. But it is to something much more serious than this that I would now call attention: it is to the amount of pressure brought to bear upon the perinæum in growing boys, affecting directly the prostate, the muscles of the bulb, etc., and indirectly the whole generative system.

The bicycle saddle is now reduced to the smallest possible limit. It is just wide enough at its posterior part to cover the ischial tuberosities, and it tapers off quickly to a long narrow horn in front, upon which the perinæum rests. Let us consider the position of the body and limbs when the rider is mounted, and we can then appreciate the amount of body weight which must be thrown upon the perinæum. In bicycle riding the legs are, when extended, vertical, and the pelvis is flexed upon the thighs or rolled forward. This rolling forward of the pelvis is slight in easy riding, and very marked in fast riding and hill climbing. Now, when the body and pelvis are bent forward, the ischial tuberosities are raised from the saddle, and the whole weight of the body, save what is transmitted to the pedal by the then extending leg, is thrown upon the perinæum. It is not much of the body's weight that is conveyed to the pedals. In easy riding on the level the weight of the limb from the hip down is sufficient to move the machine, and in hard riding the extra pressure is gained not so much by throwing the body's weight upon the pedals as by pulling upward on the handle-bar, and so further increasing the pressure of the body upon the saddle. But even admitting that the pressure upon the perinæum be only a few pounds, I hold that it must be injurious in the extreme, for were the pressure *nil* when riding upon a perfectly plane surface, it

must at times be considerable when the machine is ridden over an unequal surface such as is afforded by our best country roads. Let those who talk of "the beautiful gliding motion of the bicycle" try to play a game of billiards after a ride of twenty miles, and then explain where all their "shakiness" comes from if their motion has been that of a skater. Now this pressure on the perinæum, whether it be continuous and increased at every jolt, or whether it be made up of jolts alone and be *nil* in the almost imperceptible and irregular intervals, must be injurious, more especially to growing boys. It must cause irritation and congestion of the prostate and surrounding parts, tend to exhaust and atrophy the delicate muscles of the perinæum, and also call attention to the organs of generation, and so lead to a great increase in masturbation in the timid, to early sexual indulgence in the more venturous, and ultimately to impotence in both.

The deplorable effects of self-abuse in early life, and excessive indulgence in later years, give rise to seminal weakness, varicocele, nocturnal and diurnal emissions, impotency, sterility and phrenal bankruptcy. The prevalence of self-abuse, its widespread and destructive effects on mind and body, its degrading and ravaging effect upon the vital elements of nature, render the subject one of vast importance to our well-being as a nation. Its victims are found among the very young, before and after puberty of both sexes, in every village, town, and city, and, unfortunately, the religious, or so-called virtuous, are most addicted to it.

The perversion of the sexual sense is much on the increase. Our entire population, with their nervous constitutions and excessive nervous susceptibility, leading to cerebral debility, tend to induce the habit of mental masturbation, as well as both natural and unnatural excess in sexual indulgence. The creation of a purely nervous temperament in the people of our country, under their special mental strain of tension, operates disastrously upon the procreative faculties; very different indeed from the well-balanced temperaments of those who live out of doors and work with the muscle more than with the mind; these usually are strong, healthy, and are not, as a rule, tormented with sexual desire in the same degree as the sensitive and nervous.

A perversion of the sexual appetite is the result of excessive nervous development. This perversion is a true monomania, a positive insanity, manifested in society under what is termed *crankiness*.

Some inherit this effeminacy, this deterioration of brain, this wiping out of the typical fissures of thought. Some come into it as soon as the sexual passion dawns; some acquire it as the result of sexual debility.

A perversion of the sexual appetite is usually brought about through excess, or masturbation, partial impotency, with coldness or indifference to the opposite sex.

Confirmed, long standing masturbators, of either sex, care little for the opposite sex. Excess creates hate for the partners of excess; perverts the sexual sense and the characteristics change; men become women and women men. When a man suffers from sexual perversion he becomes feminine in his thoughts, ideas, tastes, occupations, dress, even permits his hair to grow, and is silly in his behavior.

Disgust follows debauch; repeated excesses create indifference, fear, and sexual perversion comes on.

Many who perish from its effects are supposed to die from other causes, such as consumption, chorea, epilepsy, heart disease, debility and failure of vital powers. It destroys the mind as well as the body. In its milder form, it produces loss of memory, melancholy, evil forebodings, timidity, loss of spirits and loss of energy; in its worst form, idiocy and insanity. Many maniacs owe their loss of reason to no other cause. In the tabulated reports of every insane asylum are a great number of cases in which the cause of insanity is set down as "Masturbation." No affection so completely unfits for either the duties or the pleasures of life. The semen of those who have abused themselves in this way, or who have been guilty of excessive indulgence, is like that of old men, often scanty, thin and watery, and when examined under the microscope, the active principle (the spermatozoa) is deficient and imperfectly developed. Such semen cannot propagate healthy offspring. If the spermatozoa are absent, or imperfect, as is always the case if the emissions are frequent, the individual is either sterile, or the offspring is weak puny, deformed and short-lived. It is thus one of those sins which are visited upon the children. This alone is a powerful reason why no masturbator should marry before he has received competent medical advice. But there are other reasons. The sexual powers of such persons are not equal to those duties of marriage which appertain to perfect manhood. Owing to sexual debility, connection is imperfect; the emission is premature, so that the wife cannot reciprocate; or erection is feeble, or will not occur at will, so that connection is impossible. Much domestic misery results from this cause, the lives of many a couple are passed in wrangling, misery and discontent from it; many

divorces have their origin in it; for if the wife is denied her natural rights, a divorce, or what is worse, unfaithfulness, is a logical sequence; many men have become desperate upon finding themselves united to beautiful and lovely women, but incompetent as husbands.

It is true, many other conditions or states of the body give rise to emissions—anything that weakens the nervous system, as fevers, affections of the brain and spinal cord.

Among some of the other effects of this vice are aversion to society, love of solitude, specks and spots before the eyes, pain in the back of the head, pain in the back, left side of breast; frightful dreams; sensations of falling in the sleep; bashfulness and timidity, especially with ladies; palpitation of the heart; flushes of heat; chilly sensations; rush of blood to the head; restlessness; cold feet; at times voracious appetite, at others, loss of appetite and indigestion; dryness of the skin; pale, sallow complexion, with dark rings under the eyes; pimply eruptions and blotches on the skin; dimness of the eyes; indisposition to study, exertion, or to concentrate the faculties on one subject for any length of time; a constant dwelling on their disease in the mind; often causeless anxiety and dread of death; despair of recovery, etc. Indeed, young men are inclined to worry, fret, become hypochondriacal and mentally depressed. The explanation is, the great sympathetic is at fault, this nerve has been perverted; the genital apparatus, brain and stomach are in constant telegraphic communication.

In view of the intricate mechanism of the damaged parts, the habit having the effect of paralyzing and blighting vital organs, self-treatment should in all cases be avoided. This affection, above all others, needs the experience and skill of an honest medical adviser in whom the patient can place perfect confidence. The worst results come when patients treat themselves, and all the time read and worry about their disease.

The sexual sense, whose origin is in the base of the brain, is the last (together with the reproductive organs, the power to reproduce species) in the series of development, and it is a rule in the animal economy that when the nervous system is attacked by disease, sameness, isolation, vices of civilization that the late evolved functions suffer first, and suffer before any other function is disturbed, so that a denizen of the United States living under the influence of our highly oxygenized atmosphere, our pernicious moral area of fictitious literature, exciting food, unrestrained passions, solitary confinement, use of stimulants, tea, coffee, tobacco, whiskey, suffer through the nervous system a perversion of the sexual sense. The habit of self-abuse, before and

after puberty, is often inherited, implanted in children who have been begotten with either parent in a state of inebriation.

The philanthropist is eagerly scanning the horizon to see what modern medicine can do to stem this current of irreparable waste and national ruin.

The growth, vigor and future prosperity of every nation depend upon the strength and energy of its young men, and if this practice is not arrested, effeminate, weak, nervous, and physically drained-out youths are to appear upon the scene.

Victims of this, our national vice, need sound religious and moral instruction on their duties and responsibilities; daily cold water baths; flannel clothing; avoidance of all insanitary states and isolation; a liberal dietary; open air exercise; a daily passage from the bowels, as a rectum loaded with fœcal matter pressing upon the prostate urethra is an irritant, and anything that would re-invigorate the general health.

The first indication in the correct treatment of a perversion of the sexual sense is to cut off all sexual desire; let the irritable prostate have the soothing, cooling influence of a genetal sedative. This is best effected by the administration of large doses of the green root tincture of gelsemium, or the spermatorrhœa pill, or the cocaine suppository, which are infinitely superior to all bromides. These genetal sedatives should be continued until the damaged parts regain their pristine strength or vigor.

The second indication is to bring remedies to bear upon the sexual sense in the brain, to correct the perversion in or from which the habit originates.

The first remedy that should be used is the phosphated tincture of oats, which is of great utility in all cases of nervous bankruptcy as a remedy to feed and vitalize the brain, deepen the typical fissures of thought, to energize and rejuvenate the morbid sense, wipe out the atrophic paralysis and aid in a perfect renewal of nerve tissue. This preparation of oats consists exclusively of *avena sativa*, which is invaluable.

Another invaluable remedy to wipe out this perversion of a natural sense is the ozonized glycerite of kephaline.

No class of remedies are so valuable, in all states of perversion, as the chemical elements of the brain itself—"cerebrin," which is of the highest order of vitalized bodies—the true elixir of life. If there be any failure in the absorption of this form of phosphates, add to it small doses of some bitter tonic, as strychnine.

The damiana is a remedy of priceless value. In the cure of sexual perversion or self-abuse it is a great vitalizer of the urethra, the prostate gland, the seminal vesicles, ejaculatory and

the differential ducts and the tubes ; exerts a powerful effect upon the functions of generation, whether that effect be due to the extension of morbid action through continuity of structure, or to reflex action, or to a morbid state of the brain, inherited or acquired.

The true damiana must in no case be overlooked in the cure of any given case, as it is of great efficacy in sexual perversion, debility or lethargy, when due to abuse ; very effective in partial or complete impotence arising from this source.

The comp. damiana soluble gelatine bougies are of great efficacy in correcting the perversion of the sexual sense. The introduction of one of those twice or three times a week up to the prostatic urethra, allowing it to remain, melt, run over the irritated, inflamed or strictured parts, the congested prostate and the orifices of the seminal ducts, absorb the remedy, which corrects the abnormal state of the sexual sense at the base of the brain. This forms the most efficient and successful treatment ever presented for self-abuse, spermatorrhœa and impotency ; it has met with universal success, and effected the most astonishing cures of deplorably hopeless cases.

It is local ; it is direct ; it acts reflexly upon the nerve centres, the diseased portions, the urethra, seminal ducts and vesicles ; good results are apparent from their very first use.

The use of those bougies meets the pathological condition of the deep urethra, into which the seminal ducts open ; they soothe, heal, contract all the congested parts, stop the drain of the vital fluid, which by and by becomes thicker and healthier, the parts increase in size and the distressing nervous symptoms are relieved.

In the perversion of the sexual sense, which give rise to self-abuse, we have seen that there is a tissue-starved brain ; and, incidental to that, there is always more or less damage done to the parts. To repair this damage, the saw palmetto fills a gap that has long been needed. In its action it is a nutritive tonic to glands, as the parotid, mammæ, ovaries, testes, prostate. When those glands have suffered atrophy and withered into nothingness, if administered it will cause them to bud out and grow, often to exceed their normal size and activity. In this class of cases it operates well ; it often overcomes the blight of varicocele, the atrophy of the testes, the spasm at the neck of the bladder, due to irritable prostate, and, take it all in all, the saw palmetto is of great value in all cases of sexual debility.

The *coca et celerina* is a powerful nerve stimulant, promotes cohesion of cineritious substance of the brain, and exercises a healthy, invigorating action upon the perverted sexual sense, and

relieves the mind of the depression incidental to the disease. The coca et celerina, internally, and coca suppositories, are very valuable preparations, if isolation has been at work, wiping out the typical fissures of thought, in creating this perversion of the sexual sense, or if mental strain and worry have given rise to genital and phrenal incapacity.

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A preternatural contraction of the foreskin

Phimosis. over the glans of the penis, preventing it being drawn back.

In infants, it is congenital, obstructs micturition; in adults it is acquired by a variety of causes, as the irritation from the presence of sebaceous secretion, by clothing irritating the parts, by masturbation, irritating discharges (cocci) from the female, by gonorrhœa, balanitis.

Symptoms.—In children and adults, there is the long, contracted foreskin, which gives rise to obstruction in urinating, resembling stricture, or stone in the bladder. In some cases, an inability to urinate. In adults, the swelling, elongation and contraction are generally due to masturbation, gonorrhœa, chancres, and often causes great swelling of the areolar tissue, and balanitis.

Treatment.—Warm bathing, hot hip-bath, with tobacco and belladonna; the local application of lobelia and belladonna; injecting a hot infusion under the foreskin. If once back, a thorough ablution with warm water and lobelia; cotton-wool, with ozone ointment, around head and neck; and then pull foreskin over, and repeat three times a day, inculcating rest, and bowels freely opened with salines. Get rid of cause upon which it depends.

If all means fail, circumcision should be performed. This is performed in a variety of ways.

As introduced by that great pathologist, Moses, to prevent the dissemination of venereal disease, it consisted in a simple slitting up of the entire length of the foreskin to the rim or neck on the upper or dorsal aspect, and excising a small piece like a V. This answers well enough in children or very young persons, because the two bags or ears that are left are easily and quickly absorbed. The better plan in adults, is an entire excision round, only not interfering with the frænum or bridle on the inferior aspect; first slitting it up, and then clipping it off neatly with the scissors; inserting eight or nine lead-wire sutures; stitching the edges of the mucous membrane to the skin. Subsequently dressing with some antiseptic lotion, as lime-water, tincture of iodine, boroglyceride or resorcin, or creolin; keeping all the time moist; changing and destroying dressing twice a day.

Phlegmasia Dolens. During parturition, especially if labor be tedious or severe; a condition in which the vitality of the uterus suffers; or we could suppose a case in which ergot had been administered; or the uterus had remained for some time contracted upon a placenta, or clot; absorption by the ovarian lymphatics had taken place, and embolism of the blood engendered, thrombosis of the internal iliac and femoral veins taken place, giving rise to obstruction of the veins, radicles and capillary vessels, with implication of the lymphatics, giving rise to a painful, non-œdematous, hard, brawny swelling of the limb, attended with great prostration.

Symptoms usually commence from one to six weeks after labor. On its first appearance there are rigors, fevers, thirst, nausea; great pain, swelling, loss of motion of the affected extremity; limb hot, tender, non-œdematous, but swollen and twice its natural size, of a pale white color, tense and elastic, having a glazed and shining appearance; and even after acute symptoms have subsided, and limb remains enlarged for many weeks, even months.

As there is a micro-organism in the origin of embolism and thrombosis, the same organism is present here, all efforts have failed in its cultivation, hence it is not pathogenic, but it bears a very close relationship to the micrococcus of puerperal peritonitis.

The same treatment as for thrombosis, perfect rest, simple diet, anodynes to relieve pain, germicides, sedative and alkaline fomentations.

An excellent fomentation is made by adding one pound of bicarbonate of soda, half a pound of peroxide of hydrogen and four ounces of poppies to one gallon of tepid water. The flannels should be changed frequently; applied over the entire limb, over the groin and lower part of the abdomen, whenever there is pain and tenderness. The heat and steam are to be retained by wrapping up the limb in impermeable cloths. Internally dioxide of hydrogen, acetate of ammonia and salicylate soda; sulphide of lime, belladonna, general alteratives and tonics; later on no remedy so efficient and beneficial as bandaging and bitter tonics.

Phosphorus Disease. The medical press, and the entire profession are unanimous in advocating and urging upon the people a diet containing more brain elements, as oatmeal, corn meal, flour not deprived of its phosphates, boiled white-fish, as being more conducive to health and longevity, and better calculated to increase the intellectual power of the nation; that in these natural forms,

phosphorus does increase the depth of the typical fissures of thought, and improves the mental, still, we must say that phosphorus as a remedy, isolated, and in various forms, is too recklessly and indiscriminately prescribed. Phosphorus water, tincture of phosphorus, phosphorus et nux pill should not be administered to any one who indulges in alcohol or tobacco, even in small doses, as it is very prone to irritate their stomachs and cause either acute or chronic gastritis; besides in the same class of patients it tends to engender fatty degeneration of the involuntary muscles, and also of such glands as the spleen, liver, kidneys, uterus.

Operatives in phosphorus in match factories inhale its fumes, which in a very short time produces progressive pernicious *anæmia*, with great debility, albuminuria, loss of hair. Later on a peculiar form of necrosis of the bones, especially the superior and inferior maxillary.

This form of partial death is due to disordered innervation, a failure on the part of the lymph canals, pink marrow, etc., to raise or elevate the blood discs.

There is no known antidote to the presence of this poison in the system; a change of occupation, a sea voyage, and a most generous diet is about all that can be done.

In diabetes, chronic alcoholism, disease of
Piarrhæmia. the liver and kidneys, degeneration of the
 (*Fatty Blood.*) suprarenal capsules, pneumonia and other
 morbid states in which the microbe "indican"
 appears in the blood.

The presence of free fat and molecular albumen in the blood may be the result of indigestion, pregnancy and lactation. In the process of digestion the lactescence of the serum begins about two hours after the ingestion of food, and continues for a few hours.

The serum is found turbid, opalescent and semi-opaque, a condition, however, which is only transitory, and due to the absorption of fatty matter, formed into an emulsion by the pancreatic juice and absorbed as such in the duodenum. It is entirely due to the presence of fat granules, and molecular granules of albumen. The passage of chyle into the blood renders the serum turbid, the turbidity lasting until fatty matters enter in combination with the free soda of the blood. This condition is the result of disease.

Various explanations have been offered as to the occurrence of fatty blood in disease. Some attribute it to the passage of un-

altered chyle into the circulation; others declare that the fat is set free in the blood for the want of a free alkali; while another class maintain that it is fatty degeneration of the albumen of the blood; and others insist that it is dependent upon a new combination of fat. It is never found existing as an independent affection, being invariably associated with some other disease, usually of the liver or kidneys.

Ptyriasis. A chronic, non-contagious squamous affection of the skin of parts usually covered by hair, (*Dandruff*.) characterized by the exfoliation of minute white scales or scurf in large quantities.

Sometimes acute, with a red base; chronic with a white skin. Relapses and recurrence of the disease not infrequent.

In all cases the skin, bowels, and especially the kidneys must be stimulated. The scalp should be washed with a boroglyceride lotion, and the following mixture used as a hair dressing: Bay rum, one pint; boroglyceride, one ounce: tincture lobelia, half an ounce; tincture of cantharides, one ounce. Mix. Internally, glycerite of kephaline, four ounces; tincture nux vomica, half an ounce; sulphate of quinine, one drachm. Mix. Dose, thirty drops added to water every three hours. *Avena sativa* excellent. Food nourishing, not stimulating, rest of mind.

Peptonuria. Peptone is a hydrated albumen, which normally, in passing from the gastro-intestinal tract, is mostly dehydrated, becoming the serum and albumen of the blood. Some of it appears to be taken up by the white blood-cells; and when these are multiplied or broken up, as in acute suppurative processes, or scorbutic and septic affections, the peptone is discharged, and passes away by the kidneys. In gastro-intestinal maladies, it is possible that the peptone is not all dehydrated in its passage into the blood, and hence peptone reaches that fluid and circulates with it.

Peptonuria is thus classed by Bourchard as gastro-enterogenous, hepatogenous, hæmatogenous, and phlegmasic. Looked at from another point of view (Ultzmann), it may be said to be present in three conditions: one a general one, including scurvy, typhoid, diphtheria, tertiary syphilis, pernicious anæmia, small-pox, cerebro-spinal fever, phosphorus poisoning, in which it seems to be connected with a general disorganization of leucocytes; the second, a local condition, including pleurisy, croupous pneumonia, pericarditis, acute inflammatory rheumatism, in which it is connected with absorption of exudates rich in leucocytes;

the third, also a local condition, including gastro-intestinal diseases associated with imperfect absorption and dehydration of peptone.

It also occurs from local causes in nephritis and genito-urinary catarrh.

Peptonuria does not occur in large amount in the urine. The best of ordinary tests is, perhaps, prussic acid with heat and cold. Prussic acid precipitates peptones; but the fluid if heated clears up, and then is clouded with peptone again on immersion of the test-tube in cold water.

These are spots, or dots, which make their appearance in various microbial diseases. Chief among these are typhoid fever, typhus, small-pox, purpura, scurvy, but they may appear even from the ordinary bacteria of mal-assimilation. In these spots, whether a mere red spot, or an irregular patch of a dusky hue, indicative of blood lesion and alteration, the special germ is always to be found—the microbe which gives rise to the disease.

Petechial spots require no special treatment, simply push microbicides, which are the remedies in every case.

The entrance of air into the pleural cavity usually gives rise to collapse of the lung.

Pneumothorax. The most common causes are when the microbes of tuberculosis or pneumonia eat their way into the pleura.

In addition to the symptoms of the disease under which the patient has been previously suffering, there will be sudden pain



Diagram illustrating the physical signs of pneumothorax.

on the affected side of the chest, great pallor of the face, much difficulty and distress in breathing, and a general collapse of the vital powers. In most cases such an accident puts an end to the life of the sufferer. Pneumothorax may also be produced by external conditions, as when a man is stabbed between the ribs, or when the chest is perforated by a pistol-shot, etc. In both cases air enters the cavity, the lung collapses, and the patient breathes with the greatest difficulty.

Invariably there is a shock, which must be met by the administration of stimulants and opium, either in the form of pill, or morphia hypodermically.

Diffusible stimulants, as ammonia, brandy, with inhalations of

iodide of ethyl, or nitrate of amyl. The patient must be carefully watched for signs of increasing pressure within the chest; should be frequently nourished with small quantities of food of easy assimilation.

Poison. Mercurial poisoning is very common, as it is used quite extensively in the arts. Artisans making barometers, thermometers, looking-glasses, etc., become thoroughly saturated with mercury.

The amalgam used by dentists contains a very large percentage of pure quicksilver, which saturates the system of those who have their cavities filled. The finer the preparation, the more highly it is triturated, the more likely it is to be absorbed into the system. There is much less danger from a blue pill, followed by a saline purge, than from high graded triturations.

Physicians are aware of its destructive effects upon the blood, liver, and bones; when it enters the blood it attacks the red discs and impoverishes them, later on, if persevered with, chronic inflammation of the liver, mercurial aphtha, stomatitis, destruction of mucous membrane, especially of the throat, causes inflammation of the bones and periosteum; nodes form, necrosis follows.

All who imbibe or inhale mercury either by the skin, bronchial mucous membrane or stomach, for some time exhibit a peculiar metallic color of the skin; emit a pathogenic fœtor of the breath; and have destructive bone pain in climatic changes.

It is a bactericide of immense power, being co-equal with the dioxide of hydrogen, it will destroy, if it is administered, the syphilitic microbe, but unless it is given conjointly with the iodide of potass, it will create a mercuric diathesis, making the taker a living barometer.

The practice recently of introducing the bichloride of mercury into lotions, washes, dressings for parturients, for all classes of wounds, should be discouraged by all Christian physicians, as we now have so many superior germicides for those purposes.

So long as no organic changes have taken place, either in the liver or bones, from the use of mercury, it can be eliminated from the system by the administration of iodide of potass; electrical baths, medicated with sulphuret of potassium.

The chlorate and iodide of potass have a remarkable affinity for mercury in the body, they unite with it and eliminate it.

Whether the human blood can be sterilized by the exhibition of mercury, so as to resist the ingress of the syphilitic microbe, it is unnecessary to discuss; true it is, that it operates that way in variola, and why not in syphilis?

This is a term applied to all pear-shaped excrescences, or tumors, which grow from a cavity lined with a mucous membrane, such as the nasal fossæ, ear, pharynx, uterus, vagina, bladder, more rarely in the stomach, intestines, bronchial tubes.

Polypus.

The predisposing cause is a peculiar modification of the tubercular diathesis, the exciting causes being in all cases, irritation.



Microscopic appearance of the polypoid growth from a deep section in its embryonic state.

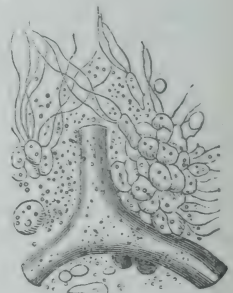


Microscopic appearance still later on, showing the zoötype form.

The two conditions, co-existing do not produce a disease-germ, but a neoplasm, properly speaking a zoöphyte, whose com-



External appearances, magnified 250 diameters, from a shred of a polypus.



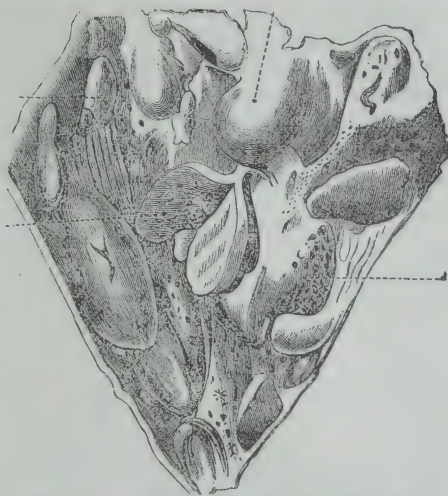
Microscopical appearances, magnified 250 diameters, from the interior of a polypoid growth.

ponent parts or elements form a hybrid, a transition between the animal and vegetable kingdoms. This is true, whether the mass be gelatinous, or fibroid, pale or fleshy.

Polypoid growths, mixed in their microbial constituents, belong really to that class of tumors which we have designated papilloma, in which the living germs, bacterium porri, tubercle bacillus, with minute vegetable organisms, form the neoplasm. This conglomerated or mixed organism is pathogenic of all polypoid growths, bears culture, and if eaten by or injected into animals will reproduce the disease.

They are completely annihilated in the presence of peroxide of hydrogen, ozone et chlorine, naphthaline, nitrate of sanguinaria, and other bactericides.

The prevention or eradication of the polypoid diathesis requires the same treatment as for tuberculosis, and the careful maintenance of a high state of vital force.



Microscopical appearance of a perfect polypoid protuberance.

Polypi are found growing from the tympanum, more especially its posterior wall, from the meatus, (Aural.) and from the tympanic membrane.

Pathology.—They are either mucous, fibrous, or myxomatous. The first named is composed mainly of a homogenous stroma, in which are round cells enclosed in a fibrous framework (Politzer.) In their interior may be found cystic spaces lined with epithelium. They are rich in vessels. The density of the growth depends on its gradual conversion of the round cells into fibrous elements. The fibrillar nature of the fibrous polypus distinguishes it, and it is not so vascular as the mucous. True myxomatous polypi are exceedingly rare.

Those polypi which grow from the membrane and tympanic cavities are very vascular. They occur as the result of otitis media and chronic suppurative states of the middle ear. Polypi vary in size from that of a large mass which completely fills the meatus, and protrudes from it to a small growth, which it is difficult to seize with the forceps.

Polypi may be multiple, several existing in one ear, and we may find them in both ears. There is often a considerable discharge of pus, which obscures the polypus, on the removal of which with a syringe the polypus comes into view. There is not necessarily pain during their formation, and the characteristic symptoms are deafness with a discharge, which is occasionally mingled with blood. Those springing from the deeper portion of the meatus, or just in front of the membrane, frequently conceal a perforation of the latter. The dangers arising from the neglect of aural polypus are elsewhere referred to.

Treatment.—If the polypus is of larger size, globular or pyriform in shape, of the fibrous or fibro-gelatinous kind, we must resort to other means of removing the mass. It is well in these cases to determine as carefully as possible before operating, the size, mobility and seat of attachment of the polypus. This, as a rule, can be readily done with a probe. Most of the globular polypi which fill up the meatus are easily removed, with the ordinary small curved polypus forceps; but the best instrument is the polypus snare of Wilde—the only difficulty which we meet with is the careful noosing of the polypus close to its attachment. This, however, is seldom a matter of difficulty, and will be found less so if wire strong enough for the removal of the polypus, at the same time that it can be easily moulded so as to encircle the mass, is used.

I have tried various wires for the removal of polypi. I prefer thin copper or iron wire if the growth is large and hard. Thin wire or fishing gimp can be used in ordinary cases.

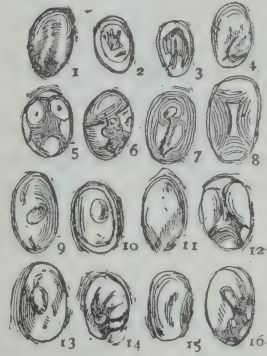
For operating on small vascular growths, either the rectangular ring forceps or the lever ring forceps is the best to use. This latter instrument is admirably adapted for this purpose.

Free syringing will bring away any loose portions of polypus not removed by the forceps. I have never had any hemorrhage to speak of after removal of any kind of polypus. I generally use a little very hot water if the bleeding is severe, and this is, as a rule, sufficient to control it. Occasionally it is not possible to remove the entire of one of these vascular polypi at one time, and we have to operate three or four times before the growth is cleanly extirpated. But the mere removal of these troublesome growths is only the first step in the process of cure. It requires often considerable forbearance on the part both of the patient and surgeon to follow up the treatment. Periodical touching of the exposed surface with some caustic is required, as well as the thorough cleansing out of the canal. Having wiped the raw surface with cotton-wool, used with the armed aural probe, then the site of the polypus must be lightly touched with a fine pencil

of wool rolled on the point of the probe, and moistened with chloro-acetic acid. The crystallized acid is readily converted into a fluid state by the addition of a little water. We may also use the mullein oil with great success; it entirely gets away with the root or pedicle, prevents the growth; or perchloride of iron. But after a fair trial of many agents, I prefer the chloro-acetic acid to any for this purpose. One rule should be adopted in every case; no one should be satisfied as to the cure of the disease until all discharge has ceased, and the surface from which the polypus has sprung presents a healthy appearance.

Illustration of the cases of aural polypi which had been erroneously diagnosed as otorrhœa, otitis media, ulceration of membrana tympani, etc.

All springing or growing from the membrana tympani; all were crude, polypi withered, died and disappeared by dropping ozonized mullein oil into the ear.



1. A crescentic gelatinous, with central fibroid.
2. Conglomerated mass, fibroid in centre, with gelatinous terminations.
3. Small red gelatinous polypi growing from the membrana tympani.
4. Entire membrana tympani covered with a gelatinous membrane of some thickness.
5. Four distinct nodules; tubercle contents, with mucous covering.
6. Three distinct growths, two large and one small pale fibroid.
7. Three fibroid spring from the same source.
8. Large mixed polypus, central elevation, firm, fibroid, with fibres running into gelatinous edges.
9. This and No. 16 are alike, single fibroid, with mucous covering.
10. One distinct fibroid could be distinctly visible sprouting towards external meatus.
11. Soft slate-colored excrescence covering the entire membrane.
12. Two large lateral polypi; three small central; total deafness, which was completely restored when they were removed.
14. One large gelatinous mass, covering the membrane—perfectly deaf—hearing restored when it disappeared.
15. Crescentic fibroid.
16. One distinct irregularly shaped fibroid.

The neglect of polypi may lead to the most serious consequences. On two occasions I have seen death with brain complications following on aural disease that was associated with the presence of a large polypus in the meatus. In both cases the symptoms of cerebral abscess were present. I saw the cases when the removal of the polypus was too late to avert the mischief. Such cases should act as a warning to practitioners not to simply pull away a polypus with a forceps or snare, and then

send the patient home with the idea that he is cured, only giving him some simple lotion to keep the ear clean with. The polypus re-grows, perhaps the patient has the growth again torn away, or partially torn, as happens in many cases, and he now thinks it useless to apply for relief for that which is certain to return. And so he is satisfied to let things as they are until some formidable symptoms are induced by the growth and the discharge. All this is the result of want of subsequent attention to the remains of the pedicle of the polypus or the granulations that remain after its removal.

Whenever a polypus is removed the patient should have impressed on him the necessity of a prolonged attendance or an occasional inspection of the ear subsequently, in order to prevent its re-growth, and also to get the meatus or other seat of the disease into a healthy condition.

These neoplasms in the nasal fossa are

Polypus in Nasal Fossa. either benign or malignant, they are met with as *mucous, gelatinous* slate-colored or red; *fibroid*, pale, or red; and either form may have the microbe of cancer interspersed through it.

They are all of mycomatous structure, pedunculated.

The causes of these pear-shaped growths, or nasal polypi are confessedly obscure, evidently identified with tuberculæ and hereditary syphilis. They are much more common among men than women. They may be of traumatic origin, but are also probably often due to any causes which induce or maintain inflammation of the pituitary mucous membrane. From this point of view they may be a pathological derivative of hypertrophic rhinitis. But mere chronic inflammation can scarcely be alone sufficient to produce them, seeing that children, who are more subject to persistent catarrh than adults, are yet not nearly so liable to polypi.

Pathology.—Mucous polypi are composed in part of the elements of the mucous membrane, from which they spring. They are invested with ciliated epithelium, contain a few small blood-vessels, and are destitute of nerves. They consist chiefly of embryonic connective tissue. According to recent authorities, the cells composing their mass are first rounded, but subsequently become fusiform and stellate. The intercellular tissue is formed of stout and fine fibres, among which either connective or glandular tissue may predominate. In the former case, the polypi will appear as soft fibromata, in the latter as adenomata. They may occasionally be cystic and contain glands, but the cysts, if

such, have no true walls. The contents of the cavities are, as a rule, serous, but may become colloid, fatty, or mucous. Polypi in most cases exist as globular ovoid tumors, gray, semi-transparent and jelly-like. They vary in size from that of a mustard seed to a walnut. The smaller ones are pear-shaped, but the larger take the form of the cavity in which they have been developed. They are attached to the mucous membrane by a pedicle of varying size and consistency, which is often pearly and fibrous in appearance. They may, however, have a broader base and even become sessile and immovable.

The number of polypi present may be variable. They are seldom single and are often very numerous. I have frequently removed from thirty to forty from the nostrils of patients, but this number has in some recorded instances been much surpassed. Thus, cases are mentioned in which sixty-five and even eighty have been removed. Generally, both nostrils are affected simultaneously, and may be completely obstructed from front to back.

Polypi, on a cursory examination, appear to spring from the middle turbinated body, but it has been shown that they often have a deeper origin, viz., from the superior meatus or superior turbinated body. They may occasionally grow from the septum, or from the inferior turbinated body, or from the nasal roof, or from the outer wall, or from the floor of the nose; but such positions are unusual.

Symptoms.—The earliest symptoms of polypus are increased secretion from the nose, together with a sense of fulness and stuffiness and pain over the brow. As the neoplasm increases in size, interference with respiration becomes more marked. There is a constant desire to blow the nose, but though this may be done frequently, and even violently, it gives no relief. It feels like a constant cold in the head, with a sensation of something moving up and down in the nose. In proportion as the nasal fossa becomes blocked up the symptoms increase in severity, especially in cold or damp weather. Later on breathing is carried on entirely by the mouth. If they are large and numerous they often cause atrophy of the bones of the nose by pressure, the septum being displaced, aspect of nose altered occasionally, they protrude externally. Naso-pharyngeal polypi give rise to an alteration in the voice and the sensation of a foreign body in the pharynx. Smell, taste are completely abolished. The lachrymal duct is blocked. If the polypi occupy only one nostril, or do not completely fill both, many of the above symptoms may be absent altogether or present in a minor degree.

In most cases of polypus there is a remarkable train of symp-

toms referable directly to the nervous system. These are headache, giddiness, failure of memory, migraine, neuralgia, asthma and even epilepsy. They may not all be present in any given case, and will, of course, vary in degree in each. It is probable that the presence of these symptoms depends in a great measure on deficient aeration of the blood, owing to the absence of nasal respiration. Carbonic acid poisoning is in fact taking place slowly but surely, and causing a condition of vital depression and mal-nutrition. It has been observed that asthma occurs more frequently in cases where polypi only partially obstruct the nostrils. The occurrence of the attacks during sleep, and their absence in complete obstruction, when patients necessarily sleep with their mouths open, is an argument in favor of insufficient oxygenation.

External examination may in many cases suggest the presence of a polypus. The alæ of the nose may be dilated, and the nasal bones forced outwards. On examining the nostrils with a good light, one or more tumors will be seen occupying the nasal fossæ, and having a gray gelatinous appearance. During forcible expiration and inspiration the tumors will be displaced. The probe will show their mobility, elongated form and pedunculated attachment.

The progress of nasal polypi is slow but progressive, and they gradually fill up the nose, displacing the septum and forcing the nasal bones outwards. They may also protrude beyond the nostrils, and extend posteriorly into the pharynx. Rare cases have occurred in which the pedicle has been ruptured by some sudden effort of sneezing or blowing the nose, and a polypus has been expelled. But as these tumors are almost always multiple, no real alleviation is obtained from the removal of a single one. When of long standing cystic cavities may form, and these as they rupture from time to time give some little relief to the patient.

Diagnosis.—When polypi are sufficiently large to fill one or both nasal fossæ the diagnosis is easy; indeed, it is sufficient to see the tumors in order to recognize them. But the case is different when the neoplasm is only partially developed. Care is then required in order not to confound polypus with hypertrophy of the mucous membrane, with deviations of the septum, with foreign bodies in the nasal fossæ, and more particularly with thickening of the membrane covering the inferior turbinated bodies. This latter error is by far the most common, and is not unfrequently made. Attention to the following points are therefore important. Polypi though often bilateral are seldom symmetrical. The turbinated bodies form only one or two promi-

nences, and are situated anteriorly and laterally. Again, the mucous membrane pits under pressure with a probe, while a polypus moves as one solid mass. If any doubts still remain, they may be set at rest by the application of a ten-per-cent. solution of cocaine. This will not affect the polypus, but relieve all the congestion, and admit of seeing the polypus.

The prognosis is good for a cure in all cases with bactericides. The treatment is quite elaborate, consisting either of interstitial injections, or perchloride ferri, or by snuffs of bayberry, blood root and sulphate of zinc, or better still, by injecting each one with a few drops of ozone et chlorine or peroxide of hydrogen, by inserting the nozzle of the hypodermic syringe well into the centre of the polypus and depositing the remedy. This at once causes it to wither and die, without pain, hemorrhage, or any constitutional disturbance whatever. No force is necessary, simply inserting the syringe with a rotary motion.

Otherwise, excision, ligation, torsion may be tried. Each method has its advocates, its advantages and disadvantages. The disadvantages of the excision are, that they are painful to the patient, that they cause bleeding, and so obscure the field of operation, that they seldom remove the polypus as a whole, and that if used injudiciously they may inflict irreparable damages on the nasal tissues. It is, however, but fair to add, that many operators of large clinical experience and undoubted skill prefer excision to any other method. In my own practice I reserve excision for two classes of cases, the first where the polypi are situated very anteriorly and are easily grasped, and where the movements of the instrument *can be kept in sight*; the second, where the polypi are very large, and situated so far back that they cannot be snared. But generally in these latter cases operation through the mouth, with the retro-nasal forceps is preferable.

For ordinary cases of polypi I do not hesitate to say that the wire snare, either cold or heated by electricity, offers the best means of removal. I generally operate in the following manner: The patient being seated on a low chair, the nostrils are dilated with the speculum and well illuminated by means of a frontal mirror. The polypi are then carefully examined with a probe and an estimate formed of their number and connections. A ten-per-cent. solution of cocaine is next applied by means of a fine nasal spray. By this not only is a better view of the growths obtained, but all pain to the patient is completely guarded against. The wire snare is then very carefully introduced into the nose in a vertical direction, and made to grasp the most anterior and perhaps smallest of the polypi. Traction

is made and the polypus removed slowly and gently, the same process being repeated until either the nostril has been cleared or until hemorrhage so far obscures the view that a little delay is advisable. But very often, with care, only slight bleeding will take place. It thus becomes possible to work backwards, removing small polypi, until a large one is met with. This latter, when removed, will often give immediate relief, and restore the patency of the nostril. It is sometimes advisable after the removal of several polypi from one nostril to syringe it with an astringent solution, and to operate on the other side, returning to the former when the bleeding has ceased. A good deal may thus be done at one sitting. If the pedicle is narrow bleeding is slight, but more considerable when the attachment is extensive. Several operations will generally be necessary. The longer the time over which they are spread, the less trying will it be for the patient, and the less chance will there be of recurrence.

**Polypus,
Naso-Pharyngeal.**

Etiology.—Sex and age have an important influence on the growth of these neoplasms. They are almost, if not absolutely unknown in women, or beyond the age of thirty. They are met with chiefly in growing lads, between the ages of fifteen and twenty-five, and are fortunately excessively rare.

Symptoms.—The earliest symptom is a sensation of fulness in the nose, with perhaps slight bleeding, and more or less interference with respiration. The constitutional symptoms are a dull headache, localized in one spot, and marked drowsiness, with an overpowering desire for sleep. Later on there is a mucous discharge, an alteration in the voice, deafness with partial or complete loss of smell, and difficulty of swallowing. At this period the tumor may be felt in the pharynx, or seen with the rhinoscope. The third and last stage is that of deformity, which is pathogenic of this terrible malady. As the neoplasm grows, it may, like a wedge, open up the bones of the face and base of the skull, the eye may be projected outwards, the palatine arch depressed into the mouth, the soft palate thrown forward, the temporal and zygomatic fossæ filled, and the whole countenance assume the hideous deformity known as “frog face.” The cranial cavities may gradually be invaded, and the brain itself compressed or forced out in the form of a hernia. There may be profuse hemorrhages, endangering the life of the patient. When death occurs it arises from exhaustion, or from compression of the brain.

The point of implantation of these tumors is still uncertain, but they probably spring from the basilar arch or pterygoid process. Attached to the mucous membrane by a broad base, are usually solitary, with rough, uneven surfaces, often attain a considerable size, and are very vascular.

If a very large polypus occupy the whole of the posterior nasal fossæ, it may be impossible to grasp it through the anterior nares. I have met with a similar difficulty in a case where, together with the polypus, there was also a bony growth in a nasal passage. In such cases it is best to pass the finger into the naso-pharynx, behind the soft palate, and endeavor to hitch the wire round the tumor, a procedure of some difficulty, or the polypus may be grasped by a forceps introduced post-nasally, or again by a snare of wire rendered incandescent by the galvanic current. Such cases are among the most difficult to deal with. No strict rules can be laid down for operating, as so much must be left to the necessities of each case, and the inventive skill and dexterity of the surgeon.

The galvanic cautery has much to recommend it, and will probably, in the hands of specialists, at any rate, gradually supersede all other methods. It requires, however, not only considerable skill to use, but also special apparatus, and this will prevent its becoming popular in general surgery. With the electric wire the operation is conducted much as with the cold snare. Cocaine should be used freely before operation, and the wire not heated till it has grasped the polypus. The current must then be passed slowly, so as to sever the tumor at a dull red heat. In this way bleeding will be prevented. A platinum wire, which is always expensive and troublesome to procure, is not absolutely necessary, the ordinary iron or steel wire answering all purposes:

Polypus of the Rectum. Polypus, a peculiar pear-shaped growth, either gelatinous, fibroid or malignant, common in the various orifices of the body in those of a tubercular diathesis, who suffer from local irritation. When met with in the rectum, it is usually attached to the mucous membrane by a tendinous cord, smaller than the body of the tumor, but of the same substance as the main mass. We say that it is pear-shaped, but as those growths are usually inside the internal sphincter, and even very high up, their shape is apt to be elongated by pressure. But there is no other name that can be applied to them, they seldom, if ever have the same jelly-like consistence which belongs to those of the nose, but growths of a firmer nature are by no means uncom-

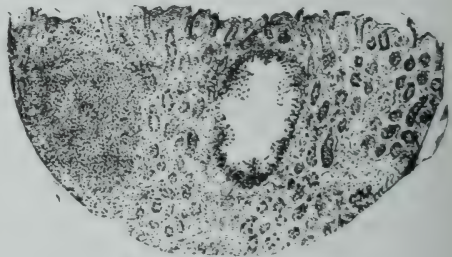
mon. Rectal polypi are unyielding under pressure with the finger, commonly pale red in color, and fibrous, or fibro-cellular in texture.

In size they are very variable, as small as a pea, prominent on the surface of the bowel, and in length from one-half to two inches or more, nearly cylindrical, of the thickness of a quill. Those little sessile bodies, often detected when the bowel is examined for other diseases, often give no trouble, but some reflex irritation.

Polyp and polypoid growths of the rectum, whatever their texture may be, soft or firm, spongy or vascular, when they are not protruded from the bowel, and not attended with hemorrhage, produce very little inconvenience, unless they attain a large size, but if it is prolapsed it becomes the source of much annoyance, even of pain, and the alarming intensity of the reflex symptoms call for its immediate removal.



Villous polypus in rectum,
a very common form.



Section of rectal polypus.

The general *symptoms* are frequent desire to go to stool, and violent straining in the act of defecation; protrusion of a fleshy mass frequently takes place with a discharge of blood and mucus. No symptom to be depended on unless it can be seen.

The reflex symptoms, as aching in the back, numbness of the hips and posterior portion of the thighs, vertigo, pain in the back of the head, coated tongue, general derangement of the nervous system.

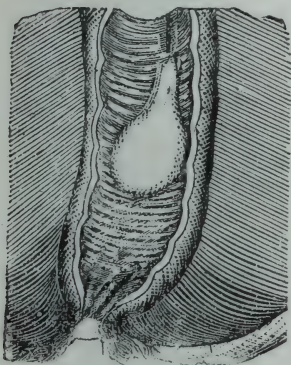
The favorite methods of removal are by the knife, ligature, ecraseur, torsion and by caustics.

More recently, papoid, trypsin, etc., have been introduced into bougies and inserted, with most remarkable success.

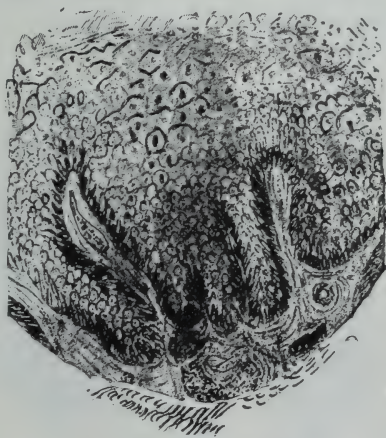
Polypus and stricture of the rectum intensify the predisposition to cancer, so does an exudation or exfoliation of the papillæ and all other morbid states.

Pockets, fringes, pimples of the mucous membrane of the rectum, or thickened elongations or prolongations of mucous mem-

branes, cone shaped, very pointed and sensitive at the apex, which is free; very broad and thick at the attached base. These papillæ vary in number from one to five or six, and in length from one line to half an inch, are not unlike in appearance the broken relics of a hymen. These papillæ are always sources of irritation and should be at once removed. Transfix them one by one with a tenaculum and snip them off with the scissors. They are not found in every rectum, but are common. We also find pockets from one-eighth to an inch in depth, and their number varies from one to eight. Their direction is always to the anus. The bottom of the pockets are usually very sensitive and contain an ulcer. You enter the pocket with a probe bent in the



A polypoid excrescence attached by its pedicle to the rectal walls; often met with in tubercular subjects.



Section of a rectal polypus.

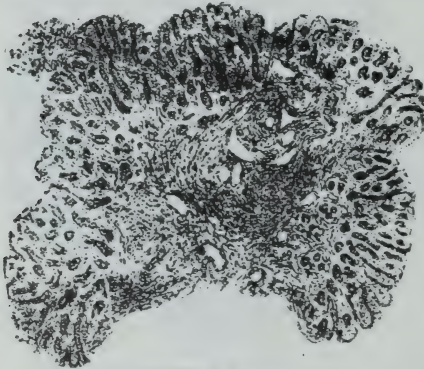
shape of a fish-hook, raise it up slightly and snip it off with the scissors. The operation is simple and does not need ether, except in very nervous patients. Now anoint your fingers with soap and water and introduce two of each hand into the rectum and stretch it for one or two minutes, or until the sphincter is partially paralyzed.

Any one can guess as to the cause of these pockets, papillæ and fringes. They are not a normal condition, as is proved by their absence in a healthy rectum. They provoke irritation by reflex action in various portions of the body. By their removal you can cure a chronically-coated tongue in a short time. Their removal rapidly and permanently cures acne of the lips and tip of the nose, restores color to pallid lips and face, and it will relieve obstinate constipation, cure headache, spasmodic urethral stricture, cough, uterine congestion and other

troubles too numerous to mention. Rectal conditions influence waste and repair more than any other single point of the system. If not attended to cancer, is the inevitable result.

Polypus, Umbilical. Polypus originating from the navel are very rare, but once in a great while we meet with one. The drawing below gives a very faithful appearance of the microscopical characters of the

growth in the case we have described. The section is taken transversely to the long axis of the growth, and shows that the surface is covered with columnar epithelial cells of one-cell thickness. Opening out on this are the orifices of many glands. These glands are of the tubular variety, and reach towards the nucleus of the growth to the extent



Umbilical polypus.

perhaps, of one-third the diameter of the polypus or less. Many are seen in transverse or oblique sections, others are cut in the direction of their long axis. They end blindly, are not branched at their extremities, and are lined throughout with a single layer of columnar epithelial cells, many of which are beautifully goblet-shaped.

Supporting these is a fine and very bountifully nucleated connective tissue. Lying under the investing layer of columnar epithelium, and supported by the connective-tissue growth just mentioned, are many vessels, chiefly cut longitudinally, which are intensely gorged with blood, and during life gave the scarlet hue characteristic of the tumor.

The centre of the growth consists in large measure of bundles of involuntary muscle-fibre, here seen for the most part in longitudinal sections, but some of them are cut transversely to their long axis. A few muscle filaments appear to entwine in the connective tissue round the glands at their central terminations. In addition, in the central area, many vessels of large size are seen cut in various directions.

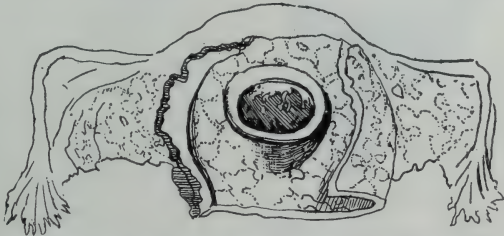
Umbilical polypus with a large base may be obliterated or removed by electrolysis; if the pedicle is small, ligation, torsion, excision may be resorted to, according to the ideas of the surgeon.

Polypus of the Uterus. We find those pear-shaped excrescences growing from all parts of the mucous membrane of the uterus, such as the cavity, neck, os, or in any part of the vagina, by a root, pedicle, or stem.

Three varieties are common: (1.) gelatinous, or mucous; (2.) fibroid, pale, covered with mucous membrane; (3.) fibroid, fleshy or placental.

The predisposing cause is the tubercular diathesis; the exciting causes, any kind of irritation, such as sexual incompatibility, frequent abortions, masturbation.

Symptoms.—Either profuse menstruation or irregular attacks of uterine hemorrhage, or a dribbling all the time, or often excessive bleeding; profuse leucorrhœa. It must be borne in mind that hemorrhage or flooding, may result from an alteration of the structure of the uterus, and an examination in all cases should be made, so as to determine the cause. Profuse discharges from the uterus are the precursors of abortion; some arise from scirrhus; others from polypi.



Gelatinous polypus, hanging from the fundus of the uterus, protruding a little beyond the plane of the orifice—hemorrhages very threatening.

If a hemorrhage comes on suddenly, with pain in the back, abdomen, thighs, bearing down, it resembles an abortion. But if the discharge of blood has continued for weeks, giving rise to cerebral anæmia, pasty complexion, lancinating pain in the uterus, with a fetid discharge, the cancer germ has probably localized itself. But if there are recurrent hemorrhages, unattended with pain, anterior and posterior, it would be well to examine for polypus; if this hypothesis is correct, instead of finding an empty vagina, there will probably be found a tumor, varying in size from that of a walnut, apple, or child's head.

As a general rule, the polypus, if present, is easily detected in the uterus by the sound, or if on the neck or vagina, by the speculum and finger.

Treatment.—If the polypus is in vagina, or on the neck, or os, any of the following methods of treatment can be resorted to: It can be *excised*, and bleeding arrested with a sponge, proper size, saturated with perchloride of iron; it can be *ligated*, and allowed to slough off; *torsion* can be used, that is, it can be

turned a little every day, thus impeding its circulation, strangulating it, and allowing it to slough off; or the chain of the ecraseur can be applied round it, and crushed; or, if it can be brought into a speculum handy, the ozonized chloride of chromium can be applied, and cause its instant death without a particle of pain.

If in the cavity of the uterus, the os uteri must be dilated, and it may then either be snipped off or ligated.

If in the cavity of the uterus, gelatinized bougies, prepared with papoid or trypsin, introduced daily into the cavity of the uterus, causes those excrescences to wither and die. To those in the vagina, touching them with lactic acid or chromic acid, has a marked effect in their destruction.

This cut illustrates a case of polypus of the uterus, with an infiltration of the neck and body with the cancer microbe; the polypus hanging from the os uteri; with a cancerous nodule on the posterior vaginal wall. The cachexia well marked, pain anterior and posterior, diurnal hemorrhages, followed by fetid discharges.

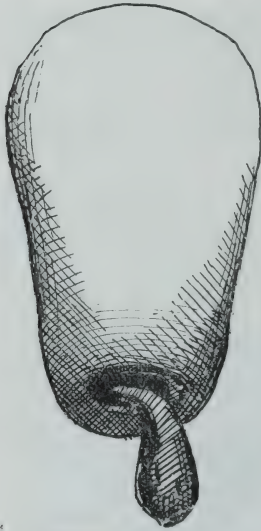
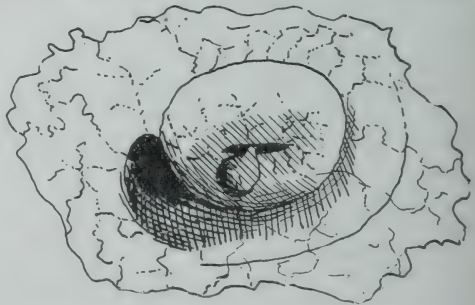


Diagram of polypus.

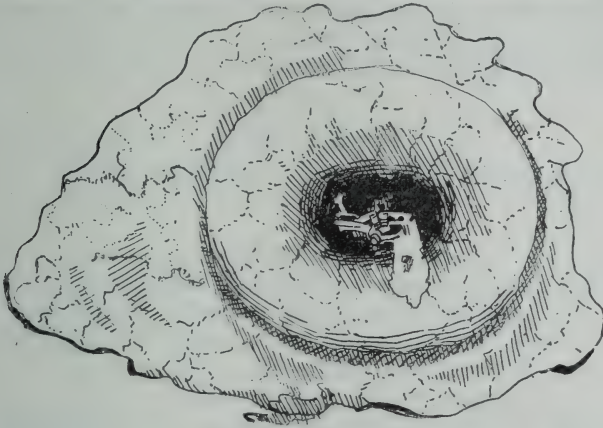
The vagina was first packed with boroglyceride paste for twenty-four hours, which produced a marked withering of the polypus, so much so that it admitted of an easy exploration, permitting the pedicle of the polypus being freely painted with a strong lactic acid. The packing of the vagina with boroglyceride was performed every night for four consecutive times, when the polypus was expelled and the hemorrhages in a great measure ceased. The vagina and neck of the uterus were syringed three times daily, after each a boroglyceride pastile was inserted up against the neck of the uterus and permitted to dissolve.



Polypus, with infiltration of the neck with cancer germ.

This diagram represents the dual microbe of polypus and can-

cer on the cervix uteri; a nodular growth just rupturing, with a most offensive discharge, tinged with blood. Occasionally hemorrhages. In this case there was the diathesis, anterior and



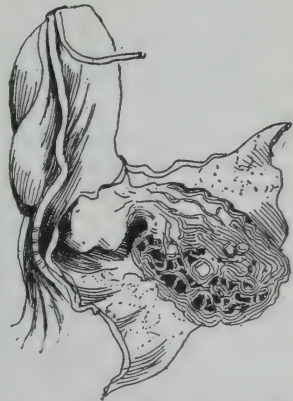
Internal polypus, with epithelium of the neck, encroaching upon the cavity.

posterior pain, infiltration of the lymphatic glands of the groin; the body of the uterus was considerably infiltrated. A microscopical examination of the vaginal discharge revealed the fact that it consisted almost entirely of living and dead germs. The local application in this case was the application of the contents of half a dozen jequirity wafers to the ulcerated surface, which caused a large mass to exfoliate, then following with the boroglyceride injections and pastiles. Twice a week painted the germ-laden parts as far as it was possible to reach with lactic acid.

This illustration shows an internal polypus of the uterus, with epithelium of the neck; the internal polypus was first diagnosed and neglected; the daily hemorrhages became exhausting, and latterly carcinoma appeared. This latter commenced as an induration.

The local treatment consisted in painting the parts affected with lactic acid, using the boroglyceride injections and pastiles.

As the cancer microbe has a remarkable tenacity of life, and



A large mixed polypus, fibroid and red, gelatinous, growing from the neck of uterus, cured by injecting with peroxide of hydrogen.

as the Chian turpentine mistura is antagonistic to its existence, nearly all cases may be readily cured with this remedy.

The Chian turpentine mistura is composed of the best selected Chian turpentine, ethereal peroxide of hydrogen, resorcin, thal-
lin and other germicides, which, when they enter the blood, come like an avalanche upon the germ, and destroy it.

Polypus of the Urethra. Urethral polypi, usually of the fibroid variety, are occasionally found protruding from the male urethra, causing occlusion of the canal.

Pathological products are sometimes met with in the fossa navicularis, which present a structure absolutely analogous to that of the vegetations seen on the surface of the prepuce and glands. They are slowly developed in the interior of the canal, where they preserve an elongated shape, but spread as soon as they have passed outside of the meatus.

Polypoid growths in the urethra being of the character of papilloma (bacterium porri), are readily got rid of by the internal and local use of thuja, filling the urethra, or inserting a gelatinized bougie of the same. By the use of this remedy, all irritation is avoided; the oil is the best form.

Poison of Subjects. In all deviations from health, all states of vital depression, bacteria (*Cadaveric Alkaloids*) evolved from the normal living matter, and the microbes of disease from

without are present and play an important part in the transition from life to death.

When life, or the soul element, leaves our bodies, the corporeal part enters a new sphere of existence in the form of microbial life. All forms of micrococci, streptococcus, bacterium and bacilli are evolved, they eat up all the pabulum obtainable for their growth and development and either die or are converted into other living organisms, dual, triple or quadruple germs, and this process continues until our bodies are reduced to their original constituents, water, carbonic acid gas, ammonia, and earthy salts.

During this stage of microbial existence, of chemical change, of prodigious growth, we have every known micro-organism with its deadly alkaloid (ptomaine), present. If, at any stage of bacterial existence, the most minute particle be introduced into the living blood of man, it will breed with most extraordinary rapidity; the germs indeed have their vitality augmented and

produce in the living organism precisely the identical state of decomposition, which they were pushing forward in the dead.

The olfactory nerve also, of an educated physician, recognizes in the odors of the cadaver the various micro-organisms present, even the one which caused the death of the subject. The micro-organisms of the dead are keenly active in the subject, so much so that in the atmosphere for one hundred feet around it they can be detected, and within that radius they can also be found in mouth, eyes, hair and clothing of the attendants.

With an open mouth, they enter the salivary glands of the oral cavity and descend to the stomach, giving rise to gastrointestinal irritation.

With regard to dissection wounds, we must bear in mind the following facts: that all subjects are but one mass of disease-germs, being more or less virulent according to the disease, or species of bacteria which induced the separation between soul and body. Injecting the subject with either chloride of zinc or arseniate of soda solutions, or even the oil of cloves, or peroxide of hydrogen, does not destroy the germs and its spores, they simply for the time being induce a latency. There is no bactericide which will destroy the comma-bacillus of epidemic cholera, or the streptococcus of diphtheria, or erysipelas, etc.

It is also well to bear in mind that the more highly developed the dissector, the more finely organized the brain and muscle, the greater is his affinity or inhibitory power to take in germs. This is true of all animal matter.

Inoculation, through a scratch, abrasion, indentation of or from the microbial mass, a subject will produce in the living the same growth of micro-organisms; but if the subject has slid off his immortal through the agency of the microbe of phlebitis, erysipelas, typhoid fever, pneumonia, etc., then the case is bad, and an inoculation is followed by grave results.

In the management of such wounds or inoculations, the peroxide of hydrogen stands first among all remedies—applied locally, administered internally. No well-conducted dissecting room can afford to be without this bactericide.

Its use supersedes all our old remedies; students, nurses, washerwomen, should have it handy, C. P., and medicinally pure.

Polyuria always indicates some affection of the
Polyuria. parts of the brain situated in or near the posterior fossæ, the cerebellum, pons, and medulla oblongata, but that the material on hand does not permit a more exact localization.

It is a symptom showing an irritation of the cerebral parts

concerned, but it is never only a functional disturbance. Polyuria, especially if not permanent, might, therefore, indicate a passing hyperæmia, or an otherwise transiently irritated state of the portions of brain-tissue mentioned, but if continuous and not amenable to treatment, the same symptom would be an evidence of some organic lesion of the same cerebral parts. This theory is confirmed by the empirical observation, that ergot is the only remedy which has thus far resulted in a cure of polyuria. This drug has been tried in cases of that kind, where it has been successful. Ergot, as well known, causes a contraction of the capillaries and, therefore, a diminished blood supply mainly in regions specially rich in capillaries, as the brain and spinal cord. A transient hyperæmia will thus be relieved, and the polyuria, when due to the latter, disappear under the influence of ergot. But when the prolonged administration of this remedy does not diminish the flow of urine, the suspicion is warranted of an organic change in the parts mentioned of the brain being responsible for polyuria. In such cases the symptom is of grave import, and usually predicts the fatal issue of the case. The fact that polyuria, if of long duration, occasionally ends in diabetes, also is explained by the statements above made.



Porrigo Decalvans. usually preceded and accompanied by
(*Baldness.*) grayness (*canities*). Premature baldness may occur from failure of general

health, as a consequence of eczema, seborrhœa or other disease of the hairy scalp, or without apparent cause. It often seems to be hereditary and is most common in males. It generally begins at the top of the head and tends to spread from thence. The hair gets thin before any patch becomes completely bald.

Treatment.—Senile baldness is not very amenable to treatment. Premature baldness may be treated with more hope of benefit. Any disorder of the general health should be attended to, and any cutaneous disease present on the hairy scalp should be treated. When any obvious general or local affection has been attended to, local stimulants may to some extent promote the growth of hair. Various preparations of cantharides are often employed, and lotions containing ammonia have been recommended.

The following formula may prove useful:

Bay rum, one pint; tincture of lobelia; tincture of cantharides, of each one ounce; boroglyceride, two ounces. Mix.

Wash scalp with castile soap, dry well. Use the above for a hair dressing.

Alopecia ar. differs from the ordinary form in several important particulars. As implied by the name it occurs in isolated patches, not as a general thinning and falling of hair. Rest of hair often grows with great vigor. It is not preceded by grayness. The patches attacked get perfectly bald and as smooth as the surface of a billiard-ball. It may attack the beard and whiskers as well as the scalp; also the eyebrows and other hairy parts. The disease is not one of old age, but of early life. Children are more often attacked than adults, and women more commonly than men. (Ordinary alopecia is more common in men.) Distinguished from ringworm by the absolute baldness and smoothness of the patches which present a marked contrast to the broken stumps seen in ringworm. A characteristic feature is the presence of short clubbed hairs at the margin of the patches. Recovery in some cases spontaneous, but disease is apt to recur. It often tends to run in families. Often found associated with excessive brain-work (school children) and worry. Has hence been regarded as a neurosis. Also been considered a vaso-motor, or trophic lesion, but a microscopical observation shows a parasite.

Treatment.—The general health should be attended to and tonics given if needful. Glycerite of kephaline and tincture of oats internally often gives good results if persevered in for some time. Local stimulation may do some good. The patches may be painted at intervals with jaborandi fluid extract, or equal parts of the liniment and tincture of iodine. An ointment or lotion containing cantharides may also be of service.

Canities, or Acquired Whiteness of the Hair.—Grayness of the hair is a common precursor and accompaniment of baldness as already mentioned. It is due to deficiency of pigment. In those rare cases in which sudden blanching of the hair has followed great emotion it is said to be due to the formation of air-bubbles in the shaft of the hair.

Treatment.—Not very effectual. Tonics (especially oats) may be given and local stimulants used, such as cantharides. Kaposi recommends the use of fatty oils, as those of mace, walnut, or cassia. Persons wishing to conceal it very generally consult their hair-dresser and use some form of hair dye, which he finds it profitable to sell to them. Lead is a frequent ingredient in the popular nostrums sold and darkens the hair by chemically combining with the sulphur in it to form a sulphide. A lead comb is often used.

Pregnancy and Parturition.

Conception consists in the fertilization of the ovum or egg of the female, by the spermatozoa of the male in the ovaria; then fecundation takes place. There must be a union of the two materials furnished by both sexes; that is, the spermatozoa must unite with the egg in the ovary and fertilize



Side view of viscera, female pelvis: 1, vagina; 2, bladder; 3, Interior of rectum; 4, uterus; *a*, fundus; *b*, cervix; *c, c*, os uteri; *d*, posterior portion; *e*, anterior portion; 5, rectum, here covered by peritoneum; 6, 6, 6, sacrum; 7, coccyx; 8, labia minora; 9, labia majora; 10, urethra; 11, symphysis pubis; 12, clitoris; 13, mons veneris; 14, urachus; 15, section of peritoneum; 16, last lumbar vertebra; 17, broad ligament; 18, ovary.

it; and the embryo results from this union. The spermatozoa is ejaculated into the vagina; the uterus, by inhibitory action and vermicular movements, takes it into its cavity, and passes it along the fallopian tubes to the ovaries. It may occur without the patient being conscious of its occurrence, or against her will.

The most favorable period for conception to take place is either before or after a menstruation. After the ovum is impregnated, it increases in size and becomes prominent on the ovarium; then absorption of the peritoneal coat takes place; and when free, is seized by the fimbriated extremities of the fallopian tube, and carried into the cavity of the uterus.

The ovum, as a general rule, is found in the uterus twenty days after impregnation, sooner or later.

After the exfoliation of the ovum from the ovary, an effusion of blood takes place into the cavity in which the egg was embedded, and this is followed by a corpus luteum.

The human impregnated egg is very small, about the size of a dwarf pea. When impregnation takes place, the internal os uteri becomes closed by a soft, gelatinous substance, and the internal lining membrane of the uterus throws out a flocculent



A fair standard specimen of a virgin uterus; $2\frac{1}{2}$ inches in length, $1\frac{3}{4}$ inches in width, and $2\frac{1}{2}$ ounces in weight.



Interior view of the same uterus.



Uterine cavity.

or downy substance, which fills its cavity entirely. This is called the *membrana decidua*, and into this downy bed the ovum drops when it makes its exit from the fallopian tube, and, if not disturbed, will form its attachment near the point of ingress, and cause a growth of that part with which it comes in contact, and is called the *decidua reflexa*. So that the decidua is now divided into that portion lining and in contact with the uterus, called the *decidua vera*, and the other portion called the *decidua reflexa*.

The embryo then becomes covered with two membranes—the chorion and amnion. The amnion is an internal lining of the serous membrane, which furnishes a fluid for the protection of the embryo; allows space, facilitates motion and development of the foetus, and wards off shocks, jars, concussions. The chorion, on outside covering, furnishes a means of communication with the uterus

The ovum, after its establishment within the uterus, consists of the decidua, decidua reflexa, chorion, amnion, liquor amnii, fœtus, and umbilical chord, with one extremity attached to the child, the other to the membranes at the point of attachment in the after-birth. The after-birth, or placenta, is a plexus of vessels by which the circulation is maintained between mother and child, and by which the latter is nourished. When of full size, it is from six to eight inches in diameter, and in thickness varies from a line to one inch, or more, at its centre. It has two surfaces: one attached to the uterus, which is rough, spongy, traversed by ditches; and the fœtal side, which is lined by the amnion, which is smooth.

For the first three months of intra-uterine existence, this twig of humanity is termed an embryo; the latter six, a fœtus. As soon as impregnation takes place, the walls of the uterus become greatly infiltrated with blood, which increases the size of the vessels from being very small and convoluted, to that of large and straight; the muscular fibres grow with perfect regularity. This increase of growth and development for the first three months is very great, so much so that the specific gravity of the uterus is such that its broad ligaments are unable to hold it up, and it descends very low into the cavity of the pelvis, often nearly protruding. After the fourth or fifth month this difficulty is entirely obviated, by the uterus floating above the pubes; and at six months it is still higher. After the fifth month there is a gradual distension of the body of the uterus, which encroaches upon the neck, distending it, merging it into the body, and causing it to become shorter and shorter, until, from the eighth to the ninth month, it is entirely obliterated; that is merged into the body.

Signs and symptoms of pregnancy are divided into *rational* and *sensible* signs. The *rational* signs embrace:

First and Second Months.—A stoppage of the menses, nausea, vomiting, flatness of the abdomen, depression of the umbilical ring, tumefaction and tenderness of the breasts.

Third and Fourth Months.—In addition to the above, there is now a slight fulness of the abdomen, augmented swelling of the breasts, prominence of the nipple, and discoloration around areolæ.

Fifth and Sixth Months.—The disturbance of the digestive organs usually disappears; abdomen becomes well rounded and full, and the uterus can be detected above the pubes; fluctuation can be detected; and the color around the nipples becomes brown.

Seventh and Eighth Months.—Abdominal tumor large; dis-

coloration of the skin of the abdomen common; often varicose veins of the leg, labia, vulva; vaginal granulations; leucorrhœa, pruritus, and real copper-color around nipple; and suppression of the menses through the entire nine months.

First Half of the Ninth Month.—Vomitings liable to re-appear; the abdominal swelling is so great that the skin of the abdomen is stretched, tense; there is difficulty of breathing; œdema of feet.

Last Half of Ninth Month.—Vomiting ceases; abdomen relaxes; uterus descends; there is less difficulty in breathing, but more in walking; often difficulty of urinating—sometimes suppression, in other cases an inability to hold it; often piles; varicose veins of the leg; pains in the loins; cramps in the legs; colic, etc.

The *sensible* signs embrace:

First and Second Months.—Augmentation in the size and weight of the uterus causes that organ to descend low down in the pelvis; it cannot be moved easily; its walls touch the neck, which is directed downwards; the orifice or mouth is rounded, swollen, and a slight softening of the lips.

Third and Fourth Months.—The fundus of the uterus rises above the pubes, and a rounded swelling can be detected by palpation. Making the patient stand up, and putting the finger on the os uteri, and lifting it up, it drops suddenly down on the finger.

Fifth and Sixth Months.—The fundus can now be detected below the umbilicus; there are active movements of the fœtus; fœtal heart can be detected distinctly, indeed, it is very perceptible. The uterus can be mapped out, fluctuating, rounded; and the lower half of the neck of the uterus is softened, and the neck now begins to lose itself in the distension of the body.

Seventh and Eighth Months.—The increased size of the uterus and abdomen; the fundus of the uterus is three finger-breadths above the umbilicus at the seventh month, four or five at the eighth; movements of fœtus stronger; fœtal heart very clear; neck disappearing in the body.

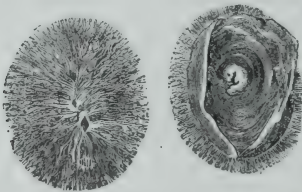
First Two Weeks of Ninth Month.—The fundus of the uterus reaches the borders of the false ribs, clear up to the stomach; fœtal heart very strong; neck of the uterus gone entirely into the body; the mouth of the uterus open.

Last Fortnight.—Fundus sunk low down; movements active; mouth of uterus open, soft, dilatible; the whole cavity of the neck becomes confounded with that of the body.

The entire period of pregnancy occupies nine calendar months, or forty weeks. Time varies somewhat, as to whether conception took place immediately before or after menstruation.

Pregnancy may be protracted in some rare cases; that is, carried out beyond two hundred and seventy-eight days, the interval between the last day of the menstruation and the expected confinement, and at least a fortnight more than this. There is no very exact time, or number of days, to which pregnancy may be protracted; still, it would be safe to maintain that in no case can it be prolonged over three weeks beyond the natural period.

Development of the Fœtus.—Fifteen days after the ovum or egg appears in the uterus, it is a gelatinous, semi-transparent, flocculent, grayish mess; *at thirty days*, the size of a large ant, and from three to five lines in length; *at six weeks*, ten lines in length, about the size of a bee, but some of the organs, in a very rudimentary state, visible; *at two months*, two inches long, weighs two ounces, and ossification has commenced at some points; *at three months*, three and-a-half inches long, weighs three ounces; umbilical cord well formed, and genital organs



Ovum and embryo at the sixth week.



A fœtus at forty-five days and at two months.

distinct; *at four months*, five or six inches long, weighs from four to five ounces; *at four and-a-half months*, quickening, or motion, is felt by the mother, or by placing the cold hand on the abdomen, and it is now from seven to nine inches in length, and weighs from nine to ten ounces; *at six months*, parts pretty fully developed, and weigh from one to two pounds, and its length from nine to twelve inches; *at seven months*, all parts are perfectly developed; weighs from two to three pounds, and in length from twelve to fourteen inches, or more, and perfectly developed; *at nine months*, usually twenty inches long and average weight seven pounds; bones of head firm; ossification more complete, and all the organs capable of performing their natural function.

Some variations in the above, but it gives the general average.

There may be several eggs fertilized, so that there may be twins, triplets, or quartlets. Pregnancy may occur outside of the uterus, extra-uterine; it may take place in the ovary, and the embryo develop there; or it may be developed in the fallopian

tube, or in the abdomen, or the ovum may find its way into the muscular coat of the uterus and be developed. The consequences of such are usually serious, causing inflammation, ulceration, suppuration, internal hemorrhage, and death to the mother.

When pregnancy takes place, and the woman knows she is in that state, she should eat the best of food, take moderate exercise, but avoid hard work or any strain, and above all, keep her bowels regular by eating sufficient fruit, or using enemata of milk and water. She should make a regular habit of either sponging or bathing the entire body once a day. All gloomy or idle fears should be banished; no tales of woe or sorrow told in her presence; her surroundings should be of the most agreeable kind, and she should place her trust in the benevolence, mercy, and wisdom of her Creator. Her clothing should be flannel, next the skin, at all seasons; she should have abundance of sleep, and all symptoms in this state should be managed with as few drugs

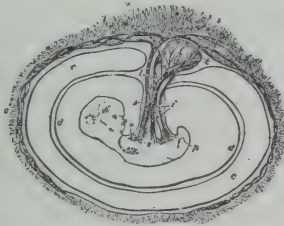


Diagram of the fœtus and membranes about the sixth week: *a*, chorion; *b*, the larger absorbent extremities, the site of the placenta; *c*, allantois; *d*, amnion; *e*, urachus; *e*, bladder; *f*, vesicular umbilicalis; *g*, communicating canal between the vesicular umbilicalis and intestine; *h*, vena umbilicalis; *i, i*, arteriæ umbilicalis; *k*, arteria omphalo-meseraica; *l*, vena omphalo-meseraica; *n*, heart; *o*, rudiment of superior extremity; *p*, rudiment of lower extremity.

as possible. The sickness of the stomach is one of the earliest of all symptoms, and should be treated with the plainest bitter tonics.

General symptoms of pregnancy are reflex; that is, they are dependent in a great measure upon some loss of tone, or weakness of the reflex centres, the medulla oblongata and spinal cord; so that when pregnancy or any condition of molecular activity of the uterus takes place, the excitement or hyperæmia is transmitted to the cord and bulb; directly from the uterus to those centres, and thence along any weakened nerve, hence we have facial *neuroses*, *toothache*, *salivation*, if the nerves supplying those nerves are weak; *nausea*, *vomiting*, *headache*, *heartburn*, *water-brash*, *constipation*, *diarrhea*, if the nerves of the stomach have suffered a partial loss of vitality; or there may be *syncope*, *aphonia*, difficulty of *breathing*, *insomnia*, *hypochondriasis*, con-

vulsions, abnormal states of sensation, sight, and hearing; various neuroses, even chorea, epilepsy, catalepsy.

Now with reference to these and numerous other symptoms, we would say: palliate them in the best manner possible, and above all things avoid medication during pregnancy.

It is well to *forbid* the use of all malt or alcoholic drinks, as they dwarf and whittle down the elements of humanity; predispose to fatty degeneration of the uterine fibres, and hemorrhage, give rise to miscarriage and brain failure in the infant; *forbid* all impressive sights; and the inhalation of all anesthetics, especially nitrous oxide gas for the painless extraction of teeth, because the nitrate of ammonia, of which it is composed, increases the alkaline constituents of the blood, and is very liable to cause an exfoliation of the uterine contents. The pain of toothache is due to the microbe of dental caries eating the nerve of the tooth. Kill it with resorcin paste, or concentrated ozone, and relief is afforded.

Symptoms of indigestion can be relieved with papoid; ozonized pepsine, and bitter tonics; diarrhea arrested with opium and tannin pill; constipation relieved by fruit; loss of voice by inhaling the nascent chloride of ammonia and a glass of coca wine; fainting or difficulty of breathing relieved by some diffusible stimulant; insomnia or hypochondriasis by extract of hop, or coca et celerina; and neuralgic pains in the breast by heat.

With regard to chorea, epileptic fits, or other nervous states, they must, if possible, be suspended, as their continuance is most disastrous; so extract of sumbul should be tried first, in the event of a failure, bromide of potass, blue cohosh, and simulo next.

Morning Sickness of Pregnancy.—Many theories have been adduced regarding the cause of morning sickness during pregnancy. All, however, appear to have been too speculative, and no one has met with anything like a universal opinion. Evolution may aid us in arriving at a just and feasible interpretation. From the earliest period of existence every organism has been endowed with two distinct qualifications: 1, that of maintaining self; 2, that of perpetuating its species. At first the double function was performed by a uniform mass, free from any semblance of structural differentiation. Habitual localization of function, however, produces eventually a specialization of structure, and with it the evolution of a nerve tract whereby the interdependence is maintained. It is therefore feasible to suppose that the nerve centre which regulates the process of assimilation is either in opposition or at least in direct communication with

that which presides over the organs of generation. All the visceral functions are now performed automatically, and are regulated by nerve centres located in the medulla oblongata; the uterine, by inference, being no exception. Considering the close relationship that exists throughout life between the two processes of assimilation and reproduction, there can be no doubt that the representative nerve centres act and react upon each other. When the uterus becomes the nidus for a developing germinal mass, the molecular disturbances radiated therefrom to the reproductive centre are liable to be transmitted to the pneumogastric as well, and induce either a feeling of nausea or actual emesis. Usually, however, in the course of a few months, through habit, the pneumogastric centre becomes tolerant, and the symptom evidencing disturbance at the same time disappears. It is difficult to understand why the sickness should be experienced more especially in the morning, unless it be that the change from the recumbent to the erect position after sleep renders the whole nervous system more liable to explosive disturbances. Frequently we find patients who only suffer from disturbances associated with epilepsy on assuming the erect position after sleep. The more highly unstable the nervous system is generally, the more likely is a woman who becomes pregnant to suffer markedly and for a lengthened time from sickness, whether matutinal or more or less constant. It is well, however, to remember that the molecular radiations from the uterus itself may, for some reason or other, be materially augmented; and such, acting on a nervous system otherwise apparently healthy, may induce an aggravated train of events.

The neurasthenic are most liable to it, whether it be due to a morbid innervation or a reflex condition. The sickness is often bad, even fatal, but in the large proportion of cases ceases at four and a half months, but may continue all the time. It is arrested if the foetus dies, or if miscarriage, abortion, occurs, or when the patient is delivered at full time.

Some cases can be directly traced to a general catarrhal state of the salivary glands of the mouth, with great salivation, catarrh of the stomach and bowels, with liver irritation. Other cases are due to a degeneration of the liver, spleen, kidneys—a sort of passive usurpation of their proper structure with fatty granules, a common condition in both pregnancy and lactation. Such conditions induce persistent anæmia, often jaundice, and uræmia. These symptoms are very dangerous, as there is apt to exist a structural granular lesion. Even slight vomiting, when accompanied with jaundice and albuminuria, is unfavorable.

Decided yellow atrophy of the liver is only present once in

1000 cases of pregnancy, whereas uræmia is common one in 500 cases. Still it is well to look upon nearly all cases with suspicion. The theory of pressure is untenable, for the worse cases are in the early months long before the gravid uterus could either affect the kidneys, or liver, or spleen.

No definite line of treatment could be laid down for any one case. Remedies must be tried, and if found successful, persevered with.

A few of the best remedies for the purpose of trial are the following:

Confine the patient to bed for one or two hours after the morning meal. Bowels to be kept well regulated.

A cup of good strong mocha coffee, without milk or sugar; or citrate of caffeine; or guarana could be tried; when either operates beneficially, usually from the first dose.

Liquor cerii ozonized is a splendid gastric sedative, tried in teaspoonful doses repeated; the oxalate in five-grain doses; ipecac in one-eighth or one-quarter of a grain dose. Dioxide of hydrogen worthy of a trial.

Carbonic acid gas operates as a sedative upon the base of the brain, and medulla oblongata, it could be tried in the form of a glass of champagne, vichy, apollinaris, and other effervescing drinks.

Papoid, pepsin, ingluvin and other digestive agents, as pancreatine, maltine, before or after meals, are often of great utility in arresting the vomiting. They should have a fair trial, as they often operate like a charm.

Milk and lime water. Peppermint water, bitter tonics, camomile, columbo.

Ozone tablets are excellent.

Tablets of nitro-glycerine.

Cocaine suppositories, one at bedtime, of great efficacy in numerous cases.

Hot applications over the abdomen.

Menstruation during pregnancy and lactation should not take place; indeed the presence of ovulation during these states is to be regarded in a most serious light, calculated to impair the vitality of both child and mother, causing both to acquire a tubercular diathesis.

The causes which have brought about this uterine, ovarian, and spinal neurosis, are obscure, some attribute it to a high state of nerve-strain, worry, struggle incidental to civilization; others assert that our modern, sexually exciting literature has much to do with it in producing this special neurosis, and wrecking the female organism; another class attribute it to the sewing ma-

chine; while others claim that sexual excesses and over-stimulating diet are the cause.

Whatever the cause may be, one thing is very certain, that it did not exist thirty years ago.

Occurring during pregnancy, it is to be carefully distinguished from those cases where the after birth is over the mouth of the womb, when after the fifth or sixth month of pregnancy there is a dribbling from the uterus daily.

The appearance of the menses during pregnancy and nursing is to be looked upon as a weakness, or neurosis of the sexual appetite, brain cord, ovaries, uterus; and every possible means should be taken to arrest it by strengthening the whole system, and parts implicated.

There must, in the management of such cases, be an entire avoidance of all excitement; no use of the sewing-machine; an avoidance of shows, theatres, balls; no light or fictitious reading; a perfect freedom from care, worry, taking life easy with a good deal of rest.

The best remedies are hip-baths, wine of *aleteris farinosa*; and *erythroxyton coca*; comp. syrup partridge berry and fl. ext. of *stylosanthus*. Two of these remedies should be used one week; next week the other two, and so on for a period of some months, as each one has a most remarkable vitalizing action on the uterus. *Avena sativa* might be administered occasionally.

A morbid appetite, a perverted or depraved longing, or craving, or insatiable desire for peculiar substances, as sand, chalk, clay, sponge, and other articles.

We have often the same state existing in uterine irritation, chlorosis, masturbation, ascarides, an abnormal hyperæmia or neurosis transmitted to the co-ordinating chemical centre in the brain; the same state is induced during the first four and-a-half months of pregnancy. To correct this state, and appease the craving or hungering, rest in the recumbent posture, and a persistent use of coca wine are most effective.

The coca wine is also the best remedy for the pallor, anæmia, mental depression, colicky pains, diarrhea, debility and other symptoms of nerve tire.

To increase the efficiency of the coca wine, it could be alternated with kephaline or *avena* with advantage.

An irritable bladder is present as a symptom of pregnancy, chiefly among neurotic females, in quite a number of cases.

Some few cases are due to the presence of an excess of uric acid; if such be the case, a change of diet, more fresh air, will probably overcome it without resorting to drugs.

Still, if no improvement takes place, it might be well to look

for some adjacent irritation, as some caruncle, or vascular excrescence, lupoid, or other ulcer on a follicle of the vagina; sympathy from a rectal abrasion or pocket, or fissure, or neurosis.

If the irritability of the bladder is great, ordinary treatment must be resorted to, irrespective of the condition of pregnancy.

Passive chronic interstitial nephritis is quite a common condition during pregnancy, especially after the fourth month.

The peculiar protoplasmic changes in the blood-forming and blood-raising glands; the intimate nervous connection of the uterus and kidneys; possibly pressure; albuminuria during pregnancy is to be looked upon as a most grave affection, often involving the death of the fœtus by a peculiar degeneration of the placenta, and later on the mother succumbs to the inevitable.

The same course of treatment should be pursued as in chronic interstitial nephritis. Our two best remedies are nitro-glycerine and benzoic acid, which, when carefully administered, cause a rapid disappearance of both albuminuria and dropsy.

Mellituria, the sugar fungus in the blood, is becoming more and more common as a symptom of pregnancy.

No doubt this is due to a neurosis of the sympathetic system, as it occurs most frequently among ladies of high culture, with excessive mental development.

The peculiar change in the hepatic structure, or else in the eighth pair of nerves which supply the liver, or in the brain, incidental to this condition, is probably the cause. Few of the essential symptoms of diabetes are present, there is usually no excessive appetite for either food or drink; no chloroform breath, and although the urine is loaded with the sugar fungus, it is neither excessive in quantity nor of a high specific gravity.

It is this saccharine fungus-laden urine, coming in contact with the fine sensitive mucous membrane of the vulva, which excites a neurosis, a pruritus, with its intolerable itching.

The best remedies are: administer five grains of jambul after each meal till pregnancy is completed, when the fungus at once disappears.

Solutions of boroglyceride, either in an infusion of elder flowers or poppies, are most effective in relieving the intolerable itching.

Pure cocaine, dissolved in coca butter, is also most efficacious.

Eruptions and excoriations are also quite common around the labia, entrance to the vulva, also on the perinæum extending back to and around the rectum; often partaking of the nature of an eczema.

As a general rule it originates from some local irritant, as saccharine urine; in other cases from neglect of diurnal ablutions

with castile soap and tepid water, followed by boroglyceride solutions.

The best treatment is great cleanliness, followed with ozone or resorcin ointment. Cracks, abrasions, ulcers, apply resorcin ointment.

A serous, or watery discharge from the vagina, loaded with cocci, best relieved by the boroglyceride wash locally, and internally by the use of the *aleteris farinosa*.

Piles are often present, and usually the result of the passive changes in the liver, incidental to pregnancy, all that can be done is to palliate the condition by keeping the bowels regular by taking fruit, use of baths, bathing the anus with distillation of witch hazel and boroglyceride.

Swelling of the labia, best relieved with rest, bathing the parts with distillation of witch hazel.

Varicose veins of the limbs should be palliated by first bathing the limb with castile soap and tepid water, drying well, then bathing with distillation of hamamelis, and either wearing an elastic stocking or bandage during the day.

Cramps in the limbs, best relieved with rest, rubbing.

Inability to hold the urine or retention of urine, best relieved by rest, change of diet, and a persistent use of the *aleteris cordial* in alternation with the compound syrup of partridge berry.

Undue tightness of the abdomen is best relieved by rubbing warm olive oil into the abdomen before retiring.

General Rules to be Observed.—Daily tepid sponge bathing to be observed, so as to permit free aeration of blood by the skin; no drugging, but what is absolutely necessary; a good deal of rest, with a fair amount of open-air exercise; change very salutary; abundance of good food; tea and coffee restricted; she should never feel exhausted by any labor, nor be fretted or worried by care; mental and physical vigor of the highest calibre; the higher and holier attributes of her being should be brought permanently forward; she must positively avoid literary pursuits, as they arrest brain evolution in the fœtus.

Deformities and mutilations are becoming more common as the nervous system is being developed at the expense of the physical. There are some causes which are known, others which are latent. A child begotten by a father in a state of alcoholic intoxication, either suffers from idiocy, or brain shrinkage, feebe-mindedness, imbecility or epilepsy; some brain disease of the insane group.

All children born with deformities, such as hair-lip, cleft palate, club-foot, imperforate anus, are the result of incompatibility of temperament, close consanguinity, or in-and-in breeding;

whereas, mutilations, monstrosities, are due to shocks, frights, impressions made upon the mother during the first two or three months of embryonic life.

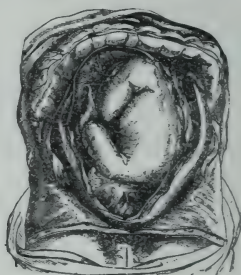
Probably amputations of the limbs come later.

The prevention of brain disease and deformities is in the hands of the parents, and should be regulated by the most stringent laws; whereas, the prevention of mutilations is in the hands of the mother alone; she should avoid reading all dime novels, fictitious literature, or attending theatres, or excursions, or the killing of animals or poultry, or seeing, hearing, or feeling any strange or abnormal thing that would be likely to vividly impress her.

All physicians deprecate the practice of the administration of drugs during pregnancy, still there are exceptions to the rule in our present conditions of civilization. The use of the wine of



Showing the vessels of the gravid uterus at the beginning of labor.



The appearance of the uterus and child at full period of pregnancy; weight from seven pounds upwards.

the *aletris farinosa*, comp. syrup of partridge, fl. ext. stylosanthus, either one alternately, should be recommended in, and during all pregnant states, as they are most invaluable remedies for strengthening the uterus and its appendages, and rendering labor easy and natural. These remedies have a most salutary action in obviating all complications, as false pains, hemorrhages, etc.

The bowels must be kept regular by the use of fruit and vegetables, and once a week, for eight weeks prior to the event, the coming mother should take a dose of castor oil, in order to favor a secretion of milk.

Parturition or labor may be defined to be the expulsive efforts of the uterus and mother to evacuate the contents of the womb, the fœtus being a mere passive body.

Violent passion, mental excitement or impressions may excite or suspend labor, but cannot prevent it.

Symptoms of labor may be briefly enumerated: When the

fortieth week has expired, there is likely to be some nervous depression, which is manifested by a rigor or chill of more or less intensity; a frequent inclination to make water, or else a suppression of it, bearing-down; subsidence of the abdominal tumor; secretion of mucus, often streaked with blood, called the show; aching in the hips or thighs; sometimes cramps, and a dilatable condition of the mouth of the womb, with alternate contractions, accompanied with pain. In some cases the pains are false or spurious. They are said to be such when the mouth of the uterus remains unaffected by them. These pains in some ladies are apt to come on several days before the genuine, and are apt to worry or annoy the patient; and in all cases in which you are satisfied that they are false, they should be stopped by an injection of starch and laudanum into the rectum.

The following are the measurements of a foetal head, of ordinary dimensions, at the full period of utero-gestation :

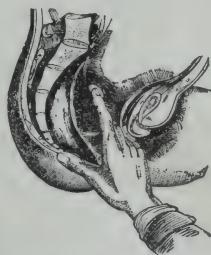
The longitudinal diameter of its head is from 4	to 4½	inches.
The transverse,	3½ to 4	“
The occipito-mental or oblique,	5	“
The cervico-bregmatic,	4 to 4½	“
The trachelo-bregmatic,	3½ to 4	“
The inter-auricular,	3	“
The fronto mental,	3½	“
The transverse diameter of the shoulders, .	4¾ to 5½	“
“ “ “ “ hips,	4 to 5	“

True pains are produced by contraction and drawing up of the womb, which first expels the slimy matter, mixed with blood, called a “show.” As soon as this appears, the mouth of the womb at each pain begins to open and widen itself, so as to permit the contents of the womb to pass.

When labor begins, the mouth of the womb is opened by the longitudinal fibres which are opposed to the circular.

Labor is very correctly divided into three stages: the *first* is the period of dilating of the mouth of womb sufficient to let the head of the child pass, and occupies more than two-thirds of the time of a labor; the *second* is the expulsion of the child from the uterus, and occupies much less than a third; and the *third* stage is a complete expulsion of the membranes and placenta.

The first pains are short, come on at long intervals; the patient is restless under them, first hot, then cold, and not infrequently sick at the stomach. She may be griped, belches wind, or passes it from the bowels, which should not be restrained by false deli-



Vaginal examination.

cacy. By and by pain passes to the back and then to the bottom of the belly, and there is usually a desire to urinate or to go to stools, calls that are to be obeyed, never neglected. Just at this time she is likely to become fretful, uneasy, and may ask for something to hurry up pains; but be patient, wait a little, don't force nature to premature efforts; let her rest while nature rallies, and the womb gradually opens.

The duties of the nurse, midwife, or physician, if the presentation is all right, consists in aiding, if needed, giving consolation and encouragement; warm drinks; watching the case carefully and closely, and rendering assistance when necessary.

During the First Stage.—At this stage it is unnecessary for the patient to go to bed, only once in a while, for examination.



Head at the lower outlet.

She is better during the greater part of the first stage, moving gently about the bedroom, and when a pain comes on, be in a position to get hold of something. During such pains a doubled-up position, either sitting on a low stool, or kneeling, answers well. When this first stage is nearly over—that is, dilating the neck of the womb completed, the patient must go to bed. The best position for American women is the left side, near the foot of the bed, so that she can fix

her feet firmly against the bed-post; her hips from ten to twenty-four inches from the edge of the bed.

If attendants are few she could have a sheet attached to the bed-post, so she could hold on to something from below; her legs bent, a pillow between her knees, and her head also supported by a pillow. The bed for about a yard and-a-half square should be protected with a gum or oil-cloth spread, and two or three quilts doubled up over the same, so as to take up the discharge. Irish or German women, with straight sacrum, do fully as well on their backs, or even on their knees, in the bed, or on the floor, until they are well over and into the second stage. Once it is ascertained that the presentation is a good one, it is unnecessary to annoy her by repeated examinations.

All examinations should be made during a pain, and continued when a pain is off. If the pains are good, efficient, and the mouth of the womb well dilated, parts well lubricated and the membranes seem to act as a retarding element, they can be ruptured by roughening the nail of the index finger; but if they do not seem to retard the labor, they may be let alone, until they almost protrude externally, as they act as a good dilator.

The bag of waters differs in size in different cases, according

to the amount of water present, and is, always, large or small, a good dilating body, continuing to force open and widen the mouth of the womb, until it is open sufficiently to permit the head of the child to pass. It also distends or dilates the vagina.

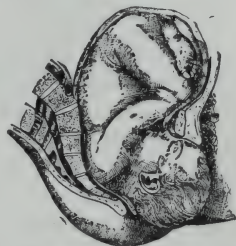
In some cases, ladies, by excessive or violent movements, cause a rupture of the membranes, a week or more before labor; then labor is dry, and is not nearly so easy; in other cases of sudden or hurried labor, the membranes, water, child and after-birth are expelled in a mass, then the child is said to be born with a *caul*. When they burst at the proper time the pains continue, and the child gradually enters the world. If the mouth of womb is dry and rigid, so that the pains are inefficient and the first stage prolonged, this rigidity must be overcome in various ways; enemata of tepid water and lobelia into the rectum, steaming the vulva, perinæum, and anus, by causing the patient to sit on a chamber partially filled with boiling water in which a plug of tobacco has been cut up; or by smearing the rigid mouth with belladonna ointment, or introducing a pastile of belladonna and opium into the vagina; and if it does not yield, these means may be repeated, or they can all be used. A decided nausea has an excellent effect.

When the head is emerging under the arch of the pubes, the perinæum should be supported with the palm of the left hand, and retained there till the head is free from the vulva.

If the perinæum is tough, rigid, not easily distended, and thus obstructs the exit of the head, it may be well oiled, and hot towels—as hot as can be borne—applied, one after the other, so as to relax it. If this is unavailing, wring the towels out of hot lobelia or tobacco water.

When the head has made its exit, do not pull or drag it, but simply hold it in the hand until the next pain, and, when it occurs, have the patient hold her breath well and bear down, when the body will be expelled. Indeed, all through the case the patient must exercise great fortitude, patience, and forbearance; be quiet and docile, and on no account must she throw up her arms, stretch herself, or let go her breath in the middle of a good bearing-down pain or effort. Some ladies are remarkably sensitive, and the greatest delicacy and kindness should be observed towards her in all things. Her person must not be exposed.

Cool, firm determination, a cheerful disposition, with the use

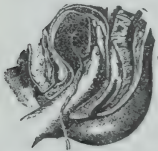


Forehead under the arch of the pelvis.

of warm stimulating drinks, are of more utility than a lot of humbug. We must guard against too sudden a delivery, with membranes, water, and after-birth altogether, as that is very apt to be followed by hemorrhage. After the delivery of the child, lay it on the right side, remove any mucus from its mouth, and give it a very gentle beat on the back with the open hand. Usually this is sufficient to establish respiration; if not, artificial respiration, or otherwise, should be resorted to. (See *Asphyxia*.) Respiration may be suspended for over forty minutes, and resuscitation may take place; so our efforts should continue as long.

As soon as the child cries lustily, and there is evidence of a proper supply of arterial blood, that is the time to ligate the cord, applying the first ligature from three-fourths to one inch from the belly, the other one two inches further on, and then dividing or cutting it between the two. As soon as this is done, wrap or roll up the child in a blanket, and hand it to the nurse; then attend to the mother, and the removal of the after-birth. On placing your hand over the abdomen, you will find the uterus either contracted or relaxed. If contracted, the after-birth may be in the vagina, and a cough, or sneeze, or blowing with some force into the palms of both hands, or a gentle bearing-down effort, or slight traction on the cord, may cause it to come away. As soon as it approaches the vulva, it should be grasped and twisted round several times, so as to twist the membranes, and have them come easily and entirely away.

If the uterus is relaxed, and after-birth attached, resort to frictions with oil over the abdomen, so as to cause contraction; allow a little rest till the vital forces rally. Administer a little capsicum in warm sweet milk, or a little quinine, or a little hot punch, so as to establish permanent tonic contraction of the uterus. If there is retention of the after-birth after tonic con-



Extraction of a retained placenta.

tractions have taken place, use friction, shampooing, dry heat to the abdomen, enemata of tepid water into the rectum, and administer stimulants. These means failing, after waiting perhaps one or two hours, introduce the hand in the form of a cone—the back of it well oiled—into the cavity of the uterus, and gently grasp the placenta, or after-birth. It is very probable that the presence of the hand will cause such violent contractions, with expulsive pains, as to cause it to be thrown off. If not, detach it carefully, and leave no portion behind; wait until a pain comes, when withdraw the hand in harmony with the bearing-down effort. This is best effected with the patient on her back, knees drawn up, and I will repeat, let it be done with

great kindness and gentleness. After it is removed, the patient should be carefully bandaged, from the middle of the thighs to the bottom of the sternum, with a thin compress over the uterus. In applying this bandage, it should be pinned from below up; a pin every inch, and free from all wrinkles. Then a dry, warm diaper should be pressed against the vulva. This, or a similar bandage, should be applied daily, and seen to by the physician or nurse for ten days, and it should be worn for at least two or three months. On the re-application of the bandage, it is well to sponge the abdomen with a little hartshorn and tepid water; dry off well, and then use either bay rum or cologne-water. By this means all the cracks, fissures, crevices, of the abdomen are avoided; also enlarged or pendulous abdomen. A woman can be well preserved if due care is taken of her, even after she has had a dozen children.

After the bandage is applied, the patient should be moved up to her proper place in bed, and a doubled quilt placed underneath her. The use of the bandage after delivery has many advantages. Besides maintaining the natural condition of the abdomen, *it* stimulates the uterus to contraction, and thus prevents hemorrhage; *it* rests the broad ligaments, and gives support, and prevents falling of the womb; *it* is, besides, a great safeguard and comfort to the woman, and on no account can it be dispensed with. Always pin from below up, firm at first, but always easier as you progress upwards.

If there is any disposition to hemorrhage, in addition to the roller put the child to the breast at once, or as soon as possible after the mother has rested. The first cathartic should be given after the mother has had a sleep; and it should be oil, on account of its influence in secreting milk. All through, during and after labor, the bladder should be carefully watched, especially if there is any retention of urine.

The diet of the mother, if not very feeble, should, for about nine days, consist of plain oatmeal gruel, sago, arrowroot, rice, tea and toast, beef-tea. As a rule, beef, mutton, chicken, game, or highly-seasoned food, or stimulants, should be avoided; but after the ninth day, a generous and nutritious diet may be allowed, even as liberal as the patient may desire, avoiding all indigestible articles, as veal, pork, salt meat and fish, pie-paste, cabbage, etc.

The discharge that comes, or takes place from the uterus after delivery, is called the *lochia*, or cleansing, and should continue from two to three weeks; if longer than three or four, means should be taken to tone up the uterus by port wine and Peruvian bark, mother's cordial. If it should suddenly cease inside

of the first two weeks, measures should be taken to re-establish it.

The most common causes that are likely to cause its arrest, are cold, cold drinks, ice; sudden mental emotion, or excitement, or worry, or passion.

To cause its re-appearance, try heat to the vulva, over the uterus, and to the feet, with infusion of catnip, and a few drops of the tincture of aconite. If that fail, try *serpentaria* compound, in half-teaspoonful doses, in some warm tea, and administer enemata of flaxseed tea, with laudanum. If that fails let patient drink linseed tea, warm, with tincture of snake-root. If the stoppage, or arrest of the lochia takes place inside of the first ten days, we may entertain apprehension of its absorption into the blood, and puerperal fever; later than that it is not likely to be attended with such grave results. The prevention of its disappearance, by keeping the patient quiet, free from all care or anxiety, by a strict avoidance of all cold drinks, and inculcating other elements of comfort, which are of great consequence, will almost infallibly ward off this complication.

• The early and often indiscreet use of ergot is most disastrous in parturition, by energetically stimulating the lumbar portion of the cord, and often causing rapid contraction of the entire uterus, neck and all. This is most liable to occur if the drug has been administered freely early on the expulsion of the child, causing a retention of the placenta.

If this should occur, opium should be administered in small but repeated doses, to relax the neck of the uterus; inject hot water copiously into both rectum and vagina, following with one or two obstetric cones into each; apply scorching hot pillows to loins and over uterus. If not successful, in a short time in getting the fingers and hand into the uterus, after it, inhalation of a few drops of chloroform on the towel, never enough to produce anæsthesia, because the blood is embolized and heart feeble. If this fails, try enemata of lobelia, and administer the same internally in small doses, just enough to nauseate well, but not to cause emesis. In connection with the lobelia, insert a cocaine suppository into both rectum and vagina every three hours. These means failing, insert a No. 12 cat-gut bougie, well up to the fundus of the uterus, and leave it there for a few hours to try and excite or originate pains or contractions.

If all these means fail, then inject the uterus thrice daily with either tepid solutions of creolin, or boroglyceride and being careful that it all escapes, keeping the patient under the influence of opium and the uterus under bactericides.

Retention of the placenta must invariably be regarded as a

most grave complication, there being great danger of metria, septicæmia.

Owing to the nervous, impressible condition of the reflex nerve centres in American ladies, they do not bear uterine injections well, and they in themselves are dangerous from the fluids finding their way into the uterine sinuses, thence into the circulation.

The emerging of the fœtus from the uterine cavity in some one of its six vertex positions, head downwards, a position the necessary and ultimate consequence of its own specific gravity; extension and impaction of the child's lower limbs against the resisting parts of the uterine cavity, is the normal state.

The breach, or the feet, knees, buttocks, are regarded as natural, and are next in frequency to the head, but they are not such good points for dilatation; consequently, the labor is very slow or prolonged, and even when the feet, knees, buttocks and body are expelled there is danger to the child, if the head is not delivered, by pressure upon the cord.

If hemorrhage should occur during natural labor, enjoin rest, recumbent position and a plug. This latter is uncomfortable, and really does not hasten evacuation much, and scarcely prevents hemorrhage.

If these means fail, endeavor to excite uterine contractions with quinine, capsicum, corn-smut, mistletoe. If still persistent, and the os uteri dilatable, rupture the membranes and introduce the hand into the cavity of the uterus, seize the feet and bring them down with their toes pointing to either thigh of the mother, so as to bring the long diameter of the head into the long diameter of the pelvis.

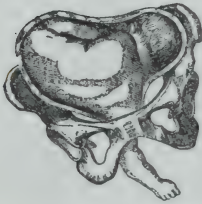
In convulsions during natural labor, if the mouth of the womb is rigid, administer opium and lobelia, by the mouth and by enemata; if they recur, inhalation of chloroform; and as soon as the mouth is dilated sufficiently to admit the hand, insert it, seize the feet, and bring down, with the toes pointing to either thigh; and deliver under chloroform and hypodermic injection of morphia.

If fainting fits should occur, and they are due to debility, or some peculiarity of the nervous system, diffusible stimulants should be given; but if they are due to internal hemorrhage (concealed), turn and deliver.

If there is a rupture, and danger of strangulation, and the mouth of the womb is dilatable, turn and deliver.

In case of presentation at the shoulder-joint, it is easily recognized by the child lying crossways in the abdomen, head at one side, buttocks at the other, by the sharp point of the shoulder

or the descent of the arm. In cases of this kind, delivery cannot take place, and it is necessary in all cases to turn. So wait until the mouth is sufficiently dilated to admit the hand; then rupture the membranes, if still entire, and proceed to turn. In doing this, the patient should be placed upon her back, knees drawn up; the back of the hand of the operator well oiled; hand in the form of a cone, gently introduced into the cavity of



Arm presentation, first position.



Compound presentation, head, feet and cord.

the womb; seize the feet and bring down, with the toes pointing to either thigh of the mother. If the hand of the child has descended, the palm will either point to the front or the back; this forms an excellent guide to where the feet are to be found. If it points to the front, insert the hand up in front, and there the feet are to be found; if to the back, then in that direction. This saves groping round after the feet. In all cases of turning, or when it is necessary to introduce the hand into the uterus, it should be done during the absence of a pain; and if a contraction or pain comes on when it is so introduced, let it lie flat until the pain subsides, and then proceed and bring down the feet.

After-Pains.—After the first confinement there is usually no after-pains, as the uterus does its work well and with energy; that is, effects a perfect evacuation of its contents, leaves nothing behind, but in all subsequent deliveries, there is liable to be a slight inertia, or sluggishness, and there is apt to be an imperfect closure of the uterine vessels, an oozing, or clot, or shred of the secondaries, a something which the uterus tries to expel. It is simply due to a want of tone, and it is greater with each subsequent delivery. The pains are due to contraction of the uterus upon something, which if large, the pains are severe; if small, less annoying.

Ladies affected with neurasthenia of the spinal cord, after labor, often have the recently emptied uterus brought into a most violent and painful contraction, without any discernible object in view; and a severe case of this kind is bad; much more painful

than ordinary after-pains, that come on to expel a clot or piece of membrane.

In all cases of after-pains, whether mild or severe, the roller should be kept applied, but not too tight, as it acts as a stimulant to contraction. A solution of sulphate of morphia, thus: sulphate of morphia, four grains; bicarbonate potass, twenty grains; cinnamon water, four ounces. Mix. Dose, one teaspoonful, as indicated, relaxes the neck of the uterus, and by administering gradually just enough to permit the egress of the clots, discharge or cleansing, and discontinuing as soon as relief is afforded. If in spite of this, pains persist, evacuate the bowels with a dose of castor oil, and insert one, two or more obstetric cones.

From extensive observations of the bacteriology of the genital canal in the non-puerperal condition, it has been found that the uterus, its tubes and crevices, upper part of vagina, when in a normal condition contain no micro-organisms, but all below the external os, in the cervix and lower portion of vagina, organisms are numerous. They consist of cocci, pathogenic in appearance and behavior, but in an attenuated condition, incapable of culture.

The lochial discharge is simply a myriad of disease germs, but they contain no power of inoculating till they reach the vagina, when patients are affected by their own secretions. The lochial organisms are intimately associated with the microbes of suppuration and septicæmia, hence the indispensable necessity of obtaining asepsis in obstetrical practice.

The hands of the physician, all instruments, cloths, as well as those of the nurse, should be carefully disinfected by solutions of boroglyceride, resorcin, creolin, iodine. A closure of all lacerations at the earliest possible moment after delivery, to render them impervious to the entrance of germs.

Boroglyceride, acetic acid, creolin, resorcin, iodine, etc., are excellent disinfectants, styptics, non-poisonous, produce no unpleasant effects, and are fatal to all micro-organisms in the puerperal state; the boroglyceride and creolin in solution are superb, leave the mucous membrane smooth and healthy.

Hour-glass contraction of the uterus and retention of the placenta or after-birth, is not at all uncommon, and most cases noted can be traced to the early and persistent use of ergot. Hour-glass contraction is a condition in which some nerve that supplies the centre of the uterus is weak, which receives an undue amount of stimulation from the cord, irritated by the ergot, which causes it to contract in the middle, with the after-birth in the upper half.

This is not nearly so grave an affection as contraction of the



Hour-glass contraction of the uterus.

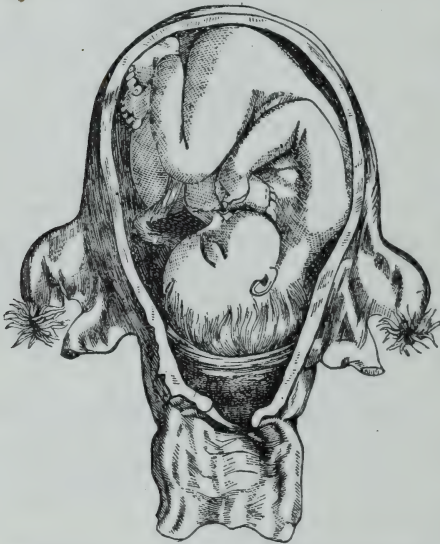
neck, for when some degree of relaxation is induced by either chloroform or lobelia, it usually yields readily to gentle manipulation, first one finger being inserted then another, and so on, latterly the whole hand gets through the obstruction, seizing the after-birth, gently withdrawing it.

Placenta prævia, a condition in which, instead of the after-birth being adherent to the fundus, it is implanted over the mouth of the uterus.

This is usually recognized sometime between the fourth and sixth month, by an almost daily dribbling or oozing of blood, which increases in quantity and frequency as the neck merges into the body, and during the later months the loss is quite considerable.

On making a digital examination, a soft, spongy mass can be detected over the mouth of the womb.

In all such cases it is well to have another physician in attendance besides the regular one, not for aid, but to share the grave responsibilities of such a case. Wait until labor sets in; if there should happen to be hemorrhage, use the plug made of several



Placenta prævia; the child's head firmly imbedded in the after-birth.

fine sponges until the mouth of the womb is sufficiently dilated to admit the hand; then push away the after-birth on one side, whichever yields most readily; then insert the hand, rupture membranes, and bring the feet down, toes to the thigh of the mother. Before resorting to this, either brandy or capsicum should be given, with infusion of good, fresh ergot; the abdomen rubbed with warm oil; and every means taken to facilitate delivery. Promptness of action and a clear head are necessary in this crisis, in order to save either mother or child. When turning is once consummated, there is little of further hemorrhage, because the head of the child effectually blocks the mouths of the bleeding vessels. If no physician is near, the nurse or midwife must pursue the above course, without aid, for if she waits, death will inevitably take place. There should be no inter-

ference until the mouth is dilated to admit the hand, only by the plug, but everything be in readiness.

Inducing, exciting, stimulating uterine contractions during labor is often necessary, and we have many valuable agents for effecting this purpose. The drug in common use is *ergot*, which, when administered freely, produces continuous contraction of the uterus, and embolism of the blood. In all cases, every possible means of increasing the vital action of the uterus should be tried before risking the life of both mother and child upon this drug.

Ustilago maidis, corn smut, is rapidly taking the place of ergot. It is a uterine excitant of the highest order; when administered in parturition, it gives rise to intermittent contractions and does not create embolism.

Sulphate quinine is an efficient parturient, stimulates contractions, cleanses the uterus of retained clots, membranes and placental debris. Its action as an oxytocic has long been known; it acts upon the body of the uterus alone, leaving the cervix untouched, thus being superior to ergot, which acts upon both body and neck and occasionally occludes pieces of membrane.

Painless labor is the great desideratum of ladies of the present age, and is effected in a variety of ways; anesthetics are not to be recommended, except in some rare cases. Smearing the loins and entire abdomen with the following acts well: Concentrated ozone, four ounces; chloroform, two ounces; sulphate of morphia, ten grains. Mix. Before applying the above, insert two obstetric cones up the rectum and the same number up the vagina. These cones being composed of cocaine, peroxide of hydrogen and boroglyceride, render all parts to which they are applied aseptic and completely blunt the sensory nerves, aid dilatation, facilitate a speedy, painless delivery.

If, from any cause, labor be prolonged, their administration can be repeated, as the attending accoucheur may direct.

Various complications or accidents may arise, as extravasation of blood into the labia; this is usually either caused by the presence of the head or instruments.

After the labor is over, apply cloths saturated with either distillation of witch hazel or arnica or marigold; these failing to excite absorption, use tincture of iodine in lime-water.

Convulsions appearing during the progress of labor, belong to a state characterized by anæmia or congestion.

In both forms, turn, and deliver with all speed, if the mouth of the womb is dilatable.

If due to anæmia, hypodermic injections of morphia; lobelia enemata, and very nourishing drinks; or use inhalations of chloroform or chloral hydrate, with the hypodermic injections.

If due to congestion, enemata of lobelia, active purgation, hy-

oscyamus, bromide of potass; heat to feet, stimulants to nape of neck, cups; all failing, administer either by mouth or rectum the antispasmodic mixture, which is a safe and always efficacious remedy. A division of the class thus enables you to meet them with great promptness.

Rupture of the uterus is very apt to take place if there is any obstruction, hardened fæces, an exostosis of the promontory of the sacrum, deformed pelvis, a bad presentation, turning during a pain, or the use of ergot during the first stage, and such like causes. Some think fatty degeneration of the muscular fibres of the uterus has much to do with it, and thinning of its walls. It is easily recognized by the sudden cessation of pain, fainting, pallor, death-like coldness, and, on placing the hand over the abdomen, the child can be detected in the cavity of the abdomen out of the uterus.

If such an event should take place, the abdomen should be slit up, its cavity exposed, the child, after-birth, blood, clots and water carefully sponged out, the cavity of the uterus cleansed, the whole stitched up and bandaged. An effort should be made to rouse up the patient by administering diffusible stimulants; and if she rallies, treat for peritonitis.

Unnatural Labor.—Unnatural labor may arise from defective uterine power, and abnormal states of the pelvis, and by some



Face presentation,
1st position.



Face presentation,
2d position.



Passage of the head through
the external parts in face
presentation.

peculiarity on the part of the child. Of this latter the most common malposition is presentation of the face.

The face usually presents in two positions—the first is when the forehead is to the left ilium, and the chin toward the right ilium. This is the most common.

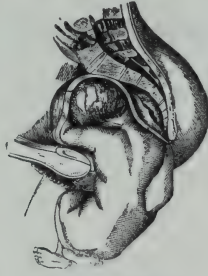
Treatment.—If the pelvis be not smaller than usual, assistance will rarely be necessary, but if the delays be great, interference is justifiable. If there is an impediment, we must decide whether there is room for the application of the forceps, or whether craniotomy is the only alternative. The time for operating must be determined by the symptoms.

Malpresentations.—The head is the type of natural labor, so that any presentation of any other part of the body may be classed under the head of malpresentations.

Presentation of the breech.—This presentation in the statistics of my practice occurred about one in sixty. The breech may



Breech presentation,
1st position.



Breech presentation,
1st position.

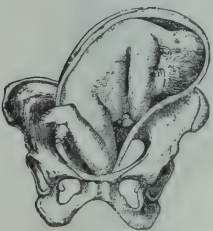


Breech presentation,
2d position.

present at the brim in different positions, but as it enters it usually arranges itself, so that, either first, the back of the child shall be turned anteriorly toward the abdomen of the mother; or, second, the back of the child shall look posteriorly toward the back of the mother, not directly anterior or posterior, but obliquely, the transverse diameters of the child's hips corresponding to one or



Breech presentation,
extraction of the head.



Presentation of the inferior extremities



other of the oblique diameters of the brim.

In the first and most frequent position the left ischium corresponds to the left acetabulum, and, being anterior, it is depressed, and presents at

the os uteri, so that the finger impinges upon it if it be passed into the centre of the os uteri. In this oblique position the breech descends into the cavity. On examination, we discover the absence of the head, blocking up the passages.

Presentation of the inferior extremities.—In my practice, I have met with this position but once in one hundred and ten cases. By this presentation I include both of the knees and feet. There

are but two forms of malpresentation. When the toes are directed backward, and when they are directed forward, they correspond exactly to breech presentations. The first thing that excites our suspicion of its being unnatural is very often the early rupture of the membranes and the large quantity of liquor amnii that escapes.

Presentation of the superior extremities.—I have met with this presentation once on an average in every 230 cases. In almost all cases, it is the shoulder with primarily presents, and after-



Arm presentation; position for turning; 1st position.



Arm presentation, 2d position.

wards the arm prolapses, but sometimes we find the arm, or hand, or elbow, at the beginning of labor, at the os uteri.

In all cases the back of the child either looks toward the abdomen of the mother, or backward toward her spine.



Version, or turning; seizing the feet.



Turning; bringing down the feet.

The delivery of a child so placed is impracticable, unless assisted by art. Although cases of spontaneous evolution have been met with, yet they are very rare.

Symptoms.—Labor with this presentation is extremely dangerous to the mother, being about one lost in every ten, and of children more than one-half. After the membranes have burst, and discharged more liquor amnii than in general, when the head or nates present, the uterus contracts tighter around the child, and

the shoulder is gradually pressed deeper in the pelvis, while the pains increase considerably in violence from the child being unable, from its faulty position, to yield to the expulsive efforts of nature. Drained of its liquor amnii, the uterus remains in a state of contraction even during the intervals of the pain; the consequence of this general and continued pressure is, that the child is destroyed from the circulation in the placenta being interrupted, the mother becomes exhausted; inflammation or rupture of the uterus or vagina are unavoidable results.

Treatment.—The labor is impracticable; there is nothing to expect from natural efforts, except an increase of the difficulty, so that it is our duty to interfere in every case with promptness and energy. If the malpresentation is detected before the rupture of the membranes, and the liquor amnii has not escaped, there is seldom any difficulty, but, after its escape, the uterus contracts firmly upon the child, and, in proportion to this contraction, is the difficulty. If the uterine action be very intense, the operation may be impossible; if so, give opium in solution, alternately with lobelia, to perfectly and thoroughly suspend uterine contraction.

After suspension, turn the child; if the front of the head points anteriorly, slip the hand up in front, seize the feet gently and firmly, and bring down the feet in such a manner as to have the great toe pointing to the inner part of the left thigh; if the anterior portion of the arm points to the coccyx, insert the hand behind and bring down the feet, with the great toe pointing to the inner portion of the right thigh. Then the management of the labor will be the same as breech presentation.

Prolapse of the umbilical cord.—Natural

Complex Labor. labor, we have seen, is where the agents or elements of parturition are equally balanced. Unnatural labor, where some abnormal deviation has occurred from some deficiency or irregularity in the power, in the passage of the child.

We have now to consider another element in parturition; an accidental complication, which renders a labor complex. The labor may be natural or unnatural, but this complication renders it complex.

Prolapse of the cord.—The first and most common complication is, prolapse of the umbilical cord, either above or with the presenting part of the child; and it may occur at the beginning of labor or during its course. The accident, or complication, has no bearing upon the progress of labor, but a most disastrous

effect upon the child, and any interference that the physician resorts to should have this one object in view. More than half the children are lost, which gives us a large mortality indeed.



Prolapse of the cord.

Causes.—This accident occurs about once in 230 cases, and is caused by various circumstances, as the malposition of the child; a small child with a large quantity of the liquor amnii; the sudden rupture of the membranes; the forcible rush of a large quantity of the liquor amnii; presentation by the feet or knees; irregular shape or irregular action of the uterus; where the placenta was situated low down, near the cervix uteri, etc. The child is in the greatest possible danger in all cases of dropping of the cord.

Treatment.—The means to be adopted will depend entirely upon the state of the prolapsed cord. If it exhibits marks of putrefaction, or is flaccid, without pulsation, it is useless to interfere, because hopeless, as regards the life of the child; but if pulsation be good, there are various modes of management.

Push up the cord, beyond the brim of the pelvis, and there retain it with one or two fingers, until the upper outlet is filled by the descending head.

Labor may be obstructed by mechanical impediments in the passages, which are numerous, and varied in their character. One, formerly rare, but now becoming common, is tumor of the ovary.



Ovarian tumor.

The enlargement is sometimes solid, more frequently fluid, or containing a substance of the consistence of honey. If the disease progresses slowly, the uterus, with the ovaries by its side, will have emerged from the pelvic cavity in time to remove the obstacle, which will then be in the abdominal cavity; but, in some cases, either from the situation or rapid increase of the ovarian tumor, or by adhesions between it and the neighboring parts, it is retained in the pelvis, and may offer a serious obstruction to labor in the second stage. There are several forms of ovarian tumors which thus obstruct the passage of the child. It may be a cyst or a real enlargement of the ovarium; but, generally, an ovarian tumor is much more likely to be moved out of the way of the child at the time of labor than any other form of tumor.

The diagnosis is usually difficult. If the tumor within the recto-vaginal septum be movable, elastic, and communicates to the finger a sense of fluctuation, it is probably ovarian, but it is not always so; it may be hard, not fluctuating, and, to the touch, solid. The only practical test is puncture.

Treatment.—Give ample time to see whether the tumor be not displaced by an effort of nature; carefully estimate the effects of pressure upon it before bad symptoms supervene. If it be insurmountable by the natural powers, if it cannot be raised above the brim of the pelvis by the hand, then we must puncture the cyst through the vagina; nor are we to be deterred by the apparent solidity of the tumor, as they mostly all contain fluid. A long trocar and canula should be used, and plunged quite through the parietes of the tumor. If fluid be freely evacuated we shall have no further trouble with the labor; if it be viscid, and does not pass freely through the canula, enlarge the opening.

Vaginal cystocele.—The necessity of keeping the bladder empty during labor is clearly pointed out, as, if it is distended, it is apt to be caught by the head of the child in its descent and pushed before it into the cavity. The patient complains of fulness, tension, pressing down and dragging, a desire to evacuate frequently, and inability to do so.



Vaginal cystocele.

On examination, we detect a tumor in front of the pelvis, partially covering the head and containing fluid. The finger passes easily posterior to the tumor, but not anteriorly, and the catheter cannot be passed in the usual direction, clearly indicating its nature. This, if it exists, occasions delay in the second stage, and danger to the mother from rupture of the organ.

We should be active here, whenever we are aware of the impediment. A gum bougie should be at once introduced, the point directed backwards, and we shall very probably be successful in emptying the bladder; if necessary, raise the head a little with the finger, during an interval, to facilitate the introduction.

We usually succeed, but, if we fail, the labor will be arrested by the obstacle, or pressure threaten a rupture. I have always been able to draw it off, therefore, I cannot, from experience, recommend tapping the bladder with a trocar, through the vagina, which is often done. If the quantity of urine be moderate, pressure not excessive, the head of the child not large, we may leave the case to nature. But, after the labor is over, we must immediately evacuate the bladder, and watch the patient.

Various minor operative procedures are in use for the purpose of aiding parturition.

The vectis or lever.—The great variety of levers in use have only led to confusion and misunderstanding.



The vectis applied.

The *nature* of the *aid* afforded by this instrument is threefold:

First.—To correct malpositions, or aid the natural rotations of the head at the brim, or in the cavity of the pelvis.

Second.—As a lever, making a fulcrum of the pelvis, or the left hand of the operator, external to the pelvis. Its employment in making a fulcrum of the soft parts of the pelvis is extremely dangerous, besides the chance of injuring the soft parts, or the child's head.

Third.—As a *tractor*, it should not be employed to wrench, but to hook or draw down.

The cases in which the use of this instrument is indicated are:

Those in which the head, having descended into the pelvic cavity, is arrested in its progress by the inefficiency of the pains, when the patient is beginning to exhibit symptoms of constitutional or local disturbance.

This does not take place until the second stage of labor has advanced some hours. There is supposed to be space enough, but pains feeble, and a slight additional force will often succeed in bringing the infant into the world; and as there is nothing in the nature of the operation to add to the danger, and more particularly since the tractile force will be sufficient, it seems peculiarly adapted to these cases.

In cases of convulsions, resulting from the head pressing upon the sacral nerves, the use of the vectis is specially indicated; provided the pains continue, the aid of the lever may consummate the labor.

Respecting the time *when* the instrument ought to be used. This is regulated somewhat by the object sought to be attained. If to assist the head in passing through the upper outlet, or to change its position there, then operate whenever the os uteri is dilated or dilatable; but never use this extractive power during the interval of contraction, but during its continuance; and it is only as the result of considerable experience that the practitioner can, nearly always perceive whether or not a woman still retains the power of assisting her labor.

Of course, in cases where serious constitutional disturbance exists, the vectis ought to be applied as early as possible.

The forceps are invaluable in cases of inertia of the uterus, powerless labor.

The object of the operation with the forceps is to facilitate delivery when its progress is arrested by certain malpositions of the head at the brim, or in the cavity of the pelvis.

To supply the want of uterine action, or to render it effective for the expulsion of the child.

To save the mother from the evil results of too long a labor.

To save the child, or at least afford it a chance of escape from certain destruction.

These objects are attainable by the nature of the aid afforded by the forceps, and that they have attained most brilliant results, experience has proved.

The forceps possesses a twofold power:

First.—It grasps and compresses the head of the child.

Second.—It acts as a lever of the first kind and as an extractor.

The compression exercised by it must be limited within the degree the head can bear without injury.

The extracting force will be in proportion to the firmness of the grasp, limited by the resistance, by the danger of injury to the mother. If there be sufficient space, we may so grasp the child's head, without injury to it, as to enable us to extract it, and the extracting force is not sufficient to injure the mother.

Numerous cases occur where the transverse diameter of the child's head is rather larger than the antero-posterior diameter of the brim, or the transverse diameter of the lower outlet; but, if this does not exceed the amount of compression that the head will safely bear, and the force required safe to the mother, such extracting force may be supplied by the forceps, which will likely render the uterine action effective. In inexperienced hands this might fail, but with ordinary care no mischief will be done.

A sufficient grasp will almost always be obtained, where the head is not impacted, to enable us to alter the position of the child.

There can be no doubt of the propriety of using these valuable instruments, as compressors within natural limits, if early used and properly applied. They are extremely valuable in tedious labors, for abnormal or diseased action of the uterus. In these cases they should be freely used, and the best period for their use is early in labor—as soon as the os permits—before the maternal system suffers.



Application of the forceps.

It is a well recognized rule in obstetrics, that the forceps are not to be applied until we are satisfied that the obstacle cannot be overcome by the natural powers with safety to mother and child.

In craniotomy our object is to secure the safety of the mother, by the destruction of the child, where both would be lost were no interference attempted. Cases of rickets, deformity, a disproportion between the foetal head and the pelvis, whereby a living child cannot be expelled by the natural powers; distortion so great as to prevent its extraction.

In distortion of the pelvis, when the antero-posterior of the brim is less than three inches, where we have no chance of delivery by other means; also, if the transverse diameter of the lower outlet is diminished to three inches. No approximation of the tuber ischii, if the forceps are applied antero-posteriorly,



Use of the perforator.



Application of the crotchet.



Application of the crotchet.

is sufficient to move the head. We must have recourse to craniotomy.

If the calibre of the pelvis is diminished to a certain degree by a fixed obstacle, as a fibrous tumor, exostosis, etc., it is necessary to diminish the head. It is also necessary, in certain cases of ovarian disease, where the tumor has formed adhesions within the pelvis, so as to prevent its being pushed above the brim, it has been found necessary to lessen the head before the child could be extracted; but we must first ascertain whether the contents of the tumor may not be drawn off, in order to save the child. If the child be hydrocephalic to such an extent as to prevent its entering or passing through the pelvis, whether distorted or of the natural size, there can be no doubt about the propriety of opening the head.

Mode of operating.—It is not necessary for the operation that the os uteri should be fully dilated, though it is an advantage,

for greater care is necessary when it has not taken place. The rectum and bladder are first to be evacuated; then place the patient upon her left side, with the hips over the edge of the bed, and an assistant to keep his hand expanded over the abdomen. Then make an examination, and find the part of the head for perforation, which is best at the sutures, for the bones will collapse more readily. Having decided upon the part or position, take the perforator, passing it along close to the palm of the hand, and inside of the fingers, so as to avoid injury to the soft parts of the mother.

Once arrived at the point of insertion into the skull, carefully guided and guarded by the fingers, the perforator is to be pressed firmly forward, in a semi-rotating manner, until it pierces the bone; it is then to be passed in, the handles opened, the brain thoroughly broken up, the medulla oblongata thoroughly cut across. The perinæum should be carefully guarded, and the greatest care exercised that the soft parts be not injured.

Phantom tumors are among medical curiosities. They commonly occur in females, who, examined one day, might seem to have a large abdominal tumor, examined next day, nothing is felt. The size of these tumors varies much; in some it amounts only to the size of a fist, in another it may amount to that of a fully distended uterus, near the full term of pregnancy. These tumors have not unfrequently been mistaken for a true pregnancy, and everything been prepared for the birth of a child. Nay, the woman herself has been apparently in labor, and yet there have been neither conception nor even enlargement of the womb. The shape of the tumor may remain long unchanged, or may vary from day to day. Sometimes the patient complains of acute pain on examination, at other times, she is completely insensible. Again, and perhaps most frequently, these tumors seem to disappear under prolonged and gentle pressure, but they return next day or the day after.

Now as to the cause of such tumors, or rather perhaps we ought to say their natures. In a goodly number of instances, they consist of flatus, limited to one particular portion of the bowel by contraction of the gut above and below. In other cases it is said that the muscular wall of the abdomen is concerned in their production, but the cases we have seen, have been of the former kind, especially if the walls of the abdomen and the omentum were loaded with fat.

The diagnosis of these tumors is more a curious problem to

the physicians than of practical interest to the public. Their existence is a fact, which, however, should never be forgotten.

The same treatment as for neurasthenia.

Constant and distressing erection of the penis, **Priapism.** may be caused by shocks, concussions, blows, fractures, injuries of the lower portion of the spinal cord, occurring at the lower portion of the lower dorsal or upper lumbar of vertebræ: or at the origin of the nerves supplying the sexual organs in the brain.

The gonococcus in the urethra often penetrates deeply into the corpus cavernosa, breeds rapidly, excites an inflammatory process, with effusion of lymph or blood into that structure.

The damaging effects of masturbation and of abnormal and excessive coition, upon the same parts, the reflected irritation to the spinal cord and brain, is productive of this difficulty.

The treatment of such cases will depend entirely upon the cause. In all cases of shocks, concussions, injuries of the spinal cord, general principles must guide.

When due to sexual excesses, or masturbation, our chief dependence must be placed upon the frequent administration of large doses of tincture of the green root of gelsemium in alternation with as large doses of the bromide of potassa as the patient can bear. From thirty to sixty drops of the gelsemium every three hours, in small, but often-repeated doses, watching it carefully, with from thirty to sixty grains of the bromide of potass, to which a little bicarbonate potassa is added every three hours.

Enemata of a solution of boroglyceride, to which a few drops of the tincture of belladonna is added.

Persistently repeat, and repeat the gelsemium and bromide until the erections are overcome.

If the case is one dependent upon the microbe of gonorrhœa, the same plan of treatment should be pursued, with the addition of belladonna suppositories.

The various affections which are associated with prolapse of the mesentery are a clue to its pathology. Given in the order of their frequency, they are prolapse of the transverse mesocolon, prolapse of the hepatic flexure of the colon, and prolapse of the right kidney, prolapse of the splenic flexure of the colon, and prolapse of the left kidney. The pylorus and duodenum are at times also prolapsed, with elongation of the

lesser omentum ; but a mobile pylorus is such an ordinary occurrence that it hardly deserves to be enumerated amongst the other complications. The co-existence of these affections has just been adduced as an argument to prove that when acquired hernia is associated with prolapse of the mesentery the prolapse is a cause of the hernia, and not an effect ; and now it may be argued that their co-existence proves that, with rare exceptions, prolapse of the mesentery is not due to a local and accidental condition, but that there is, except, perhaps, in simple prolapse, a more general deterioration, in which the suspensory apparatus of the mesentery merely participates. The nature of the lesion which permits the displacement of the kidneys is pointed out by Landau, in his excellent work on movable kidney. In my opinion that author clearly establishes that the prolapse of those organs is due to elongation of the fascia which descends from the diaphragm for their support. The cases in which I have seen prolapse of the kidneys, either with or without hernia, show that the displacement of the kidney is nearly always associated with descent of the hepatic or splenic flexure of the colon.

Analogy would lead us to infer that prolapse of the mesentery was of the same nature as prolapse of the kidney, and was due to a failure in the suspensory apparatus. The question, however, can be placed upon a surer basis, because there is no difficulty in ascertaining that when the mesentery is prolapsed its root becomes excessively movable and capable of being pulled downwards with significant ease ; and moreover, dissection shows that under these circumstances the tissues which compose its root are thin and scattered and inadequate to resist displacement. The suspensory muscle is one of the chief constituents of the root of the mesentery, and is, I think, mainly at fault. But there are other circumstances, which suggest that the peritonæum ought not to be ignored ; for instance, I am not aware that either the hepatic or splenic flexures or the colon, or the transverse mesocolon, have other support than the serous membrane, and yet, as we have seen, prolapse of one or more of those structures is a common accompaniment of prolapse of the mesentery ; also when the pylorus is displaced the elongation of the gastro-hepatic ligament is very obvious. All of these circumstances point to the importance of the peritonæum as a factor in these displacements, including that of the mesentery. With regard to the other structures which are involved in this affection, namely, the mesenteric artery, vein, nerves and lacteals, we can only infer that they play a minor part, although, as in prolapse of the kidney, they are noticeably elongated. The causes of the deterioration of the suspensory apparatuses and peritonæum which permits these

various displacements are not clearly indicated by my investigations, but age has without doubt an important influence, and it seems quite safe to add other debilitating influences, such as poverty, wasting diseases, certain occupations, and the like.

Prolapse of the Rectum.

Prolapsus of the rectum, or falling of the fundament, or a protrusion of the lower bowel, may exist in various degrees; it may be simply a protrusion of the mucous membrane near the anus, or the various coats of the bowel, or the bowel itself may be protruded several inches.

The chief causes of these displacements in children are: inherent weakness of the parts, diarrhea, straining at stool, worms and any irritating disease of the rectum, or genito-urinary organs. The same causes may produce like results in adults, also chronic diarrhea, catarrh, dysentery, internal hemorrhoids, polypus, impacted fæces, diseases of the urinary organs, as irritable prostate and bladder, calculi, ulcer.



Prolapse of rectum, with its mucous membrane.

Symptoms.— Usually in the early stages the prolapse takes place after the bowel acts. Insidiously, and progressively the descent of the bowel or its coats follow any exertion, as running, jumping, coughing, straining, laughing, crying, etc.

A fold of the mucous coat at first, by and by the inverted bowel may be protruded to the extent of four or five inches. This usually follows defecation, and is easily returned; but if not cured speedily, the sphincter ani becomes relaxed, and the prolapsus becomes permanent; the intestinal mucous membrane being exposed to the air and subjected to various forms of irritation, becomes thickened, indurated, often ulcerated; discharge of mucus tinged with blood; general distress, about the hips, back, with severe pain in defecating. The reflex symptoms are numerous, headache, mal-assimilation, nervous twitching, convulsions, general impairment of the vital force.

Treatment.— In the prolapsus of both children and adults, much good can be effected by improving the general health in every possible manner. Daily bathing, massage, flannel clothing and the very best of diet, abundance of fresh air. The patient

should in all cases pursue an alterative and tonic course of treatment for some months. The best remedies for internal exhibition are Virginia stone-crop, collinsonia, bayberry, aromatic sulphuric acid and quinine; compound tincture of cinchona and nitro-muriatic acid, and for an alterative compound, saxifraga.

The bowel, if possible, should never be permitted to remain protruded, if it can be returned; if this is difficult, make a hot poultice of pulverized slippery elm, in which are incorporated some powdered lobelia and belladonna leaves. After this has remained a short time the bowel is usually very easily replaced by oiling the back of the hand and pressing it gently, but firmly, against the bowel, and replacing it. In some obstinate cases, it may be necessary to administer an anesthetic or place the patient under the influence of a relaxant, as the compound lobelia.

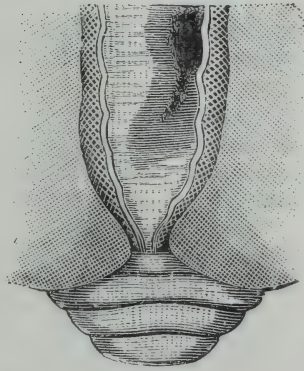
When the bowel is returned every precaution must be taken to prevent a recurrence or even a slight protrusion by applying a pad of lint firmly against the anus and a T-bandage.

The bowels should be moved by a mixture of castor oil and glycerine; a sufficient quantity administered to cause one evacuation of the bowels; or fluid extract of butternut, or cascara sagrada lozenges might be tried for the same purpose.

The patient for a few weeks should defecate in the recumbent posture so as to avoid straining. Immediately after the bowels have moved, a cold water hip bath should be used, parts well dried, and a teaspoonful of either the fluid extract of Virginia stone-crop, or collinsonia, or oak bark, or matico, or bayberry, added to one or two tablespoonfuls of water injected into the bowel, or if a mineral acid is deemed best, the following is of great efficacy: aromatic sulphuric acid, one ounce; water, sixteen ounces. Mix. Inject one ounce.

The best suppository to use instead of the enemata is one made of the Virginia stone-crop, pulverized opium and butter of coca.

If these means fail, after a fair and prolonged trial, administer a large dose of castor oil before retiring to bed; next morning, after the bowels are thoroughly emptied of their contents, the protruded portion should be well cleansed with warm water and



Prolapsus of three folds of the rectum with posterior tubercular ulcer — a most common condition in the diarrhea of phthisis.

castile soap, and returned, then an ordinary anal speculum with a window its entire length, well warmed and oiled should be inserted its entire length, the vertical portion of the bowel exposed in the window of the speculum should be wiped dry, then C. P. nitric acid should be painted down its entire length. This should be repeated thrice, so as to be effectual. Then the speculum should be turned about three-quarters of an inch and another vertical streak made with the nitric acid, and this should be repeated so as either to make five or seven vertical streaks around the bowel. An interval of time should elapse between each turn of the speculum so as to permit the nitric acid to penetrate to the erectile fibres.

Following this, one grain of pulverized opium should be administered every three or four hours to allay peristaltic action; patient confined in the recumbent posture for about seven or nine days.

Underneath each of the vertical streaks of nitric acid, a species of plastic inflammation is set up, lymph is effused, thickening takes place and vertical pillars, usually strong enough to keep the bowel erect, are established.

Food must be taken in a concentrated form, as it is not desirable to have the bowels move for over a week. At which time they should be acted on with castor oil.

This is the most effective method of affording a radical cure.

The uterus may be displaced in various ways, the most common forms being simple displacement in which it descends down and protrudes beyond the vulva; anteflexion, where the fundus of the uterus is bent over on the bladder; and retroversion, in which the fundus is bent over on the rectum; besides it may be displaced laterally.

The predisposing causes are inherent weakness of organization, or debility.

The exciting causes are a relaxed state of the vaginal walls, debility of the broad ligaments, added to which there is either tight lacing, lifting, jumping, strains, fall, standing occupations, constipation, indefinite retention of urine, congestion, tumors.

Prolapsus and procidentia are two terms employed to designate a descent or falling of the womb, as it exists in two different degrees, or grades. *Prolapsus* means that condition in which the uterus falls below its natural level in the pelvic cavity. The term *procidentia* is used when the uterus slides down and protrudes beyond the vulva. It is simply prolapse or falling, extended in degree, both conditions being the same.

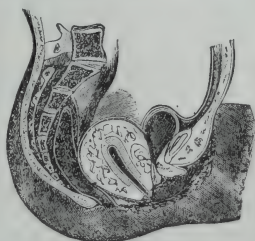
Symptoms.—Leucorrhœa, pain in the back, sense of weight or fulness about pelvis, bearing-down pains. Usually no impediment to menstruation, or conception, as uterus is generally replaced when in the recumbent posture in bed; irritation of bladder and rectum. In prolapsus, uterus found depressed, resting on upper floor of perinæum; in procidentia, a round or pear-shaped tumor, with os uteri visible at its centre, is seen projecting beyond the vulva. Labia of os uteri, from exposure to air and clothing, often becomes excoriated; vaginal walls dry, harsh, cracked or ulcerated.

Treatment.—As far as possible remove all predisposing and exciting causes, as debility, tight lacing, coughing, constipation, standing occupation, congestion; carefully regulate bowels with either cascara sagrada or kola nut, so that the stools will be soft, and easy; place the patient upon the best of food and a tonic course of remedies, embracing such medicines as wine of aleteris farinosa; and coca erythroxyton, in alternation with comp. syrup of partridge berry and comp. tincture cinchona. A two-quart fountain syringe is an essential requisite of every lady's toilet. This must be used morning and night. The first thing in the morning, before getting up, it should be used in conjunction with a bed-pan, so as to keep patient strictly in recumbent posture. A selection from some of the following agents should be made for the purpose of injecting: borolygeride, resorcin, creolin, lime water and tincture of iodine, matico, oak bark, distillation of witch hazel.

A full quart or more be permitted to pass through—of a strength adapted to each particular case.

Before the patient is permitted to get up, some form of mechanical support should be applied:

This may consist of a silver, or gutta-percha cup, or it may be a fine silk sponge, cut in the shape of a small pear, with a silk cord fastened to it, which saturate with the last wash used, and then insert up the vagina, the broad base upwards and point or pedicle downwards, from which the cord hangs. Then patient to get up. The size of this pear-shaped sponge will depend on the capacity of the vagina; it must be large enough to prop the uterus up in its proper place. This process of injection is to be repeated at noon and at bedtime. The patient can easily draw the sponge out herself, which should be thoroughly washed every time. After the night injection the sponge need not be



Prolapse of uterus (procidentia).

inserted, but should be laid to steep in a solution of boroglyceride. This is to be repeated every day, changing remedies every three or four days, and keeping the patient lying down as much as possible. Cold water hip-bath, morning and night, to give tone to the pelvis and its organs, especially the broad ligament. All treatment, except the tonics, to be discontinued during menstruation.

If the case is an aggravated one of procidentia, the uterus must be returned, and the same plan pursued.

Now, if this fails in eight or ten weeks, which is seldom the case if patient is faithful, and the injections cold and of proper strength, return the uterus, and resort to the radical operation of painting seven vertical streaks on the vaginal walls, as described under *Vaginal Prolapsus*. This is better than humbugging with belts, supporters, plates, pessaries, rings, and other trash that irretrievably ruin a woman. Any lady, with a very little instruction, may cure herself in a short space of time. It will aid matters much if she is freed from all domestic care, or toil, or worry, so that when about she can either walk gently, or ride, for the improvement of general health.

A most excellent plan in old chronic cases, with considerable irritation and thickening of the neck of the uterus, is to pack the vagina with boroglyceride every night on retiring to bed. This exercises a most beneficial effect, as it stimulates absorption of the effused lymph, and exercises a highly vitalizing action upon the parts; it gets rid of the induration, drains off the superfluous products of inflammation.

If this does not operate speedily, or efficiently enough, the insertion of two or three jequirity capsules, say about once a week, will cause a complete exfoliation of dead tissue to take place, and lighten to a considerable extent the specific gravity of the uterus.

The body or fundus of the uterus may be thrown forward on the bladder, or backward on the rectum, constituting *anteflexion*, or *retroflexion*.

If the displacement backward or forward is not very great, there may be very few symptoms present. If the flexion is quite considerable, there is much suffering; the uterine ligaments are unduly stretched, the circulation through the body of the uterus is interfered with, impeded, and the fundus immovably fixed on either the bladder or rectum.

The leading features of those cases are great languor, lassitude, debility; dull, wearing, aching pain in back; tenderness about the groin and inside of the thighs; sense of fulness or obstruction in either rectum or bladder; pain in coition; fecundation prevented;

severe dysmenorrhœa; nausea, gastric irritation, loss of appetite. Great mental depression, reflex irritation, etc.

The displacement is readily made out in all cases by the uterus sound.

Antiflexion of the uterus gives rise, in addition to pressure on the bladder, to sterility, dysuria, dysmenorrhœa, dyspermasia. The kink produced in the cervical canal by the flexion of the cervix prevents the ingress of the seminal fluid into the uterine cavity. Until this obstruction is removed by straightening the canal, the sterility will persist. To effect this the introduction of an intra-uterine stem is the only certain remedy. Slight flexions may be relieved by the occasional passage of the uterine sound.

Backward displacement, and uterus freely movable, the bladder should be emptied and the uterus fully replaced by bimanual manipulation in a position of complete anteversion, the fundus being directed to the pubes and the cervix to the sacrum. A Hodge pessary of sufficient size is to be now inserted to keep the cervix in this position. The use of the pessary in the posterior cul-de-sac is not to support the body of the uterus, but to sling the cervix upwards and backwards.

When adhesions prevent reposition, and no active disease exists, stretching and loosening the adhesions is to be recommended.

Cases of this kind are not by any means rare. It is met with in women who have practiced masturbation, or borne many children, or had numerous miscarriages. Tight-lacing, strains, lifts, coughing may produce it.

When the front part alone is affected it draws down the back portion of the bladder and is called *vaginal cystocele*; if the back wall of the vaginal falls down it is called *vaginal rectocele*. In the former case, urine is apt to accumulate in a pouch formed by the bladder; in the latter, a pocket forms in which hardened fæces are retained, causing a sense of weight and irritation.

In the treatment of prolapsus of the walls of the vagina there should be an avoidance of coughing, straining, lifting, and above all things, tight-lacing. The patient should be placed upon a general tonic and alterative course of treatment: the wine of the aleteris farinosa and coca erythroxyton in alternation with compound partridge berry, compound tincture of cinchona, avena sativa.

Vaginal injections, with fountain syringe thrice daily, very copious, consisting of boroglyceride, matico, oak bark, glucozone, distillation of witch hazel.

Pastiles are also of great utility.

An effort of cure should be tried by these and like means. All failing, then a radical cure should be tried, as follows :

In diminishing the calibre of the canal, in exciting seven pillars of plastic inflammation, or effused lymph to prop it up. It is performed as follows: Bladder to be evacuated, rectum thoroughly syringed; the vagina to be washed out with a quart of soapsuds; the protrusion returned; then introduce a proper-sized speculum, with a window; wipe dry the part of the vaginal walls opposite window; then take chemically pure nitric acid and paint a vertical streak one-quarter of an inch wide and two and a half inches long; paint it neatly and carefully seven or eight times; when finished, turn speculum half an inch and repeat the same process by making another, and another, until seven good streaks are made. Before removing speculum, fill it with a piece of lint, saturated with olive oil, which, hold firmly with a ramrod; then withdraw the speculum, leaving the oiled lint in vagina. Administer one grain of opium every three hours, to lock up the bowels; keep patient in bed ten days, with a catheter in bladder; permit no straining, laughing, or lifting for some time; bowels to be opened with enemata or cascara sagrada. This is the most effectual method, if well performed. The oiled lint need not be disturbed for a week, unless there is some uterine difficulty above; if there is, it may be necessary to remove it inside of twenty-four hours. On the removal of lint, injections of cold linseed tea or slippery-elm-water; all through, pushing tonics and good diet.

A more recent method is contraction of the calibre of the vagina by the use of the jequirity wafers, and occasionally packing the vagina with boroglyceride.

One of the most common of all maladies, a
Prostatorrhœa. hyper-secretion of the tubular glands of the prostate, due to any irritation, such as masturbation, extension of the gonorrhœal germ, to marital sexual excesses, sedentary habits; bicycle riding, etc., morbid sensibility of the prostate, aggravated by stricture, riding, alcoholic and malt liquors, with contraction of the perineal and other muscles during the micturition and defecation.

Such an irritation, with sufficient discharge to barely cause a gluing of the lips up to several drachms, invariably depreciates the quantity and quality of the semen, so that under the microscope, the discharge is found to consist of cylindrical epithelial cells, countless refractory and colorless granules of lecithen, and minute, yellowish concentric, amyloid concretions, phosphate of

magnesium, watery and colloid semen. When the secretion depends upon chronic inflammation of the glands of the prostate, it thickens, and contains in addition, pus, mucus, corpuscles, mucopurulent casts of the follicles and ducts.

In addition, the local signs, urgent desire to relieve the bladder, scalding in urinating, a sense of weight, fulness, even dull pain in the perinæum. Aching, with darting pain in the hips, extending down to the knees; unsteadiness of gait; and reflexly the irritation is carried to the medulla oblongata; brain suffers, as we see by the vertigo, *tinnitus aurium*, haziness of vision and unbalanced state of the sufferer. In all cases, it is an obstinate affection to treat. All causes that tend to produce or aggravate the trouble must be interdicted, and attention to the diet and secretions duly attended to.



A Diagram of the Bladder, showing the prostrate gland enlarged.

The oozing or leakage is owing to a swollen and irritable state of the prostate gland and a debilitated condition of the seminal vessels allowing that fluid to escape; consequently a general alterative and tonic course is indicated. This enlarged prostate is exceedingly common, and the older methods of treatment are of no utility whatever.

The introduction of a seven-inch bougie, prepared from the glucoside of the black willow, stimulates absorption in the gland, reduces its size, and restores it to a healthy condition. The procedure possesses many advantages over all other methods. In old chronic cases experience has satisfied me of the utility of this remedy in this form; it has very many advantages, it does its work well, its use is not attended with pain, it does not require the patient to leave off his usual avocation, it has a peculiar and astringent action on the parts. Among the medicaments lately brought into very general use for restoring the integrity of the sexual organs, none can excel the fluid extract of black willow; it is a drug which is both sedative, tonic and astringent to the nerves and vascular structure.

When the reproductive organs of both sexes are damaged in any way, it is the drug from which the most decided tonic action is to be obtained.

By its use all leakages, great or small, are effectually checked. Its introduction at the present time may stem the current which is dwarfing humanity in its very essence.

Every man or woman who has practiced self-abuse; every one

who has had a gonorrhœa, or suffered from sexual perversion, or ridden a bicycle, needs the vivifying influence of the *salix niger*.

For a more elaborate descriptive article, the reader is referred to article Hypertrophy of the Prostate, page 475, of present volume.

The most prevailing affection of American males, in all ages.

A condition of heightened sensibility, with **Pruritus**. altered nutrition, with microbe evolution, in which the main symptom is an indescribable itching, affecting the whole or a portion of the body. Generally local, not infrequently a most troublesome, obstinate malady.

Pruritus of the vulva frequently depends on uterine disease, and all remedies prove useless till that is removed.

After vaginal injections of either lotions of boroglyceride or resorcin, try some of the following remedies: Carbolate of sodium in equal parts of cologne spirits and glycerine; or the soziodol of mercury; or strong peppermint water and boroglyceride.

Pruritus ani, lime water and fluid extract of belladonna, or ozone ointment with atropia; salicylate of soda, with creosote and camphor, is most efficacious; tincture benzoin, peroxide of hydrogen, oil of rue, etc., painted on the part are of immense utility.

A selection of one of the following formulæ may be tried in pruritus: Saponis viridis; oil cadini; alcohol, of each one ounce; resorcin, two drachms. Mix.

Sodæ borate, two drachms; chloride of morphia, sixteen grains; dilute hydrocyanic acid, half an ounce; glycerine, two ounces; water, eight ounces. Mix.

Add one ounce concentrated ozone to two ounces of ozone ointment. Mix.

Muriate of cocaine, fifteen grains; muriate of morphia, ten grains; carbolic acid crystals, twenty grains; tincture of aconite rad., three drachms; rub the whole up in one ounce of ozone ointment. Apply lightly over the affected surface.

Menthol, thymol, of each one drachm; oil of sweet almonds, one ounce; benzoated zinc ointment, half an ounce; muriate cocaine, ten grains. Mix.

Conium cerate, one ounce; resorcin and salicylic acid, of each two drachms. Mix and apply. The local treatment should be

commenced by the institution of the most perfect cleanliness. The patient should be instructed to wash his anus well with a cloth and cold water after each action of the bowels, and then to bathe his anus with the following wash :

Hyposulphite of soda, half an ounce; carbolic acid, two scruples; aqua destil., four ounces; glycerine, two drachms. Mix. Sig.—Shake the wash well, and use freely after first thoroughly washing the anus with cold water.

In addition to this treatment, the patient must every night or two, after undressing for bed and washing and drying his anus, lie upon his face, and with his hands behind him separate his nates as widely as possible, and be instructed to strain as at stool, and while thus straining the anus will protrude, and while the anus is protruding in consequence of the strong effort, five or ten grains of pulv. iodoform must be sprinkled upon the anus from a knife or spatula by an assistant. The minute eruption which causes this most distressing itching will be found most abundant at the junction of the mucous membrane of the rectum and the skin of the anus, and it is at this situation that the application does the most good. The patient should allow the iodoform to remain in the position of its application during the night, repeating during the day his ablutions of the anus after each action. The probability is that after two or three nightly applications of the iodoform all pruritus will disappear; but the patient should be directed to have the application of the iodoform continued three or four times a week until he is entirely relieved.

Frequently we have occasion to try many medicaments in succession before we hit the right one suited to the case. The disease is always stubborn in pregnant women. External applications are not always of permanent utility, constitutional treatment is often required, even then we have our hands full, for medicaments soon lose their effect.

Gelsemium in full doses has done best for us of any single remedy. Skull-cap is often of eminent benefit in some cases. A combination of chloral and bromide of soda occasionally does wonders. In some cases euonymus and helonius act well. In one severe case, lady-slipper tea, made from the recent root, one ounce to a pint of boiling water, a wineglassful every two hours, worked like magic.

Among local agents, balsam of peru stands first in our experience, apply it full strength. Some cases will require it diluted, then use vaseline as the diluent. When it fails, try an ointment made of balsam peru, two drachms; quinine sulphate, one drachm; extract belladonna solid, one drachm. Rub on the parts. Borax, two drachms, water, eight ounces; oil of

peppermint, ten drops. Apply often to the parts. Nitric acid, ten drops; water, eight ounces. Apply to the parts. Bismuth subnit., apply dry to the parts. Iodoform, bismuth subnit., boric acid, equal parts. Apply dry to the parts. Boroglyceride and resorcin a most excellent application.

In some cases, local applications to the os uteri will be needed to effect a cure. But few things are equal to carbolic acid diluted with glycerine, applied at first moderately strong, then stronger. You may add solid extract belladonna with good results. In one case we made a strong solution of salicylic acid in glycerine, applied to the os and cervix with a small swab. A second application was needed a week after, after which no more trouble was experienced. A medical friend says he has the best results from dry sulphur, rubbed on the parts and small doses taken internally twice a day. Keep the bowels soluble with mild cholagogues.

There is often an intimate relation between pruritus in pregnant women and liver inactivity, hence the benefit of such remedies as chionanthus,

The causes of general pruritus is obscure, it is met with chiefly in elderly people, and is but very little amenable to treatment. When present in the middle-aged, it is generally associated with some other malady, especially jaundice, glycosuria, and albuminuria. In women, pregnancy and disturbance of the menstrual functions may also give rise to it. The disease, however, is more commonly met with as a senile change of an obscure kind, and as such is incurable.

Treatment.—When the neurosis arises from, or is associated with, some other malady, such as jaundice, glycosuria, or disturbed menstrual functions, a rational and often successful mode of treatment is at once suggested. The cause of the disease should as far as possible be removed, and in addition, local remedies of a soothing kind may be used to give a little temporary relief from the intolerable itching. Amongst these, tepid gelatine, and bran and alkaline baths are the most generally useful, some soothing ointment being always applied to the skin after the bath, to prevent it from becoming too dry and cracked. In senile pruritus the same plan of local treatment may be adopted, but the relief at best is only temporary.

In all cases of pruritus, whether local or general, the microbe of neurasthenia is ever present, and all cases are greatly benefited, nay, cured by glycerite of kephaline and tincture of oats.

Great cleanliness is essential. Stimulating food, hot, fiery drinks avoided.

A peculiar form of skin disease, characterized by
Prurigo. itching especially when the body is heated, due to an altered state of nutrition of the skin. Generally no eruption visible. There are numerous varieties, depending upon the cause.

Any remedy which will promote nutrition of the skin is the one to administer, as quinine, iron, sulphur, arsenic, oxygen.

Locally, sulphur baths, naphthaline.

A term applied to a condition, in which the
Psilosis. leading features are bareness or rawness of the tongue and entire intestinal mucous membrane.

The most prominent symptoms are remitting inflammation of the mucous membrane of the mouth and alimentary canal; diarrhoea, irregular action of the bowels, anæmia, general atrophy. During the exacerbation, tongue swells, papillæ become elevated and red, shallow ulcers appear on the cheeks, tongue, lips, accompanied with salivation, swelling and tenderness, with a tendency to bleed; articulation is difficult. The acute stage passes off, and the tongue becomes small, glazed or shining, looks as if it was denuded of its epithelium. Taste and smell usually in abeyance.

The evacuations from the bowels are usually a gray pultaceous mass deficient in bile; albumen, excessive debility.

The pathology of the disease is obscure.

What few cases have been seen have been amenable to an infusion of the Japanese persimmon with resorcin, and arrow root and beef tea for diet.

This is a dry scaly disease of the skin; it is
Psoriasis. chronic in its course and characterized by slightly raised red patches covered by white, shining, opaque scales; these scales often come off in great numbers, so that on waking in a morning, the patient finds his bed full of little branny particles. Sometimes the spots are circular, small and numerous, and scattered over the skin; sometimes they are ring-shaped and the centre is healthy, while the disease spreads at the circumference; sometimes large patches of irregular shape occur, and most often they are seen at the knees and elbows; at other times the patches assume a figure-of-eight form. The edges are always well defined and with a tendency to be circular; when the scales are rubbed off, a dry and red surface is left. The name *lepra* was formerly given to

the ring-shaped variety of psoriasis, but the term has now fallen into disuse. Psoriasis in all its forms runs a very chronic course, lasting not unfrequently for many years. When cured it is prone to come back again. Some persons have an attack of psoriasis every year; spring and autumn are the seasons when it most frequently appears. The red patches of psoriasis are due to inflammation of the skin; the scales are due to excessive formation of epithelium on the inflamed surface. The rash is often accompanied by much itching; it occurs on the coarse and dry parts of the skin, and not where the sweat-glands are abundant. The disease is never communicated from one person to another, although a tendency to it is certainly hereditary; it may come on as a consequence of syphilis. On the palms of the hands and soles of the feet it may be mistaken for eczema.

The peculiar defect which gives rise to this form of skin disease, is to be found in the presence of the bacillus of tubercle, syphilis, rheumatism, gout; in the surroundings and general health of the patient; in states or conditions of depressed vitality, overwork, relaxing climate, sexual excesses, or any excessive drain upon the system.

In the treatment, the essential points are to build up the general health by every possible means, by a most nutritious diet, daily hot alkaline baths; flannel clothing.

General alteratives and tonics, as *saxifraga*, *phytolacca*; alternated with *avena sativa*, *kephaline*.

A selection of some of the following remedies are worthy of a trial. Large doses of Fowler's solution might be tried, and in order to facilitate its toleration.

Oil of *cadi* is a most efficacious remedy as in the following formula. Glycerite; starch; oil of *cadi*, and green soap. This in suitable strength, is applied over the eruption.

An ointment of thymol, or salicylate soda, or chrysarobin.

Psoriasis Linguæ. Red, circumscribed, hyperæmic patches on the tongue, and inner surface of the lips and cheeks, may exist (*Leucoplacia*) for a few days, weeks, or months, and then spontaneously subside, or become developed into circumscribed grayish or white discolorations.

There are many micro-organisms present, the *oidium albicans* usually taking the lead. Irritation has much to do with its production, especially smoking, which favors the development of epithelioma.

The numerous micro-organisms are met with in nests, which

bore their way into the epithelium, and deeper tissue, giving a thickened and fissured aspect to the patches. The whole process is characterized by infiltration and cell-proliferation of the corium, which explains the obstinate persistence of the patches and the readiness with which they undergo conversion into other processes. The early or hyperæmic stage of leucoplacia, as described by Professor Schwimmer, is not often seen; the disease usually presents the appearance of milky white patches on the dorsum of the tongue; sometimes these patches are slightly raised and rough, and have a sodden appearance; in other cases they are quite smooth. Leucoplacia is not confined to the dorsum of the tongue; it is occasionally met with on the mucous membrane of the cheek and lower lip.

Diagnosis.—Leucoplacia should be distinguished from a somewhat similar condition produced by syphilis, and also from superficial scars of the tongue, which sometimes have a white appearance; and, if I am right, it should also be distinguished from psoriasis of the tongue, which, like the syphilitic affection, is more amenable to treatment than ordinary leucoplacia; but on this point I should be very unwilling to dogmatize.

In the treatment, all irritation, including smoking, should be removed. The most favorable local treatment is the application of a saturated solution of boroglyceride.

Many kinds of stomatitis have been described, but it is only necessary to refer to three:

1. *Aphthous stomatitis*, which is the commonest of all forms, begins as little yellowish spots of exudation; these subsequently form into small, very superficial ulcers with a red areola. When these ulcers are of larger size than usual, and the attendant inflammation considerable, the disease becomes both very painful and troublesome, and the ulceration difficult to cure; but under ordinary circumstances, when it does not assume this severe form, it yields readily to local and general treatment with boroglyceride. The affection is very apt to recur. In all severe forms of ulcerating stomatitis the internal administration of opium is all-important.

2. *Parasitic stomatitis*, or thrush, is chiefly met with in unhealthy children, and in those suffering from exhaustive diseases. It is due to the micro-organism *oidium albicans*. The white patches seen on the buccal mucous membrane are found to consist of epithelium permeated by the spores and mycelium of the parasite. A weak resorcin lotion is useful as a wash for the mouth, and in addition the spots may be painted with glycerin boracis, applied with a small camel's-hair brush.

Wandering rash on the tongue. It is usually seen as small

rings and fine serpiginous lines of a bright red eruption. The peculiar character of the rash is the quickness with which it spreads centrifugally, so that it is appropriately described as wandering over the dorsum of the tongue; the rings will sometimes disappear and new ones appear in the course of a few hours. Subjective sensations of itching are always present. It has been compared in appearance to ringworm, but has no relationship to that disease.

A varicose condition of the vessels of the inner
Pterygium. canthus of the eye, giving rise to a triangular excrescence, usually the result of inflammation.

The generally accepted theory of all authors is that pterygium has its origin in a marginal corneal ulcer, to which a tag of conjunctiva has become attached; it is thought to be untenable, because if this were its usual mode of origin, pterygium would be found approaching the cornea from every possible direction, since marginal corneal ulcers are not apparently more frequent in one position than in another. It is known, however, that such is not the case, but that pterygium is almost always situated directly over the recti muscles, and that in a very large proportion of cases it is over the rectus internus. The more recently proposed theory of Poncet, that pterygium is due to the presence of microbes, which tunnel their way under the corneal epithelium, is open to the same objection, for this also assumes the existence of a precedent corneal ulcer. The view long held, that conditions which tend to induce chronic hyperæmia of the conjunctiva favor the formation of pterygium, is thought to be well established.

Assuming that this view is correct, are there reasons why a localized hyperæmia of the conjunctiva should be of frequent occurrence where pterygium usually forms to the nasal side of the cornea? This is answered as follows: The close connection between the vessels of the recti muscles and those of the anterior portion of the conjunctiva, were referred to, and it was pointed out that the determination of blood to these muscles might influence the blood-supply of the overlying conjunctiva, and that this would be the case especially with the recti interni, since they were the largest of the straight muscles and in close relationship with the conjunctiva, because attached to the sclerotic nearer to the corneal border than any of the others. Abnormality in the distribution of the blood-supply of the internal recti muscles, and of the overlying conjunctiva, and, more frequently still, disturbance in the normal relationship between

convergence and accommodation, such as insufficiency of the of the internal recti muscles, the different varieties of ametropia ; these were regarded as the usual causes of pterygium through the localized hyperæmia of the conjunctiva, to which they give rise.

Brushing it over with a solution of nitrate of silver, thirty grains to the ounce of water, repeating a few times with proper intervals apart, is usually successful in effacing it ; if not, then it must be hooked up and snipped off.

All chemical compounds, basic in character, **Ptomaines.** formed during the putrefaction of organic matter. They bear the closest possible resemblance to vegetable alkaloids, but they are not all poisonous.

All putrefaction is due to the action of bacteria ; ptomaines are the result of the growth and activity of disease germs.

The poisonous or non-poisonous character of ptomaines depends a great deal upon the individual bacteria engaged in their production, upon the temperature, amount of oxygen present, electrical states, etc.

Each disease germ excretes or generates its own ptomaine. The bacillus of typhoid produces the ptomaine *typhotoxine* ; tetanus, *tetanine* ; which if injected into animals gives rise to tetanic convulsions ; the bacillus amylobacta, by its action on carbohydrates, gives rise to butyric.

Bacteria are either aerobic or anaerobic ; the one thrives by the presence of air, the other by its exclusion. This quality in itself causes a difference in the chemical character of a ptomaine, besides there is a decided difference in the various stages of putrefaction.

Ptomaines are transition products in the progress of putrefaction—temporary forms through which matter passes in its change from the organic into the inorganic state—complex organic substances, as brain, gland, muscle, etc., are broken up into less complicated molecules—their original elements.

Countless myriads of minute organisms are thus constantly engaged in transforming matter from the organic to the inorganic state.

Besides being abundant in all putrefactive states, ptomaines abound in all forms of shell-fish, in decaying sausages ; in imperfectly cured ham ; in all canned meats ; in a large amount of imperfectly cured cheese ; tyroxicon is found in all milk partially frozen, then thawed, and re-frozen and used ; in ice cream ; in the mould of meal, flour or bread, ptomaines are found like in appearance to the crystals of urea.

Specific micro-organisms are the cause of special disease. Each must be pathogenic of that disease and conform to definite rules.

In order to be able to state definitely that any disease is due to the action of a microbe it is necessary to fulfil certain conditions as formulated thus:

1. The microbe must be found in the body of the man or animal suffering from or dead of the disease.

2. The microbe must be isolated and cultivated in suitable media outside the body of the animal. The cultivations should be carried on through successive generations of the organism in order to insure its purity.

3. A pure cultivation when introduced into the body of a suitable healthy animal, must produce the disease in question.

4. In the inoculated animal the same microbe must again be found.

The cultivation of microbes.—In the examination of air, water, and the fluids and tissues of the body many kinds of microbes may be seen under the microscope, but it is possible to distinguish them from one another only by comparing their reactions to staining fluids and their appearance and mode of growth in certain media. The media which are used are both solid and fluid; potatoes, peptone-gelatine, agar-agar (Japan isinglass), bread-paste, chicken-broth, milk, blood serum, urine, various chemical solutions, most of which contain sugar and phosphates. These media, as well as all apparatus with which either the microbes or the media come in contact, must be thoroughly sterilized.

It is found that some organisms grow better in one kind of soil, others in another, thus pathogenic germs grow best in an alkaline medium, putrefactive in an acid one: and at least twelve pathogenic forms will not grow in nutrient animal jelly. It is not every acid, however, which interferes with the growth of pathogenic germs, as the acid surface of a potato affords a favorable nidus. Besides these points, their growth is influenced by temperature, by the presence of mineral matter (amount and kind), and by the presence or absence of oxygen (aerobic or anaerobic).

Germs grow in nutrient jellies in a manner varying with the way in which they are planted, the usual methods in tubes are surface, depth, and streak cultivations. Gelatine jelly is used when the required temperature at which the tubes have to be kept is under 25° C., at which point it liquefies; agar-agar liquefies at 35° C. When microbes are cultivated in this manner, under favorable circumstances, they rapidly grow and multiply; this is done by simply dividing in two (fission), or by the

production of spores, or by both means. The vitality of many of the spores is so great that if circumstances favorable for immediate growth are not present, they will survive for very long periods; outbreaks of diseases which seem spontaneous in their origin may be thus explained.

The special bacterium must be present in all forms of the disease; special micro-organisms freed from all extraneous matter.

The micro-organisms themselves may be poisonous, or the poison may be an integral part of them, or the germ may produce a poison, by splitting up pre-existing compounds in the body, or it may be intimately associated with or produce a soluble, chemical ferment.

Ptomaines excreted from the microbes of anthrax, cholera, puerperal and typhoid fevers, often kill before the germ enters the blood.

Ptomaines resemble, in all essentials, the vegetable alkaloids, poisons, conine, nicotine, strychnine, morphia, atropia, digitaline, veratrine, delphine, colchicum, curare, aconitine.

Besides the presence of disease-germs, with their alkaloids, ptomaines, there are another class of basic substances which are found in the living, either as the product of fermentative changes or of retrograde metamorphosis, alkaloidal products of physiological change found in the animal tissues during life, termed leucomaines, in contradistinction to the ptomaine, a basic product of putrefaction. The leucomaines are derived from the urea and creatine group, and are called autogenous.

The excretion of all living things, plants and animals are poisonous to the organism which excrete them. An individual may drink only pure water; eat food of the best; free from all adulteration, breathe the purest atmosphere, and yet his excretions will contain the most deadly alkaloid poisons, which are formed in the body, originate in the metabolic changes by which complex molecules are split up into simpler compounds.

These woe-be-gone states of languor, lassitude, debility; states in which there are headache, brown-coated tongue, termed biliousness, are due to the formation of alkaloids, shocks to the system from cold or wet or otherwise, retain effete matter, which poison the nervous system, which is speedily relieved by a Turkish bath, opening the bowels with a bactericide.

Some febrile states are autogenous, due to the retention in the body of products which should be eliminated.

Urine excreted during the hours of activity is much more toxic than during the hours of repose. Physical and mental work give rise to the formation of numerous poisonous substances; lengthen the hours of labor, shorten those of rest, and we have

toxical agents formed, which give rise to insomnia and fretfulness ; brain excited and refused to rest. Fever from fatigue, from prolonged excretion due to like causes, often mistaken for malaria.

The following is a list of ptomaines discovered, with their formula, up to the date of publication of this work :

Name.	Formula.	Physiological Action.
Methylamine,	C H ₅ N	Non-poisonous.
Dimethylamine,	C ₂ H ₇ N	" "
Trimethylamine,	C ₃ H ₉ N	" "
Ethylamine,	C ₂ H ₇ N	" "
Diethylamine,	C ₄ H ₁₁ N	" "
Triethylamine,	C ₆ H ₁₅ N	" "
Propylamine,	C ₃ H ₉ N	" "
Amylamine,	C ₅ H ₁₃ N	" "
Hexylamine,	C ₆ H ₁₅ N	" "
Tetanotoxine,	C ₅ H ₁₁ N (?)	Poisonous.
Collidine (?),	C ₈ H ₁₁ N	" "
Hydrocollidine (?),	C ₈ H ₁₃ N	Poisonous.
Parvoline (?),	C ₉ H ₁₃ N	" "
Unnamed,	C ₁₀ H ₁₅ N	Poisonous.
Ethylidenediamine (?),	C ₂ H ₈ N ₂	" "
Trimethylenediamine,	C ₃ H ₈ N ₂	" "
Putrescine,	C ₄ H ₁₂ N ₂	Non-poisonous.
Cadaverine,	C ₅ H ₁₄ N ₂	" "
Neuridine,	C ₅ H ₁₄ N ₂	" "
Saprine,	C ₅ H ₁₆ N ₂	" "
Unnamed,	C ₇ H ₁₀ N ₂	" "
Methyl-guanidine,	C ₂ H ₇ N ₃	" "
Unnamed,	C ₁₃ H ₂₀ N ₄	" "
"	C ₁₇ H ₃₈ N ₄	" "
Mydine,	C ₈ H ₁₁ N O	Non-poisonous.
Neurine,	C ₅ H ₁₃ N O	Poisonous.
Unnamed,	C ₅ H ₁₁ N O ₂	Non-poisonous.
Choline,	C ₅ H ₁₅ N O ₂	Poisonous.
Betaine,	C ₅ H ₁₃ N O ₃	Non-poisonous.
Muscarine,	C ₅ H ₁₅ N O ₃	Poisonous.
Mydatoxine,	C ₆ H ₁₃ N O ₃	" "
Mytilotoxine,	C ₆ H ₁₅ N O ₂	" "
Gadinine,	C ₇ H ₁₇ N O ₂	Non-poisonous.
Typhotoxine,	C ₇ H ₁₇ N O ₂	Poisonous.
Unnamed,	C ₇ H ₁₇ N O ₂	" "
"	C ₅ H ₁₂ N ₂ O ₂	" "
"	C ₁₄ H ₂₀ N ₂ O ₄	" "
Tetanine,	C ₁₃ H ₃₀ N ₂ O ₄	Poisonous.
Unnamed,	C ₇ H ₁₈ N ₂ O ₆	" "
Tyrotaxicon,	" "
Mydaleine,	" "
Spasmotoxine,	" "
Peptotoxine,	" "

In stercoræmia, or constipation or arrested secretion from the intestines, the poisonous alkaloids accumulated in the bowels in

twenty-four hours would be sufficient to kill the individual, if it were absorbed.

According to good authority, we resist incessant auto-infection by two distinct mechanisms; elimination of the toxic principle, and its destruction by oxygen. Elimination by the kidneys can be proved, and the same experimenter has always detected alkaloids of the nature of ptomaines in normal urine, though in feeble quantity, and the proportion materially augments in certain pathological states such as typhoid fever and cerebral diseases.

Elimination by the digestive tube is also probable.

Purpura. In the etiology of cutaneous hemorrhage, the causes may be embraced under the following: Certain blood changes, due specially to the presence of disease germs in the blood, abstracting the oxygen from the corpuscles, such microbes as the amylobacta of rheumatism and the tubercular bacilli; to a want of tone in the nerve centres.

(*Ecchymosis.*) In the chaotic condition, induced by the presence of these and other germs, the walls of the vessels rupture, and transudation of both red and white blood takes place.

Although the appearance of the effusion of blood in the skin is usually preceded by lassitude, faintness, great prostration, pains in the limbs, etc., still it bears no relationship whatever to scurvy. Extravasation in both affections is liable to occur from the free surface of mucous membrane, into the skin, in serous cavities and within the parenchyma of organs. In purpura there is an entire absence of the swollen, spongy, pallid or livid gums, and peculiar fœtor of the breath that we have in scurvy. Vital power is more depressed in scurvy than in purpura.

Two varieties, *acute*, small hemorrhagic spots, like petechia on the body; *chronic*, large patches, vibices and ecchymosis.

The vital integrity of the lymphatic system, spleen, pink marrow, etc., is greatly impaired.

In the treatment, complete rest in the horizontal position must be insisted on, bowels regulated with cascara sagrada lozenges. Digitalis in alternation with the mineral acids and quinine should be tried; if their effects are not speedily visible, try the following:

Glycerite of kephaline, six ounces; sulphate of strychnine, one grain. Mix. Half a teaspoonful every three hours, added to water. Ergot has met with good success; also fluid extract hamamelis. Terebinthea in emulsion has also been of utility.

Pyæmia. During the process of inflammation, lymph or plasma is apt to be effused from the blood in the part which has a partial death, and this lymph, provided the vital forces be low or the treatment inefficient, very liable to become pus—living matter of the very lowest organization, which if, by any accident, it finds its way into the blood,



The streptococcus pyogenes; the germ as seen actively breeding in the blood in pyæmia.

through an abrasion, scratch, wound, or otherwise, is liable to give rise to *pyæmia*; a contagious and infectious disease due to the presence of the micrococci of pus. The entrance of this disease germ into that vital fluid, the blood, is most disastrous as it gives rise to extreme bacterial evolution with embolism, and the pus microbe breeds so rapidly, that entire colonies

localize themselves in every tissue, gland, and organ of the body, attended by the formation of infarctious, metastatic abscess in which the protoplasmic elements of the pus germ proliferate.

Rigors are indicative of pus growth; its progress, its volume, rapidity. Its destructive action can be appreciated, nay, calculated by the intensity, frequency, and violence of the chills.

The cocci of *pyæmia*, streptococcus pyogenes, are seen occurring singly or in chain and in zooglœa.

Pus when absorbed begins a new era of germ life, and microscopic organisms begin to breed and multiply in every tissue of the body and cause suppurative *pyæmia*.

The microbe bears culture well in any rich animal broth; cultures injected into animals give rise to the disease in all its malignancy.

The formation of pus, its confinement within a cavity, in the cellular tissue, bone, carbuncle, pustule, or its reception by a dissecting wound, or a laceration, all lead to *pyæmia*, colonies of micrococci everywhere, with thrombosis and embolism due to bacteria.

This history of the case, with marked, decided rigors, followed by a great rise in the temperature of the body, being out of all proportion to the phenomena of chill. This is followed by profuse colligative sweats; great irritability; heart failure, with at



Full developed streptococcus pyogenes; the pathogenic microbe of *pyæmia*.

first a small very rapid pulse and latterly intermittent; conjunctiva and skin assume a yellow tinge; later on, jaundice. The breath, sweat, sickly odor; tongue, white, dry, fissured, later glazed, brown sordes on teeth, nausea, vomiting, great thirst; abscesses on all the internal organs, followed by dull apathy, delirium, labored respiration, face of a leaden color.

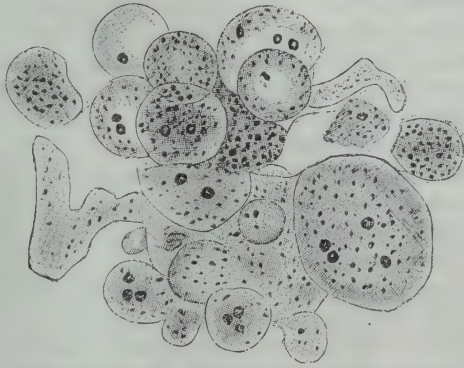
In order to perfect a correct diagnosis of all cases of pyæmia, it is imperatively necessary to make a microscopical and chemical examination of the stools and urine for the streptococcus pyogenes which is always present in great abundance. When the cocci are found in the urine, it may point to suppuration in the urethra, prostate, bladder, kidneys; but when persistently present in the stools, isolated from necrotic patches in the liver, we can see the organisms, study their ameboid movements, witness their sprouting in the form of spherical outgrowths, looking like mulberries, full of live cocci in violent, unceasing motion.

In the treatment of this destructive germ malady, everything should be avoided that would favor the development of the micrococci. The most rigid antiseptic precautions in all surgical and obstetrical procedures, cleanliness, good ventilation, sunlight, avoidance of all insanitary states.

The strength of the patient should be well supported by the largest amount of nourishment possible, together with stimulants. The indication for nourishment and stimulants are most pressing. If possible the germ must be destroyed and eliminated by the intestinal tract.

With this object in view, the annihilation and sterilizing of the germ, some of the following remedies should be tried; quinine is the drug which is most extensively employed for its antiseptic, stimulant and antipyretic effect; we endorse its use. In alternation the most energetic effects are derived from the peroxide of hydrogen in one to three drops administered every hour; wound, if there is one, dressed with the same.

This failing, most excellent results have been obtained from ten grains of resorcin every hour combined with two of sulphate



Streptococcus pyogenes pus germs in the urine and stool in pyæmia.

of thallin. The sulphites, hyposulphites of sodium, calcium, manganese, especially the two latter, have met with admirable success, and are worthy of a trial.

The microbe of rabies exists chiefly within the migrating cells of the plasma-spaces of the nerve centres, and in similar cells found in the cerebro-spinal fluid; and the mode of securing these is as follows: As soon as dog suffering from the disease dies, the skin and muscles should be dissected from the back of the neck, so as to expose the atlo-occipital articulation; the carcass should then be placed on an inclined plane with the head downward; then, with the thermo-cautery, an eschar should be made over the articulation, and with a sterilized bistoury the sheath of the cord is opened through the burnt space. The fluid is then collected in small spindle-shaped tubes with capillary ends, which have been, of course, sterilized when made, and the points melted, these are broken off at the moment of filling, and at once resealed. The rachitic fluid of a single dog will fill a dozen of these little tubes; when charged they are placed horizontally in a box, and left for some time in complete repose. After a few days, at a temperature of 20° Cent., one sees in some of the tubes a pale line of deposited cells with one or more white points, extremely small, yet still visible to the naked eye; these are colonies of the microbes in question. The groups are always few in number, and only one out of many tubes may contain them. This explains why animals may be inoculated with the cerebro-spinal fluid of an unquestionably rabid dog, and yet not acquire the disease. And is probably due to the paucity of the pathophoric cells which contain the microbes, or that these latter have not always vitality enough to make their way through their walls. By succussing the tubes strongly the colonies can be broken up, and the fluid becomes opaline; whilst healthy lymph from the same source, and treated in the same way, undergoes no change whatever.

The activity of the poison used has been in every case proved by inoculation in a series of dogs and rabbits. A drop from one of the arachnoid shows cells filled with sarcinoid masses of coccus and glomerules separated therefrom. In other spaces this is not seen, but agglomerated microbes bacillar in form, which the author believes to be a transitional condition. These germs are easily cultivated in slightly alkaline broth, in gelatine and agar-agar with or without glycerine. The first cultivations should always be made in broth, and be afterwards transferred to solid media. Their liquefying action on the latter is slight, but in some

cases it is complete, and may have been owing to some defect in the gelatine itself. In broth, after five days, at a temperature of 20° Cent., there are numerous globular or irregular deposits at the bottom of the tube; in some it adhered firmly, like a mycoderma to the glass; but in most a vigorous shake was enough to make the whole fluid opalescent. It would seem that there is some diastatic difference in these growths, but their pathogenic power is alike; this was proved by physiological reactions—the fatal inoculation of other animals.

We have succeeded in isolating the microbe from the spinal fluid of rabbits dead through the disease communicated from dogs by corneal incision, and in others inoculated in series for the anti-rabic treatment. For instance, amongst twenty tubes filled from one of the latter, two or three have been found to contain the specific microbe. It is very easily stained by gentian-violet and aniline-red—in diluted alcohol especially so.

Pathogenic Action.—One of the incubating flasks is shaken so as to diffuse the germs; then a drop of the fluid is allowed to fall into both eyes of a number of dogs, and a slight scratch is made in each cornea. The little wound heals very quickly without inflaming, although it has been the channel through which the poison has entered, and for eight or ten days the animals seem perfectly well; then they become suddenly ill, and emaciate rapidly; are attacked by general paralysis, and, after two days of feverish hyperthermia, die exhausted. The eyes are throughout free from inflammation. It should be added that some of the same group of dogs become ill, but do not die, and that others may even be quite unaffected.

The nerve-pulp, as well as the cerebro-spinal fluid of the animals which die will produce in indefinite series the typical rabies of the laboratory. But the ordinary tests of cultivation and microscopic examination have failed to show in any case the presence of the microbes in the humors and tissues of the animals killed by keratic inoculation with the artificially-cultivated germs. On the other hand, hypodermic injections in large doses (*de dosis masivas*), twenty to thirty cub. cent. of the sediment in the cultivating flasks have not the slightest effect on the animals so receiving it; no more, indeed, than if one had injected as much pure water. But there has not been time enough to decide if no remote effects follow. It should be observed that all these experiments were made with cultivations between the fourth and tenth in series, so that the effects of the germs contained in the cerebro-spinal fluid itself dropped into the first flask, should be eliminated. And it has been proved by experiment that this fluid has very little poisonous action. Nevertheless, it cannot be

denied that this fluid is more active *when injected* than the cultivated microbes from the original tubes. This leads one to believe that the microbe of rabies during its intercellular life may undergo some modification which renders it less fit for subsequent segmentation in cultivating media. Apart from this, the success of the first trials therewith depends upon the presence in sufficient numbers of the phytopherous cells in which the microbe may multiply freely after, probably, the digestion of their envelopes. (See *Hydrophobia*.)

Distinct races of men exist all over the earth ; the
Races. living witnesses are before us in the Mongolian, the Negro, the Malay, the Indo-American, and the Caucasian—essentially different types of mankind ; different in color, organism, construction, physiognomy, and blood. Besides the difference in complexion and physiognomy, there is a marked variance in their anatomical and physiological structure, an incomparable, impassable difference in bones, brain, nerves, senses, vessels, glands, and in language, which latter alone, when considered, makes a distinction, a perfect line of demarcation, so that neither race can be traced to a common source or origin.

One group or family of languages form a class known as the *inflectional*, and are distinguished from all others on the globe as the only languages that are adapted to and possess a literature, a science, art, progress. This is the property of the Caucasian, the sole civilizing race in the world, and was doubtless taught to him in the Garden of Eden. The other groups of languages are monosyllabic, and are destitute of all grammar ; the nouns have no number, declension or cases, and the verbs are without conjugations, moods, tenses or persons.

The variety of races is no mystery ; each is a separate, distinct creation, for a gradation of species is absurd and inconsistent. A changing, a negation, an amalgamation, is death and extinction to all concerned in the effort ; a change from black to white an absolute impossibility.

We have abundant evidence to show that the different races existed four thousand years ago, as distinct as they are to-day ; accurate likenesses on monuments and other historical evidences are prolific and available on the subject. Incontrovertible evidences—geological, archeological, philological, physiological, psychological, anatomical, and historical—all tend to establish the proposition, that of all the distinct races of men which are now and which have been on the earth from time immemorial, and inhabited its respective sections, the Caucasian was the last to make his appearance ; a masterpiece of creative mechanism,

made out of God himself. The record of Moses does not in any way contradict the existence of other races before Adam. All attempts to trace the different races in a degradation from Noah result in glaring failure. It is well known that both the Chinese and African nations existed centuries before Adam.

There can be little doubt but that the intermarriage of the Adamite daughters with the adjoining races was the real cause of the flood. God foresaw the terrible results of incompatibility of races; that the stock produced was inferior to either of the mingling parents; derogatory to the welfare of His people, and would tend to extermination.

The Bible should be regarded as the history of a particular race—the Adamite. His creation, his fall, his restoration to paradise, are the themes of holy writ. Salvation is proclaimed to the heathen by faith in Christ, and as it is free and bountiful enough, other races are permitted to participate in its benefits.

Truth, in whatever department of science it appears, cannot be contradictory of Revelation. There oftentimes may be an apparent antagonism, but it is not real. When they are not reconcilable, either Revelation or science is misunderstood. The word of divine truth stands sure. Scientists may err, but the ultimate deductions that we, the Adamites, are to infer, are, that the mixture of races does not produce a true hybrid condition, but something analogous to it. It degrades the bioplasm of both races concerned, by producing stock highly tubercular; so much so that it will inevitably terminate in the utter extinction of any given race concerned or implicated, and as the mixture of races was the cause of the flood, so it will, if persisted in by our people and government, infallibly produce a condition of national decadence and ultimate annihilation of all the parties. Words fail to express the supereminent degradation inflicted on any race by a deterioration of its original properties, its organic elements.

If space permitted, we could easily show a perfect distinction of races in other points, as construction, craniological development, difference in bones, senses, etc., and their perfect incompatibility. We have an excellent national example in Mexico, where we have the noble Spaniard coupling with the aboriginal Indian, giving us a race much inferior to either of the mingling parents; a race that must inevitably die out.

Marriage, to give a good stock, must be consummated within the race. And marriage among the Caucasians of individuals of the same temperament, identical in color of hair, skin, eyes, conformation; or persons related by consanguinity, should be prohibited by law, as they entail on their offspring tuberculus, an element of deterioration and death within the races. Still,

withal, a morbid race cannot be established in the true sense of the term, for the evil cures itself by non-procreation. No sensible deterioration in size, beauty of form or expression, can take place, for the moment the boundary line is reached the evil cures itself in non-procreation, so that the Caucasian to-day is a perfect fac-simile of our prototype, Adam.

It seems to be a difficult matter to get the hide-bound, or so-called orthodox, Christians to appreciate the essential difference of races, but as they are distinct in their anatomy, so are they different in all other attributes; their sympathetic systems are imperfectly developed; that is, it exists in a more rudimentary condition; consequently, they are incapable of taking on the diseases of the white man. It is impossible for them to take yellow fever, acute laryngitis, pneumonia, carditis, typhoid fever, etc., and if it is true that the soul of the Caucasian is located in his great sympathetic, and his moral nature there developed, where could there be a more decided element of disparity of race. The very senses and their organs are different, being more highly developed in the colored race than in the white.

This distinction of race comes home to us most strikingly in the aggravation of the types of all our diseases, when two or three dissimilar races are living in close proximity. Suppose the child of white parents contracts measles, scarlatina, small-pox, from the convalescing child of the Negro or Mongolian; the so contracted disease, even though of a mild form in the colored, will become virulent and malignant in the white, and vice versa. Let a white man contract a gonorrhoea from a colored woman, and he has something that no known drug will stamp out for months or years. The fact of two antagonistic races residing in close proximity is detrimental to the prosperity, health, happiness, longevity, and freedom from disease of either race.

All physiologists and naturalists agree in asserting that the sexual instinct is much stronger in the male than in the female, so this fact must be accepted. In countries in which women keep their normal sphere, the number of male births exceed the female by five or six per cent. But that represents the children born alive, if we take the miscarriages and still-born, the male rate exceed the female forty or fifty per cent.

The germ cell, or female, transmits the form and general hereditary qualities of a race, while the sperm cell, or male, introduces the variations which fit the race to survive under new conditions of life, the sex being determined by the greater vigor and maturity, or greater fitness for survival in either parent. Where the ordinary conditions of life are uniform and constant, the

germ cell will predominate and females be produced in excess ; where women leave their sphere and take on the strong-minded element, the offspring are all females ; where the conditions of life are variable or injurious to the race, the acquired vigor in the struggle for existence, the sperm cell will predominate, and an excess of males be the result. In the civilized condition the two sexes are of equal value, inclining to the side of the male, provided each keeps its proper sphere. Austria and Great Britain afford us an example in which the two sexes are on an equal footing or basis, and we find on examination of their birth-rate, that there are born one hundred and ten males to one hundred females, which shows an absolute excess of male births, and this excess occurs at the earliest and most vigorous portion of married life.

The sex rate, also, seems to be largely dependent on the relative maturity of the parents, as well as their vigor, the more mature parent being the most potent in determining the sex ; the sex being the same as the most mature parent. The following figures exhibit the proportion of male births in one hundred females :

Father younger than the mother,	90
Father and mother of equal age,	94
Father older by one to six years,	103
Father older by eleven to sixteen years,	147
Father older by eighteen or more,	175

As females attain to maturity five years earlier than males, it is probable, from the above table, that with a difference of age of five years in favor of the father, the two sexes would be about equal.

The hereditary physical and mental qualities are transmitted by the female, and that variation and adaptability to new conditions of life are introduced by the male ; we do not wish to imply that the germ cell is not modified by external conditions, but only that it is subject to fewer causes of variation—that it possesses a strong inherent disposition to resist change, and that it will be destroyed rather than accommodate itself to any marked changes in the condition of life. It is most tenacious of vitality, indeed we see the female embryo resisting violence of all kinds, action of drastic drugs and constitutional taints in the parents, living in spite of danger and disease.

From statistics of the two countries mentioned (for our own are not reliable, being full of the strong-minded element, which by-and-by will render us a nation of girls,) it is probable that the proportion of births, marriage being properly regulated by age, should be the proportion of three males to two females, and this

number would be a typical family, which would admit of the sacrifice, not necessarily the destruction, of one male, to accommodate the race to the ever-changing condition of life, and to assure the constant accession of fresh vigor and maturity. The wealthy, living under the most favorable conditions of good living, of natural and sanitary surroundings, no struggle, have the two sexes equal, females slightly predominating. In embryonic and infantile life, boys do not possess near the vitality of girls, which may account for the unusual destruction of males at birth, their heads are larger and the diseases incidental to childhood always prove more fatal to male than female children. Races being distinct creations, are antagonistic to each other, so to preserve the vigor and vital integrity of a given race, its members must marry within it, for if they mix with other races, they implant deterioration, disease, and death on their offspring.

Individual members of the Caucasian race must maintain and utilize their vigor, and in order to do that should not marry one of similar temperament and physique, nor in similar conditions of life; a literary man never should marry a literary woman, nor a tailor a seamstress. Cross fertilization within the race produces the best stock. There should be no *in-and-in* breeding in temperament, nor in similar conditions of life, far less than among blood relationship.

There is a growing error in the public mind on maturity. It is a great error to suppose that puberty in either sex is a sign of fitness for marriage. Growth and reproduction cannot go on beneficially together, reproduction being a diversion of growth or development in a new direction, namely, from the individual to the race. Men do not cease to grow until they are twenty-five, women till they are twenty-one, according to the good or bad nurture they receive, the best nourished attaining maturity first. It is obvious that those ages are the very earliest that marriage should be consummated, and, indeed, the father should be much older, if male children are desired. The best way of increasing the male births is to keep women in their proper sphere and direct our energies to the preservation of males at birth. This has been done to some extent by the grand improvements in the art of midwifery, but the mischief lies in the disproportionate size of the head of the male foetus and the mother's pelvis, which has been constricted by dress, tight lacing and abnormal mental culture. For the curve of the sacrum and crook of the coccyx is a true index of the mental culture of the mother; the higher the one the greater the other. It is impossible to estimate the great loss the race sustains in superior and mental qualities by this unnecessary destruction of its finest products.

At birth, in children born alive at full period, the average length of male infants is nineteen and one-half inches, and of females eighteen and one-quarter inches; while their average weights are: males, seven and one-half pounds; females, six and one-half pounds. The waste of male children, owing to the large size of their heads and the contracted condition of the modern civilized female pelvis is immense. The remedy for this is apparent, and to be found in direct improved development of the girl's physical education and dress, an avoidance of the defects of civilization and a more careful guarding of the sexes in marriage.

The average stature of the American woman is five feet two inches to five feet three inches, and of man five feet seven inches to five feet eight inches. The difference between the two sexes being four to five inches; and as stature carries with it other relative proportions of the body, it is probable that if these limits were observed all through the scale of heights there would be fewer male still-births. It was at one time thought that the intellectual struggle going on caused an increased development of the brain in children and consequently larger heads in male children, but this has been found to be erroneous, for ever since the introduction of woman's rights movement the heads of boys and consequently men have become notoriously small, and the male children of such women effeminate, so that the recent impetus given to the so-called education of girls and the employment of women in intellectual pursuits is adding to the difficulty, and if it does not end by producing sterility, as is probable, or in the birth of female children only, which is still more probable, it must at least tend to the destruction, more and more, of males at birth. It is obvious that whether we consider the health and happiness of the individual or the future prosperity of the race, the healthy physical development of girls is of first and supreme importance. The boy is father of the man, the girl is the mother of the race, for to her is entrusted the hereditary characteristics of our forefathers. She has the means of transmitting them and indirectly of acclimating and accommodating the race to new and varying conditions of life.

The reproduction of characteristics resembling those of the father in the son, is in a large measure effected through the agency of the female where there is a strong affection on the part of the mother for her husband; his likeness, physical and mental is impressed on the son through the agency of the mother's psychic force. The feeling, impulse or sentiment which pervades the mind of the mother controls and influences the development of the child. Peculiarities of feature and

form that impress her powerfully, whether with admiration or abhorrence, are reproduced in the offspring, and if her mental conditions be particularly strong, the impression may be transmitted in exaggerated intensity. These things happen in male children, which are specially the mother's. The likeness which female children bear to the male parent is the direct effect of reproduction in kind. The maternal influences are less evident in a female than in a male offspring. Perhaps a good view to take of the subject would be the following: sex is the result of an arrest or repression of the force of development in the case of the female. The male of every family in the animal kingdom is the best and fullest specimen of development, having regard to the purposes and habits of life of the species, class or family. The arrest in point of development which characterizes the female, has nothing in common with immaturity, and is no proof of inferiority. It is simply a repression of the formative force, and the physical result of that repression is a perpetual effort to develop or reproduce. The force arrested in the individual gathers intensity and expresses itself in a perpetual and characteristic longing to produce a perfect animal. The perfection denied or inhibited in the individual is sought for in the progeny. Hence, the natural tendency of the female to produce male children, and as a necessary result most of the children born are males.

It is not a question of ardency in the two sexes, but of the direction or force of intention or purpose of nature, that is, the inner working of natural laws. The tendency of what is called ardency in the performance of this function is to neutralize or control the productive force of the female, and thus determine that arrest of development which results in female offspring. Here, again, there is no question as to the comparative amount of ardency in the two sexes, because the ardency of the male may be dissipated by the extent of its activity so as to be in no instance dominant, or it may be restrained or intensified, and, therefore, when it acts, assert supremacy.

The way constitutional strength comes into play, as it undoubtedly does in sex determination, is by giving vigor to the natural action of natural laws, not by changing the operation of these laws, so as to make them non-natural. Throughout the organic kingdom, we see nature preserving and developing the germ cell, while on the other hand, we are constantly reminded of her lavish production and apparent wastefulness of sperm cells.

The function of the male is not one of production, but fecundation. The laws governing the development of monsters are

laws of development, rather than of procreation, and they come into play after conception. The natural tendency of the female is, if she does not exhaust her brain force, to produce male children in excess, and, as a result, when mothers live properly a large percentage of the children born are males, but let the child-bearing mother exhaust her mental powers as a teacher, preacher, astronomer, or other literary avocations, her children will be all females, and if there should occasionally be males, they will be effeminate, have small heads and feeble brains, and resemble girls in their actions. Woman may be more perfect in her anatomical construction than man, but her great sympathetic is merely rudimentary, so she needs a man to complete her component parts. The practice of women engaging in literary pursuits and learned professions is well enough, if they maintain celibacy; but if they ever marry and bear children, then they are sapping and deteriorating the elements of national growth and vigor.

The ill effects following injuries met with in railway accidents are of a somewhat peculiar nature, irrespectively of such forms of accidents as are mentioned elsewhere, such as fractures and dislocations. These injuries consist of concussions of the spine and spinal cord, and from the frequent absence of outward signs, and the obscurity of the early symptoms, are of a very insidious character, and their diagnosis is of the utmost importance to a medical man, as they so frequently are the sources of medico-legal inquiry. A well-known author, speaking of this class of injury, says:—"That in no ordinary accident can the shock be so great as those that occur on railways. The rapidity of the movement, the momentum of the person injured, the suddenness of its arrest, the helplessness of the sufferers, and the natural perturbation of mind that must disturb the bravest, are all circumstances that of necessity greatly increase the severity of the resulting injury to the nervous system and that justly cause these cases to be considered as somewhat exceptional from ordinary accidents. This has actually led some surgeons to designate that peculiar affection of the spine that is met with in these cases as the 'railway spine.' Injuries of the spine and spinal cord have been already treated of generally, and it is hardly to the purpose to reconsider them specially in reference to the subject in hand, and we shall therefore pass on to such matters as relate to those cases where the fact of injury sustained on a railway has been the cause of litigation." Concussion of the spine from a direct and severe injury to the back may

terminate, according to the same authority, in four ways:—1. In complete recovery, after a longer or shorter time. 2. In incomplete recovery. 3. In permanent diseases of the spinal cord and its membranes. 4. In death. It is a very remarkable circumstance that, although the patient has apparently sustained in many cases a very trifling injury, the result is widely disproportionate, the reason for this being that the symptoms indicative of concussion of the spine and of the subsequent irritation and inflammation of the cord and its membranes are so slowly progressive. A patient is often quite unaware that anything serious has happened, feeling perhaps only violently jolted, and a little giddy or confused. After a while, however, when he has reached home, the effects of his apparently simple injury begin to declare themselves. “A revulsion of feeling takes place; he bursts into tears and becomes unusually talkative, and is excited; he cannot sleep, or if he does, he wakes up suddenly with a vague sense of alarm. The next day he complains of feeling shaken or bruised all over, as if he had been beaten or had violently strained himself by exertion of an unusual kind. This stiff, strained feeling chiefly affects the muscles of the back and loins, sometimes extending to those of the shoulders and thighs. After a time, which varies much in different cases, from a day or two to a week or more, he finds that he is unfit for exertion and unable to attend to business.” Such is generally the early history of a case of railway concussion. Sometimes the serious symptoms begin to develop immediately after the receipt of the injury, and in some cases not till long afterwards, and most marked and distinct changes are visible in the countenance, the state of the memory, the thoughts become confused, all business aptitude is lost, the temper becomes irritable, the sleep disturbed, restless, and broken; there are often loud and incessant noises in the head, the vision is frequently affected in various ways, the hearing, taste, smell, and the sense of touch become perverted; the sense of speech is rarely affected, and usually the attitude of those afflicted is peculiar. There is a loss of freedom in the efforts of motion or movement, and the individual appears afraid to make such efforts; the gait again is very characteristic; he walks unsteadily, and in a straddling manner; the power of walking is very limited, and he is unable to ride; the nervous power of the limbs will be found to be affected; sensation and motion, or both, may be impaired. Coldness of one of the extremities, owing to loss of nervous power and defective nutrition, is often noticed. The prognosis in these cases is very unfavorable, and patients have never been known to recover, completely and entirely, so as to be in the same state of health as before the accident.

With regard to the treatment of concussion of the spine brought on by such injuries, the first thing obviously is complete rest, and the patient should be compelled to lie on a prone couch, and the mind must be kept as much as possible at rest also; ice bags over the injured part of the spine; internally the glycerite of kephaline in quinine or bark; nux vomica, strychnine, and iron are all of great value in certain cases. Salt-water douches to the spine, and galvanism, are recommended in some instances. The great thing to be done is to endeavor to improve the general health, and "prevent the development, if possible, of secondary diseases, such as phthisis, dependent on mal-nutrition, and a generally broken state of the health."

Brain shocks, especially in men over sixty-five, are unusually common. This is undoubtedly due to the atrophy, induration of the brain incidental to that period of life.

Such jars give rise to white softening.

Ranula is a tumor situated below the tongue, bluish in color, translucent, and cystic in character. It sometimes attains such a size as to displace the tongue and impede its movements, causing serious inconvenience in mastication, deglutition, and articulation. It may be caused either by obstruction of a salivary duct, or by the occlusion and dilatation of a mucous cyst, or dilatation of a bursa mucosa said to exist on the outer surface of the genio-hyoglossus muscle; or it may be a new growth of itself, a myxomatous cyst. It may be healed by simple incision, or by cutting out a portion and evacuating the contents, and to prevent premature closing a strip of lint should be introduced; or frequently the introduction of a seton suffices. In the case of cysts containing a thick putty-like material, the cyst wall must be dissected out entire. The injection of iodine is sometimes followed with good results. The contents of the cyst are gummy or albuminous in character, containing simple round mucous globules as their only structural element. Occasionally phosphatic concretions are met with.

The terminal portion of the alimentary canal is
Rectum. thus named from its being comparatively straight. It is situated in the pelvis, or lower portion of the abdomen, behind the bladder, and in front of the sacrum. It measures from six to eight up to ten inches in length in average sized individuals, its outside diameter is about one to one and a quarter inches when moderately distended, but capable of very

great distension, or dilatation, or it may be contracted by strictures to an infinitesimal degree, even to occlusion.

Its lowest portion is closed by a strong band of muscular fibres, about an inch broad, which is termed the sphincter muscle. The upper and lower edges of this band are very much thickened and are technically called the internal and external sphincters. These muscles are abundantly supplied with nerves, which are highly sentient and to some extent under the control of the will.

The walls of the rectum consist largely of longitudinal and circular muscular tissue, with a lining of smooth, mucous membrane. Blood vessels, nerves, absorbents are numerous, but nerves of sensation are limited, except in the sphincters, where they are abundant and highly organized.

The chief source of nerve supply to the rectal walls is from the spinal and sympathetic, which in a state of health are not sensitive, and this fact exposes it to abuse, grave, injurious, hidden lesions, without apparent suffering to the individual.

Rectal Medication.

The administration of remedies by the rectum for the cure of disease is of the greatest importance. It is not, however, as well appreciated as it should be, neither is it taken advantage of in those grave emergencies where human life could often be saved by its use.

Every remedy in the materia medica has a distinct chemical composition, the atoms of each are arranged in a certain way, in definite proportions, has an affinity either to depress or elevate certain tissues or glands of the body; every germicide has special definite action on each disease-germ respectively; any change in its atoms or chemical composition changes, or destroys its action.

The juices of the stomach are acid, those of the intestines alkaline.

Remedies administered by the mouth into the stomach, thence to the bowels, thence to the blood, and finally to the tissue or germ for which it has an affinity, meet with numerous chemical changes, which alter its composition beyond recognition, and often renders it wholly worthless for the proper purpose. This is not, however, true of all remedies. Medicinal agents do not require digestion, but when they are submitted to that process, many of their best properties are destroyed.

The rectum possesses the most active absorbent system, and all the requisites for perfect assimilation, in a more rapid, energetic and effective degree.

The most decided impressions can be made on the nervous system and blood by remedies administered through that organ—the most efficacious way in which to reach the uterus, bladder, prostate gland, urethra, seminal vesicles.

All these organs can be reached when in an irritable state ; they can be vitalized by remedies inserted into the rectum; in all cases with less disturbance than through the digestive tract.

It possesses all the requisites, every essential for the specific treatment of disease, with the success never dreamed of in oral medication. The method is unsurpassed in reaching disease-germs in the blood and nervous system.

The power of the medulla oblongata to receive irritation or stimulation from different points in the body, is generally conceded ; that if either is of sufficient intensity it is indelibly fixed there ; in the one case raising vitality, in the other lowering it.

Slight or low grades of irritation simply depress or enfeeble the medulla, the seat of life, causing defects in nutrition or a degradation of primary molecules, an alteration or change in living matter into the tubercular bacilli.

An irritation of the gray or sensient nerve tissue in any part of the body is transmitted to the medulla oblongata, where it sets up an irritation similar in kind and degree, which if it be of sufficient intensity, is reflected back by the white or motor nerves that supply the muscles, causing a contraction or spasm.

A general weakness, an impairment of vital force, predisposes to the reception of the irritation, and it is necessary that the irritation be great in degree.

Irritation, great in degree or intensity, reflected according to this reflex law, sets up an analogous irritation in the medulla to what exists in the periphery.

The most common causes are laceration of nerves, or their neurilemma, a tooth merging through the indurated gums, a worm nibbling at the periphery of a nerve in the bowels, the presence of the head upon the sacral plexus of nerves in labor.

Our best remedies to wipe out irritation of the medulla and also to suspend its impressibility, are ozonized fluid extract of musk root; scutellaria.

Respiration is the process by which the air enters and emerges from the lungs, and in doing so causes the aeration of the blood, and converts the black venous blood into the scarlet arterial blood.

Respiration consists of two parts, inspiration and expiration, and as a rule an individual breathes fifteen times in a minute. The lungs always contain air, and no expiratory effort, however forced, can empty the lungs; the amount of this air, which cannot be got rid of, is called residual air, and is on the average from 75 to 100 cubic inches. About as much more in addition to this remains in the chest after an ordinary expiration, and is called supplemental air. In ordinary breathing, from 20 to 30 cubic inches of air pass in and out of the chest; this is called tidal air; thus, at the end of an ordinary inspiration, about 230 cubic inches of air are contained in the lungs; in addition, by taking a very deep inspiration, another 100 cubic inches, called complemental air, may be added. Of the 230 cubic inches contained in the lungs at the end of an ordinary inspiration, about one-seventh of this amount goes out at every expiration, and is taken in again at the next inspiration, and so on; thus it will be seen that it is important that the air in a room should be constantly renewed, or else a person would be breathing over again his expired air. Now this expired air is less pure than the inspired air, because it is deprived of some of its oxygen by the action of the blood, and it has received in return carbonic acid and moisture; the more oxygen there is in the air of a room the better it is for health, for if carbonic acid accumulates, it produces headache, lethargy, and, if in large quantities, a fatal result, (See *Asphyxia by carbonic acid gas*.) About 350 cubic feet of air pass through the lungs of an ordinary man in a day; in passing through the lungs, the air would lose from 4 to 6 per cent. of its volume of oxygen, and gain 4 to 5 per cent of carbonic acid. During twenty-four hours there will be consumed about 10,000 grains of oxygen, while 12,000 grains of carbonic acid will be produced, corresponding to 3,300 grains of carbon. During this time about 5,000 grains, or 9 oz. of water, will be exhaled by the lungs. In twenty-four hours an ordinary man would vitiate 1,750 cubic feet of pure air to the extent of 1 per cent., or 17,500 feet of pure air to the extent of 1 in 1,000. Taking the amount of carbonic acid in the atmosphere at 3 parts, and in expired air at 470 parts in 10,000, the body would require a supply per diem of more than 23,000 cubic feet of ordinary air, in order that the surrounding atmosphere might not contain more than 1 per 1,000 of carbonic acid; and more than this proportion is injurious; every one ought, therefore, to have at least 800 cubic feet of well-ventilated space. In all works on physiology a description has been given of their structure, and of the various changes which the air and blood undergo. The mechanism of respiration need not be fully described

here. During inspiration the diaphragm descends, and the depth of the chest from above downwards is thereby increased; at the same time the ribs move upwards and outwards, so as to increase the cavity of the chest from side to side and from front to back. Thus the chest-walls expand in three directions during inspiration, and at the same time the lungs follow the expansion and become inflated with air. During expiration, the lungs, being elastic, retract, and the reverse movement of the diaphragm and chest-walls takes place. Any thing, as tight lacing, etc., which interferes with the due expansion of the chest, is therefore very injurious; any deformity of the chest, a habit of stooping, a curved spine, a pigeon-breast, etc., all act in diminishing the breathing area of the lungs. As a rule, the wider a man is round the chest the better is his state of health and capability of exertion. Exercise, gymnastics, drilling, rowing, etc., are all excellent means of expanding the chest and promoting good respiration. When a man runs he gets out of breath because the circulation of the blood is increased, and he requires more air in a given time to aerate it.

Through the nasal, laryngeal, bronchial lining membrane, *no disease-germ can find ingress to the blood.* All microbes, factors of disease, find their way into the body through the skin and mouth.

The great secret then, aside from a high standard of vital force for the prevention of disease is *how to breathe.* Man should breathe exclusively by his nose in order to avoid all contagious disease germs. This is apparent from the following anatomical facts: The nasal chambers in man are remarkable for their irregularity of surface and anfractuosity, and consequently for the enormous area of mucous membrane they present within a very limited cubic space. The greatest ingenuity has been displayed in the construction of the nasal fossa to give this immense surface without increasing bulk or weight. In pursuance of this principle, all the bones about the nose are hollowed out and the chambers so formed that the so-called sinuses or channels of those are brought into direct communication with the nasal passages, and constitute supplementary air chambers or crypts, and every portion is utilized for its proper purpose. The entire surface of this extensive tract is covered with mucous membrane, remarkable for its vascularity and high nerve endowment. The upper or olfactory portion of the nasal surface proper, amounts to about one-half of the whole, and this is provided with an epithelium composed of non-ciliated columnar particles interspersed with fusiform or olfactory cells, whilst the lower half, which is essentially respiratory, is furnished with a ciliated col-

ummar epithelium, same as that which lines the upper surface of the bronchial tubes. Over this extensive tract, supplemented by the accessory sinuses, the eighteen or twenty cubic inches of air which constitutes the volume of one inspiration, passes and is dispersed in thin layers and fine streamlets. The air in this act of nasal respiration diffuses itself into the chambers and recesses, and thus becomes heated to the temperature of the body, by coming in contact with the vascular lining. The greatest portion of the air that enters the lungs in ordinary nasal breathing is drawn from those chambers and recesses after it has been heated. The inhaled air is supposed to take the sides, and the expired air to occupy the centre. No doubt to some extent they mix and thus become vitiated, for the expired air is loaded with carbonic acid gas and is heavier than the lighter and static air lodged in the nasal cavities.

The initial portion of the nasal respiration is devoted to diffusion through the sinuses and chambers, where it is raised in temperature, thoroughly cleaned before it is transmitted to the lungs; it is thus freed from disease germs, mechanical impurities, by a process of sifting which it undergoes by means of the cilia of the respiratory portion of the tract, where these extraneous elements become fixed by the abundant viscid mucus secreted in those passages. When such impurities are in excess as in the case of a miner, cotton operative, knife-grinder, wool-sorter, the natural protection is not sufficient, and irritation and disease is the result. But under all ordinary circumstance the natural process is sufficient to catch or filter, or sift the breathed air from all disease germs. The crusts that form in the nose when not due to ulceration, are the product of sifting, filtration and deposition.

The air inhaled through the nostrils is hygrometrically altered by coming in contact with moist mucous surface and thus becomes charged with a percentage of aqueous vapor inversely proportioned to its previous hygrometric condition. This effects a most salutary change in softening, mollifying a dry or parched atmosphere, such as we often experience in our violent wind currents.

The dry air, if breathed into our lungs unchanged, would cause too rapid evaporation from the lining surfaces of the bronchial tubes, lower their temperature inordinately and interfere with gaseous exchange within the lungs and give rise to asthma, bronchitis, and pneumonia.

The cavity of the mouth of man presents none of these advantages for breathing, indeed, it is not adapted for breathing at all. The mouth, the buccal and laryngeal portion of the pharynx are

covered with stratified squamous epithelium, and like all surfaces so provided are, by comparison with columnar and ciliated surfaces, lowly endowed with vascularity and sensibility. There are no subdivisions in the mouth into chambers, recesses, sinuses. No multiplication of surfaces by projections and depressions of surfaces as in the nasal cavities. Hence a column of air breathed through the mouth is not searched, cleansed, sifted and filtered of foreign bodies, neither is it warmed and moistened as if breathed by the nose. The saliva will not impart vapor to the air passing through the mouth, not to any appreciable extent, neither does air furnish a reflex stimulus for the secretion of saliva. This is readily perceived in those who habitually sleep with their mouths open during the night in the dry, parched state of the mouth in the mornings. During the seven or eight hours of sleep with an open mouth, no stimulant other than air is applied to the incident or excitory nerves of salivation, hence the parched state of the mouth. The inferences to be deduced then are: that the nasal passages are the natural channels for the entrance and exit of air, and if judiciously employed, they are as air passages adequate for the purpose of respiration and warding off disease. They are the natural channels for the introduction of air into the lungs and its expulsion therefrom. Their construction and organization are such as to keep man free from all contagious diseases. The preservation of the nose is of great importance; it should not be injured by snuff, smutty atmospheres and dust.

Breathing through the nose in the great prophylactic to all contagious or bacterial diseases. The mouth and fauces are the natural passages for food; if used for breathing purposes there is great risk of disease. An open mouth is mischievous, it is a receptacle for all noxious germs; a closed mouth in breathing is a sure preventive of all diseases of the lungs as well as a proper safeguard against all living disease germs. Man can face the most deadly living poison with a closed mouth.

To guard against disease germs floating in the atmosphere, breathe exclusively by the nose; but it is very difficult to lay down rules for the prevention of the ingress of disease germs by local contact. It is impossible to say how cancer, syphilis, tuberculæ, small-pox, typhoid fever, scarlatina, diphtheria, etc., can be restrained as these human pests can be communicated—

By living in close proximity, sleeping on the same bed, using the same blankets in a sleeping car, or the sheets or towels of a steamship, or hotel.

By wearing bathing suits, ball or funeral dresses hired out.

By drinking water, but especially milk, from a farm where those diseases exist, the use of cups, tumblers, spoons.

By the water in cars, by the use of water closets, car seats, bedding, by breathing the dried sputum of tubercular patients.

By brush, comb, hats, dentists' tools, or vaccination.

By handling ordinary articles as car straps, brooms.

By toys sold to children on the streets—the seller, probably syphilitic, tests the whistle in his mouth and hands it to a child who is at once contaminated, as the saliva of diseased persons is full of germs.

By the handling of books, cards, car tickets, canes, gloves, pipes, and specially by cigars, the makers of which may be diseased, and wet the wrappers with their saliva.

By kissing, in all ages.

Seeing that there are a thousand channels through which living contagion may reach man, it behooves all to eat the best of food, wear woolen clothes, and daily to cleanse off the entire body with a bath. To have a variation in diet, in exercise, in occupation, in amusement, as change is most conducive to a high state of mental and physical existence; as essential as pure air is to oxygenate the blood.



Rigor Mortis.

(*Cadaveric Rigidity*.)

During the process of dying, there is a perfect struggle between vital force and microbial life. In the condition known as death, vital force succumbs, microbes conquer. For some time after death the same microbes, which were instrumental in its causation, continue to live and excrete ptomaines, until they have used up in their own nutrition all the elements fit for their nourishment and growth.

During this process of microbial existence, ptomaines germ excreta, cadaveric alkaloids, cause a coagulation of the myosine of the muscle. Ptomaines differ in their chemical constituents, the more toxic, such as the comma-bacillus of cholera, or the micrococci of tetanus, or hydrophobia, effect rigid contraction; that the disease from which the patient dies, or rather its ptomaine exercises an influence over the rigor.

When the coagulation takes place, the acids, which are being constantly formed, and as continuously removed during life, accumulate in the muscle and gradually effect a solution of the myosine, and then the azotized matters undergo decomposition and develop ammonia, which in its turn dissolves the myosine, and thus occasions the disappearance of the rigor.

In this process, when rapid, great heat is often evolved, especially when the rigor is being established; the rigid muscle slightly diminishes in volume.

Following that the body returns to its natural earths or gases, all except the cadaveric alkaloids, which remain as permanent salts, and are not destroyed even by cremation.

The amount of indestructible *cadaveric alkaloids* present in an ordinary sized human being, varies from six to eight grains, depending greatly upon the development of his intellectual capacity or powers.

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Vomiting is due to forcible and repeated contraction of abdominal muscles, the diaphragm being pressed by closure of the glottis; the stomach is thus compressed against the diaphragm, and by this force, together with its own contraction, the pylorus being closed, and the cardiac sphincter relaxed, the gastric contents are expelled upwards. In retching there are fruitless attempts to empty the stomach, the cardiac sphincter being contracted, or the stomach empty.

Retching and Vomiting. Nausea, vomiting and retching, are present as symptoms in many diseases, as in cerebral, spinal, pulmonary, biliary, gastric, pancreatic, intestinal, uterine, ovarian disorders. They are often reflex, as in pregnancy, irritation of pneumo-gastric nerve, as in poisons and irritating substances. To disease-germs in blood, as small-pox, scarlatina, yellow fever, ichoræmia, etc. To acute or chronic gastritis or peritonitis. To abdominal aneurisms, tumors, ascites, to invagination of bowels, strangulated hernia, or some latent, morbid state.

When the vomiting is due to some derangement of stomach, liver and intestines, it is likely to be preceded by nausea, discharge of contents of stomach, biliary matters, offensive secretions, acid matter, pus, blood; tongue usually coated, breath foul, white of eye tinged, abdominal griping pain, fetid eructations, diarrhea, unhealthy stools, and the headache is frontal.

When due to some brain difficulty or reflex condition acting on a weakened bulb, there is no nausea, tongue clean, breath sweet or pure, and if there is headache, is mostly behind; no belching of foul gases.

If vomiting and retching is due to disordered stomach, liver, pancreas, bowels. Lobelia emetic, cleanse out bowels, saline purge, or compound licorice powder, and follow with cinchona and nitro-muriatic acid; a bland, simple diet, rest.

If due to diseased germs in fevers, give antiseptics, as ozone-water, carbolic acid and tincture of iodine, yeast and milk.

If due to inflammation, as acute gastritis, peritonitis, yellow fever, green root tincture gelsemium and morphia, mustard over region of the stomach.

Rheumatism.

(*Bacillus Amylobacta*.)

The increasing prevalence of cerebral disease, due in a great measure to neurasthenia, defects of civilization, and the daily increasing struggle for existence, with other causes which engender a feeble vitality, under which we have slow or retarded digestion, the starchy or saccharine elements of the food undergo fermentation, with their conversion into acids; if gastric catarrh, with its *sarcinæ ventriculi* has not preceded, it very soon follows, and acts as an additional ferment in the elaboration of lactic and butyric acids. These morbid elements enter the blood, and have an especial affinity to the white fibrous tissues of the body (if they are weakened), such as the membranes of the brain, pleura, pericardium of the heart, synovial membrane of joints, periosteum of bone, sclerotic coat of the eye.

In acute and chronic rheumatism, there are invariably present numerous other microbes due to the degraded bioplasm of nutrition, which are always present in mal-nutrition, these are bacteria, *sarcinæ*, the *bacillus amylobacta*, the microbe of butyric acid, etc.



Bacillus Amylobacta, spindle shaped forms including oval spores.

The microbe when present in any given case of rheumatism is usually found on the tongue, tonsils, breath, sweat, urine, fæces and in the atmosphere for over twenty feet around the patient. This evolution of fermentation, vegetates in the form of slender cylindrical rods, united at most in short rows and usually in a state of undulating motion.

It vegetates luxuriantly in patients whose vital forces are at a very low ebb. The fermentation of which butyric is the primary product is invariably accompanied by other micro-organisms, of a different species, which give rise to special chemical changes among lactates.

The *bacillus amylobacta* excrete ptomaines freely, and is pathogenic of rheumatism.

The isolation of this microbe in all cases of acute and chronic rheumatism marks an entirely new era in therapeutics.

The predisposing cause of the evolution of this microbe is an impairment of the integrity of the nerve centres, which gives us feeble vital power, weak digestion, the generation of acids, lactic and butyrics. Add to this isolation, sameness, monotony, dele-

terious trades, insanitary abodes, tobacco, whiskey, excess of starchy or saccharine food, and other states which in some mysterious way alter, change, degrade certain primary elements of nutrition into a disease-germ, the bacillus amylobacta.

This microbe is in the blood in all cases of *acute* and *chronic* rheumatism, but it has a special affinity to localize itself in and on the white fibrous tissues of the body, if that tissue or structure is weakened by mechanical irritation, injury, cold, damp; the weakening of the white fibrous tissue renders it obnoxious to the deposit of the germ and affords a suitable location for its growth and development.

The bacillus and its ptomaines are the factors of the disease.

In the acute form, either vital power is greatly shattered or the aggregation of germs is prodigious, for we have rigors, fever, with temperature, and rapid full-bounding pulse, with local joint pain, or in some white fibrous tissue. The fever and inflammatory local microbe-ptomaine evolution are due to excessive spore development.

Symptoms are extremely variable; temperature high, with joint pain very great, are common, with heavy ptomaine excretion, coma, delirium and profuse sour-smelling fetid sweats. Urine high specific gravity, loaded with urates. Tongue and breath, the former heavily coated with the bacillus amylobacta, the latter, sour smelling.

The fever is of a continued type, corresponds to the ratio of germ growth.

Some cases present anomalous symptoms, verging on gout, others truly rheumatic.

Others, whose nervous systems are damaged by alcohol, with delirium all through the severity of the diseases.

The microbe of rheumatism mostly pursues a very definite course or form of its own, and deviations from that bodes no good. So long as the symptoms follow the usual and orderly evolution, though that may be severe, there is not much danger; but when unusual or strange symptoms arise, when dangers threaten from unknown quarters, we do not like it. Articular rheumatism, though severe, when confined to joints or with but moderate cardiac complication, is a tolerably straightforward matter; but rheumatic fever, with little joint affection and much delirium, or lung œdema, is quite a different thing.

Individuals of all ages are attacked with this microbe, but most common between fifteen and thirty.

The heart is affected in about seventy-five per cent. of all cases, and the cause of death in nearly all cases is cardiac trouble. Mortality is greatest among the young. Acute rheumatism most common among males.

In the treatment of all cases of rheumatism, the indications are to endeavor to restore the tone of the nervous system; improve digestion, kill and sterilize the microbe, and neutralize its ptomaines.

The condition of stomach and tongue points to the utility of an emetic, which should be administered, followed by a saline cathartic and a vapor bath. Following which the patient should be kept in the recumbent position in bed between blankets. Silk or woolen underclothing. If the heart suffers, apply over it concentrated ozone.

Suitable doses of tincture of aconite, veratrum, and gelsemium should be at once administered, so as to quiet the circulation and lower heat. Pain should be allayed with small doses of pulverized opium and diaphoretic powder. It is a sound and wholesome rule in practice, that no patient should experience pain, far less one suffering from the ravages of the bacillus amylobacta. After attending to the general preliminaries, such as bathing the patient thrice daily; to a milk and beef tea diet; to maintaining an active condition of the bowels; to keeping bactericides over locations or parts in which the microbe is domiciled; where the pain exists, for where that is, the bacillus amylobacta is there, giving rise to the irritation. How such a good-sized microbe penetrates those closed sacs through the blood currents into the joint liquid, is a mystery which bacterial investigation has not yet made clear. A local germicide is needed, the concentrated ozone wherever applied sterilizes the microbe; ozonized tincture of iodine, iodized oil, iodoform, iodol, sulphur compresses, are excellent local bactericides, and can be used with most satisfactory results.

Then a selection of two of the following remedies should be made and administered alternately in the treatment of the case in sterilizing and annihilating the bacillus amylobacta.

A mixed course of treatment is the best, and what the remedies are to be, we must leave to the judgment of the physician in charge; we simply give a brief synopsis of each.

Although the peroxide of hydrogen is the great scavenger of microbe-laden blood, and will, if carefully administered in rheumatism, do great service, still from some unknown cause, it acts most energetically upon the amylobacta, administered either in the form of glucozone, or better still, in the uric acid solvent.

The uric acid solvent is composed of the extracts of pichi, *chionanthus virg.*, iris, cleavers, triticum repens, acetate of soda, nitrate potass and peroxide of hydrogen. It forms a most efficient, elegant preparation.

When administered either in acute or chronic rheumatism it does excellent work in perfectly annihilating the amylobacta.

Still, excellent as this preparation is, most destructive to the microbe, we would strongly advise it to be administered in alternation with another germicide, as salol, glycerite of wintergreen, manaca, etc.

From extensive experience, we very strongly urge a mixed treatment of all cases.

The uric acid solvent ozonized, is a complete destroyer of the germ; it is an efficient stimulant to the neurasthenic liver; neutralizes the acidity upon which the microbe lives and breeds; it flushes the kidneys, blocked up by debris, and dissolves and washes out the uric acid crystals which had been, and were accumulating in the nephritic glands.

The glycerite of wintergreen with the peroxide of hydrogen, or as it is termed the ozonized glycerite, give us an active, energetic germicide in killing and sterilizing the amylobacta, by the annihilation of the germ; pyrexia is controlled, and the joint pain ceases. The best method of administration is in moderate doses, frequently repeated and continued in diminished doses throughout convalescence. Its use possesses many advantages, its prompt action, unattended with any toxic effects, produces no irritation of the stomach.

The ozonized glycerite of wintergreen, that is, the combination of oil of wintergreen C. P. glycerine and negative ozone, has a marvellous effect in annihilating the microbe of rheumatism. One teaspoonful administered every two or three hours, speedily causes the death of the germ, for in a few hours after repeated doses have been given, the germ disappears from the breath, saliva, sweat, urine, and a lowering of temperature, pulse, respirations is the inevitable result. The great superiority of this remedy consists in its rapid destruction of the germ, the prevention of cardiac complications, the infrequency of a recurrence of the microbe in the blood.

The derivatives from the wintergreen oil, such as salicylic acid, salol, are inferior to the glycerite.

In summing up the results of our experiments with the oil of gaultheria, a brief recapitulation of the most important points brought out will recall more clearly to mind the advantages of this drug as an anti-rheumatic agent. We have found that it has all the valuable properties of salicylic acid, to which it is closely allied. Its action is more prompt and efficient in obstinate cases. It has a more agreeable taste. Relapses under its use are less frequent. The unpleasant effects of over-dosing are no greater, and it is less depressing. Cardiac complications are no more frequent. It is important not to substitute the oil of birch or a diluted article for it. Large and frequent doses are necessary to get the best

effects. It is an efficient palliative remedy in chronic and irregular forms of rheumatism. It is a local anodyne to inflamed joints.

Whatever may be the peculiar action of the bactericide, salicine, salicylic acid or soda, there can be little doubt entertained that it has a remarkable affinity for the microbe of rheumatism to unite with it and kill it.

That it acts most efficiently when combined with the acetate of ammonia. An extended experience has confirmed this idea. By administering from fifteen to thirty grains every two hours we cleanse the germ-laden blood in a short time, and in that way the urgent symptoms are relieved.

As soon as temperature, pulse and respirations become normal, both the dose and frequency of administration of the drug can be reduced until it is safe to discontinue it entirely. The true salicylic obtained from the vegetable kingdom should only be used; the artificial product obtained from carbolic acid, however much it may have been purified and dialized, an impure acid, will very quickly produce symptoms resembling delirium tremens. While administering the salicylate keep bowels open with cascara sagrada.

The salicylic acid administered in the acetate of ammonia; the best acid, say from three to twenty grains to four drachms of the ammonia acetate, administered in small but repeated doses, kills the micro-organism; hence temperature, pulse, respirations are lowered.

In all patients under thirty-five the bactericide action of the salicylates is most decided when the microbe is in the joint sacs.

If cardiac symptoms exhibited themselves before either of those remedies have time to kill the microbe, then the following mixture should be given: nitrate of potass, one drachm; acetate of potash, three drachms; water, eight ounces. Dose one ounce every two hours. The good effects of alkalies are immediate, and afford time to push other remedies, to thoroughly kill the microbe.

In the treatment of acute rheumatism, as also in acute gout, the salicylate of lithium is quite as effective as the salicylate of sodium. In certain cases of acute articular rheumatism treated with the sodium salt, there comes a period, after rapid and considerable improvement, when the joints still remain somewhat painful, stiff and swollen, notwithstanding the fact that the remedy is given in doses sufficient to cause toxic phenomena. Under these circumstances the salicylate of lithium will cause the last traces of the affection to disappear promptly. It is also more effective in the treatment of progressive subacute articular rheu-

matism. In patients attacked with this most tenacious and troublesome form of rheumatism, Prof. Day has employed, with the utmost perseverance, the most various medication, including large and repeated doses of the salicylate of sodium, without producing other than the most temporary and insignificant amelioration; and yet he has seen the salicylate of lithium bring about notable improvement in ten to fifteen days. Four grammes (about sixty grains) a day is the quantity of salicylate of lithium usually required. The effects of the remedy begin to be manifest in a half to one hour, and consist in headache—which, however, disappears within a few hours—and vertigo and dulness of hearing, which are more persistent. In some subjects it also causes colic and diarrhea. The curative effect of salicylate of lithium is due in large part to the salicylic acid; for, if the other salts of lithium are substituted for it, the same results are not obtained. Some portion of the beneficial effect is, however, due to the lithium, for the salicylate of lithium is more effective than the salicylate of sodium. The rheumatismal manifestations which resist the action of six and seven grammes (one a half drachms to two drachms) of salicylate of sodium yield to four grammes (about one drachm) of salicylate of lithium. To these observations of Prof. Day, the writer will add that he has found the salicylate of lithium very effective in myalgia or muscular rheumatism, given in the quantity mentioned above—fifteen grains four times a day.

Salol, as is well known, is a compound of salicylic acid, sixty parts, and phenyl, forty parts, and, according to the analysis of Tate, the ordinary commercial salol contains about thirty-six per cent. of phenyl. Hence the question arises as to whether its action as an antirheumatic is simply due to the salicylic acid it contains, or whether salol possesses other properties which make it superior to salicylate of soda. At the present time, different observers are not agreed, since according to several it is stated to be superior to salicylate of soda. Others, however, consider that the only advantages of the use of salol are that its taste is not so unpleasant, and that its use is not so liable to be followed by toxic effects, as so frequently occurs with salicylate of soda. Whereas the latter usually subdues pain and fever in the first twenty-four hours, salol requires three or four days, though pain was greatly ameliorated within the shorter period. In consequence of its many advantages salol was adopted as the routine treatment by Aufrecht, but on the occurrence of a fatal case of acute endocarditis under its use—a thing not met with among 600 cases treated by salicylic acid—it was discontinued. Since then what might be called mixed treatment has been followed.

In this, acute cases receive during each of the first two days ninety grains of the acid, after that the same amount of salol. Later, the patient still remained in bed, the salol is reduced to sixty grains daily. As salicylic acid is usually well borne for two days, but frequently no longer, this recommends itself as the best routine treatment. If possible the acid can be continued; if, on the other hand, it cannot be taken, salol alone may be used. In chronic articular rheumatism salol is preferable in every respect, not only avoiding the dangers attending prolonged use of salicylic acid, but offering more positive assurance of cure. Salol does cause cerebral disturbance, as noises in the ears, and is well tolerated by the stomach.

Betol, which is composed of naphthol and salicylic acid, is often efficacious.

Peroxide of hydrogen is of especial value in all cases of rheumatism, its use aids other remedies materially, administered in alternation with either of the remedies selected, militates disastrously to the growth of the bacillus, cuts short the disease most effectually.

Its energetic action upon the stomach, intestines, and kidneys as the great scavenger of nature, freeing those important blood-making organs from all disease germs, is besides a most valuable aid to digestion.

The dose of hydrogen peroxide is from a half to one teaspoonful of the fifteen volume solution, added to the same quantity of glycerine, and then administered in water every four hours.

Ozonized cascara sagrada lozenges.—Till recently the great value of the cascara sagrada was a tonic and stimulant to the liver and intestines in all cases of habitual or obstinate constipation.

The nauseous and persistent bitter so characteristic of the bark and its ordinary preparations have been a great drawback to its more general use; we have by means of the peroxide of hydrogen an almost tasteless extract. The destruction of the bitter principle does not militate against its efficiency but rather increases the action of the drug, at the same time rendering it more palatable and elegant. Each lozenge contains a dose, equal to twenty drops of the fluid extract with saccharine lacta and kola nut. For constipation of all varieties they are invaluable.

The remedy in this form, besides rousing up the liver, increasing the peristaltic wave, has the remarkable faculty of sterilizing and annihilating the bacillus amylobacta, the microbe of butyric acid, the factor of rheumatism; hence its value, its great efficiency in all cases of rheumatism, acute and chronic. Unparalleled success attends its administration in rheumatoid

arthritis, muscular rheumatism, pericarditis, and all forms of the malady.

Irrespective of its germicidal action on the bacillus amylobacta, it also effectually sterilizes the *sarcinæ ventriculi* and *sarcinæ intestinæ* and the numerous cryptogams on the cutaneous surface.

For constipation, one to two at bedtime, in rheumatism, from one to two thrice daily, according to the advice of the attending physician.

The hepatic functions are generally defective; this may be due to the excessive use of nitrogenous foods and the accumulation of waste products interfering with healthy function. These cases require careful dieting and the use of remedies to secure elimination of bile, and disorgement of the portal veins. There is in those cases a sort of neurasthenia of the liver, that is to say, the hepatic functions are sluggish, imperfectly performed, as a part of the general want of tone in the nervous and vascular systems; here hepatic stimulants, like the cascara lozenges, are indispensable, together with massage.

The patient may appear plethoric, but look at the case carefully the arterial tone is weak, the blood hydræmic, decidedly impoverished.

In the most ordinary cases, the blood is decidedly impoverished by the microbe, and the patient needs generous diet and tonic treatment. In spite of the general practice of prohibiting this and that, the better plan is to be liberal in dietetics, and let the patient have what he relishes and digests well.

Another important point is to secure a healthy action of the skin. This is invariably defective. It is necessary to secure free perspiration once or twice a week, but a healthy tonicity of the cutaneous surface should be maintained.

The very variable character of the symptoms, together with many points of similarity, with wide points of difference, which are increased by variations in constitution and temperament. To treat such cases successfully requires an adaptation of method to the individual condition, and this the skill of the physician will supply.

Manaca, the root bark is the part in which the medicinal properties of the plant reside, and which yields the active principle in abundance.

Its properties are that of a powerful bactericide, being capable of destroying the microbe of syphilis, cerebro-spinal meningitis and rheumatism.

In a mixed treatment of rheumatism, manaca operates well, and becomes a very valuable drug. It should be administered in

small doses, every three hours, beginning with five-drop doses of a fluid extract, gradually increasing the dose until it operates on the bowels. It has a most decided action upon the bacillus amylobacta of rheumatism, killing the germ and subsequently eliminating it from the body.

Manaca when thoroughly impregnated with four volumes of peroxide of hydrogen has a strong affinity for the bacillus of rheumatism, being in this state highly germicidal; besides it is purgative diuretic, stimulant to the lymphatic system, eliminating the dead germs from the blood by the skin, kidneys, and bowels. Its administration requires great care, beginning with small doses of from three to five drops or more thrice daily. Cautiously increased.

The so-called elixir of manaca and the salicylate, which is said to combine the virtues of the manaca with the salicylates of soda, potassa and lithia, is a most unreliable form for administration; the manaca in all cases should be given alone, as its effects can be more carefully watched.

Comp. tincture serpentaria, or jaborandi, gives rise to an activity of the sweat glands; gives a determination of live or dead microbes to the skin, and lowers temperature. The amylobacta themselves usually give rise to copious perspirations, and their elimination when killed should be promoted, and those remedies administered which will facilitate and assist cutaneous transpiration. In all cases the skin should be bathed thrice daily, so as to remove all the stagnant, fetid matter on its surface. Even the body, linen and bed-clothes should be changed daily, so as to remove the putrefying germ-laden perspiration—sour, stench smelling, which de-appetizes the patient.

The next indication in the treatment of all cases of acute rheumatism is to augment vital force, increase vital stamina, so as to cut off the evolution of the microbe. A great variety of remedies have been pushed forward for this purpose, as tincture of cimicifuga, apocynum, bryonia.

Preparations of cinchona, or its alkaloids, con. tincture kurchicine, Warburg's tincture, etc.

Of these, cimicifuga, alternated with the hydrobromate of quinine in four grains, is undoubtedly the best. Kurchicine acts well.

Rheumatism, Chronic.	Precisely the same condition, same germ, but of long standing, as the acute.
	It may follow as a sequela from a more active state of microbial evolution, or it may come on of itself.

The fibrous textures around the joints, or the fibrous envelopes of the nerves, or the aponeurotic sheaths of the muscles, coverings of tendons, periosteum, etc., are those that suffer most. It receives different names from the locality of the irritation; as neuralgia, when it attacks the nerves; lumbago, when the muscles of the loins are affected; sciatica, when the sheath of the great sciatic is involved; pleuradynia, when the pleura and intercostal spaces are implicated. In any case there is usually little constitutional disturbance; but the sufferer is constantly annoyed and his existence made very miserable from chronic pains, causing him to be restless at night and destroying his comfort in the day time. In some instances the pains are worse at night, being aggravated by the warmth of the bed; in others, warmth affords the greatest relief.

The blood in chronic rheumatism is usually thoroughly charged with the bacillus amylobacta, but the germ does not breed so actively as it does in the acute, neither does it produce such havoc with the blood discs, nor is it of such an erratic character.

There is little difficulty in the recognition of chronic rheumatism—the mal-nutrition, the microbe on or in the scraping of the tongue; urine loaded with lithiates, the character of the tissue affected (the white fibrous), etc.

The management of all cases of chronic rheumatism requires a general alterative and tonic course of treatment, comp. saxifraga and phytolacca, in alteration with tonics, as compound tincture cinchona, and hydrobromate of quinine, con. tinct. kurchicine, etc. Some bactericide should also be invariably administered, either the ozonized uric acid solvent, or manaca, or the salicylate acid in the acetate of ammonia, or the glycerite of wintergreen, or guaiacum or salol.

Pain in all cases must be alleviated, and local germicides over the seat of pain (damaged white fibrous tissue) are always in order, as con. ozone, menthol, ozonized iodine, iodol.

The general health should be improved by every possible means, by daily alkaline baths, sulphur and iodine baths, massage.

The diet should be generous to a fault, restricting saccharine, starchy, and animal food.

If the case does not yield promptly, the sphere of remedies should be enlarged.

Much good is often derived in chronic rheumatism from such remedies internally as iodide of potassa, chlorate of carbon, cimicifuga, brvonia, iris, phytolacca, saccharated sulphur, colchicum, dulcamara, terebene, sulphur-water; and locally, con.

ozone with chloroform and menthol, oil of stillingia, solidago, turpentine, hemlock, sassafras, etc. ; all failing, a persistent application of the irritating plaster.

Rheumatism and gout are often associated together, although both are essentially different. In rheumatism we have a bacillus to deal with, and microbicides must be used to kill it, whereas, in gout we have a mechanical source of irritation in the urate of soda. This, no drug can remove, but by a long persistent use of the uric acid solvent ozonized, it often melts away.

Clinical observation has established a pathological connection of great practical interest. It has been long known that chronic rheumatism and gout may prepare the way for osteo-arthritis by lowering the textural force of the joint structures, and thus leading to morbid change of degenerative kind. In people of the so-called tubercular diathesis, or who have near kinsfolk distinctly "consumptive," repeated rheumatic attacks may beget a condition commonly called *rheumatoidal*; and this, again, may gradually pass into the more complete and incurable state which enjoys the official title of osteo-arthritis.

Rheumatism.

(*Rheumatic Laryngitis.*)

When the structure of the larynx is weakened and the *amylobacta* present in the blood, it often localizes itself upon the vocal cords. Its

presence here gives rise to pain, hoarseness, aphonia, and fatigue of the parts after talking, and sometimes to obstruction of the g'ottis.

It is met with in both the acute and chronic form.

Its diagnosis is not difficult, occurring in persons of a rheumatic diathesis, attended by no erosions or ulceration, by little congestion or swelling.

Patients commonly refer the pain to one side of the larynx, when this organ alone is involved, but in some cases it is also referred to the trachea, the region of the greater cornu of the hyoid bone, to the base of the tongue, or to the lower part of the tonsil on the corresponding side. In similar cases we sometimes find the pain confined to these latter regions, there being no involvement of the larynx, but even in these the patient is liable to experience fatigue of the vocal organ after talking. Hoarseness and loss of voice are also frequent symptoms.

Rheumatic laryngitis is most likely to be confounded with neuralgia or paræsthesia of the organ. In distinguishing between these, the history must be carefully scrutinized, and rheumatic or neuralgic pains must be looked for in other parts of the body.

In the rheumatic affection there are usually slight redness and swelling; not so in neuralgia. For confirmation of the diagnosis, we must sometimes await the result of treatment.

Rheumatic laryngitis usually runs a chronic course, extending over periods varying from two months to one or more years. In most cases, if not in all, there are periods of immunity from the soreness, but at other times there are quite severe exacerbations of pain. I recall one case which was troublesome at times for four or five years. Recovery may be expected ultimately, and the patient may and should be assured that the disease does not endanger life.

In the treatment of chronic laryngitis, great benefit is derived from the use of hot atomized sprays of resorcin, creolin, benzoate of soda, peroxide of hydrogen, together with electricity, although as rule our main reliance is placed upon internal remedies. Invariably, splendid results follow the use of the glycerite of wintergreen, manaca, and cascara sagrada.

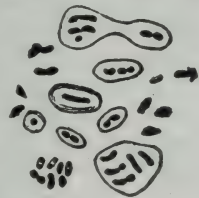
The amylobacta impairs both the blood discs
and walls of the blood vessels, and permits an
extravasation of blood, and gives a form of
purpura, due to rheumatism, closely allied to
scurvy, but in which we have the cutaneous hemorrhages and
joint affection as the prominent features.

An infectious and contagious granuloma,
affecting the skin and mucous membrane of
the nose and contiguous
parts, characterized by the formation of ex-
ceedingly dense, painful, flattened or elevated
nodules, or tubercles, which may be isolated
or confluent.

An examination of these lesions, microscopically, reveals a bacterium in the tissue, rod-shaped, one and one-half times longer than they are broad, with micrococci in their centre.

This neoplasm admits of cultivation in almost any nutrient fluid; cultures injected into animals cause a series of ivory nodules to appear on the nasal septum, hence it is pathogenic of the disease.

The favorite habit of this microbe is either the septum or alæ of the nose, in which it breeds slowly, but, progressing, en-



Bacteria of rhinoscleroma; rods surrounded with their capsules; group of bacteria surrounded by a single capsule; bacteria seen from above and resembling a coccus.

larges, becomes as dense as ivory, without any inflammatory symptoms being present.

The special lesion, or microbial colony, or patch, or nodule of germs, gradually grows either flat, or indurated or elevated, while respiration is often impeded by stenosis of the nares.

This neoplasm is met with in both sexes, between fifteen and fifty, in all social positions of life.

The micro-organism, imbedded in the nasal tissue, can never be mistaken; its location, the disfigurement it occasions, the induration, the ivory-like elasticity, its transformation into osseous formation and the extreme rarity of ulcerative degeneration.

The future of the patient is one of great gravity, as the growth and organization of the microbe is slow, but progressing and persistent.

The old treatment of extirpation, dilatation of the nares, has been entirely superseded by the local application of peroxide of hydrogen externally and in the nasal fossæ, and by the administration of Chian turpentine and peroxide internally. Ozone ointment, resorcin and salicylate soda externally.

These seem to be our most effective germicides in rhinoscleroma.

Rose rash resembles eruption of measles, but
Roseola. there is no watering at the eyes and nostrils, neither is there cough.

The skin is mottled, of a rose-color, the patches being of no great size and of irregular shape; sometimes the eruption appears as a cross of small slightly raised rose-colored spots. At first the eruption is bright red, but gradually it fades and finally disappears. The constitutional symptoms are slight. The rash fades in from three to six days. Sometimes the throat is affected slightly as in scarlatina, which has led some to believe that the malady consists of a mixture of scarlatina and measles, but of that there is no proof whatever.

Various maladies give rise to roseola, the most important of these is syphilis. Usually syphilitic roseola is the earliest of the constitutional symptoms; it commonly makes its appearance within six weeks of the primary attack, but it may be so slight as to give rise to no inconvenience, and so frequently escapes observation.

Syphilitic roseola ordinarily consists of a number of rose copper-colored spots, completely isolated and even with the surface, but sometimes they are fused together so as to give rise to

patches which are above the surface, and so merge imperceptibly into the papules which commonly follow in order of secondary symptoms. At the same time the fauces present a rim of redness corresponding to the external rash. Belladonna sometimes produces a roseolar rash, but not very often.

Various microbes give rise to roseola, as the bacteria of malnutrition, dyspepsia, rheumatism, dentition.

An alcoholic vapor bath; opening the bowels and administering some microbicide as glucozone, or salol; ozone tablets are usually sufficient.

A rare skin affection, in its typical form, a denizen among the dregs of humanity, always syphilitic. It consists of masses of the germ syphilitica with that of pus, in the form of hard, conical, laminated crusts of a limpet-shell shape; when these crusts are removed, an ulcer is exposed crowded with the microbes.

Same treatment as for syphilis.

Rupture of the Heart. Rupture of the heart may occur from previous disease, or it may be caused by external violence. It may take place at any part, left or right side, walls of ventricles, rupture of valves, etc. Laceration of muscular walls, generally due to fatty degeneration, or to rupture of aneurism in ventricular wall. It is a common termination in dilatation with thinning of its walls. Embolism of the blood, such as we have in acute laryngitis, pneumonia, and also in ergotism in labor, as well as that due to eating bacterial food, as sausage, is a common cause of rupture. The condition of embolism is so common from sluggish livers, non-aeration of blood by lungs and skin, and the muscular structure, feeble by excesses and tobacco, that rupture of the heart as a cause of sudden death is fearfully prevalent.

Rupture of Muscles. If a muscle be weak, perhaps slightly degenerated, some of its fibres usurped by fatty nodules, and it be subjected to violent, sudden, severe exertion, it may rupture, or its tendon may give way.

It is readily recognized by the sudden snap, severe pain, loss of the use of the ruptured muscle.

Muscle, like bone, nerve or other structure, will unite, if it is kept at perfect rest and apposition, keeping the limb in such a position as will relax the ruptured muscle; bandages and splints.

A tumor or swelling, formed by the protrusion of more or less of a viscus from its natural cavity.

Rupture. (*Hernia.*) Thus, there may be hernia of the brain, iris, mucous lining of windpipe, lungs, liver, spleen, bladder, uterus and intestine. But when the word stands by itself it is restricted to signify protrusion of the abdominal viscera.

The *predisposing cause* of hernia is some inherent weakness of organization; some parts of the abdominal walls weaker than others, as about the navel, inguinal and crural rings; or there may be a weakness from congenital deficiency, or from disease, wounds, abscess, bruises, distension of the walls by the pregnant uterus, dropsy, or from the relaxing effects of excessive solar heat.

The *exciting causes* are compression of the viscera by the action of the muscles that surround them, especially the diaphragm; hence, bodily exertion, lifting, hoisting, straining, jumping, coughing, hallooing, shouting.

A hernia is composed of a sac and its contents. The sac of a hernia is a portion of the reflected layer of peritonæum, which the protruded viscera push before them in their escape, and which forms a pouch containing them. It is very liable to contract adhesions to the surrounding tissue, and in consequence may not return into the abdomen when the hernia is returned. As the hernia increases in size the sac also increases, partly by growth, partly by distension, slight laceration or unraveling, and partly by fresh peritonæum; sometimes it diminishes in thickness, while increasing in capacity; sometimes it becomes thick and divisible into layers. The narrow part that communicates with the abdominal cavity, is called its neck, usually becomes thickened, constricted, and sphincter fibres are often developed in it, which, on slight irritation, causes it to contract. Some hernias are destitute of a sac. This may happen if the viscus is not covered by peritonæum, if the hernia is the result of a wound.

Symptoms.—Usually the patient can speak of it as of something having given way, and on examination a soft, compressible swelling can be detected at some part of the abdominal walls, which increases in size when he stands up; diminishes or disappears when he lies down; dilates when he coughs or makes exertion, and, when properly directed pressure is made upon it,

it may disappear. When it contains only intestine it is termed *Enterocoele*; when only omentum, *Epiplocoele*. The former is smooth, round and elastic, and flatulent croakings are heard in it, and, when pressed upon the bowel, returns to the abdomen with a sudden jerk or gurgling noise; the latter is flat, inelastic, flabby, unequal to the touch, and when pressed upon returns without any noise and very slowly. A large number of hernia contain both omentum and bowel, and are called *entero-epiplotocoele*.

Division.—Hernia is divided into several varieties, according to its location, as umbilical, inguinal, femoral; and according to the condition of the protruded viscera, which may be reducible, irreducible, or strangulated, or subject to some constriction that prevents its return, interferes with its contents or circulation.

Pathology of Hernia.—But few attempts have been made to investigate minutely and exactly what was meant by that condition which we so frequently see, but so rarely thoroughly appreciate, and which we call *hernia*. We divide it, according to its clinical appearances, into inguinal, femoral, umbilical, or into congenital and acquired hernia, but of the conditions which went to produce each variety we have been up till quite recently comparatively ignorant. It has been assumed, because the intestines in the case of hernia protruded more easily from the abdomen than is normally the case, that therefore we had to do with the elongation of the mesentery. Many authors do not take this statement for granted, have measured a large series of abdomens and mesenteries, both healthy and unhealthy, and have come to the conclusion that elongation of the mesentery is a comparatively rare event.

Perhaps it will be more easy to follow these conclusions and to estimate them at their true value if we first consider congenital hernia, and afterwards those forms which are acquired. It has long been known that many cases of congenital hernia yielded to the treatment of a truss, underwent cure before adult life, and did not show any special tendency to return again later on. Perhaps the most obvious instance of this is afforded by umbilical hernia in childhood. Of the innumerable cases which one sees in children in the large out-patient departments there is scarcely one which ever survives to the adult life of its possessor, and this notwithstanding the fact that the treatment of these cases is notoriously conducted by the parents on the most slipshod principle. As age advances and fat accumulates on the mesentery umbilical hernia again acquires prominence; but we do not remember to have ever come across a single case in which it could be shown that the possessor of one of these herniæ in old age had previously been troubled with a similar affection early

in life. To a less extent these remarks also apply to femoral and to inguinal hernia, chiefly to the latter, because femoral hernia is almost unknown in childhood. There are certain periods of life at which the pelvis grows with great rapidity as compared with the rest of the abdomen, namely, from about the second to the fifth year, and again at the age of puberty, and it is at these two periods that we have to record the greatest number of cures of congenital hernia. It is extremely interesting to find that measurements fully bear out and support these facts to which we have alluded. Elongation of the mesentery is practically unknown in children, whilst that other condition which has been mistaken for it, namely, prolapse of the mesentery, and which we shall come to further on, is apparently without existence at all in childhood. The fault of growth which has given rise to hernia in childhood lies with the abdominal wall, and is due to imperfect closure either of the inguinal canal or of the umbilical orifice. It is clear, then, that if operative interference is of any avail at all in the cure of such a condition, the best results ought to be obtained by operating on those herniæ which occur early in life. This conclusion has also been arrived at independently by other writers on the subject, who have approached it rather from the practical side than from the pathological. One writer has, we believe, gone so far as to state that if operations were confined to childhood there would be no failures to record; and from these facts we may at least draw this comforting assurance, that should a congenital hernia prove rebellious to treatment by a truss or other simple means, we can give the very best hopes possible of its complete cure by operative interference.

If we turn, however, from the consideration of the congenital cases to those which occur in adult life, the pathology at once becomes more complicated, and as a consequence the results of treatment will be less certain. The method which has been employed to solve this question, is one to which no exception can be taken, though it is quite possible that those will not agree to all the conclusions. In order to take a fixed point from which to start measurements, a base line which could be fixed by some bony prominence or prominences required to be taken, and this was insured by drawing a line from the level of one anterior superior spine of the ilium to the other. By this means it was possible to ascertain with ease whether the mesentery lay in its normal situation or not.

A true elongation of the mesentery is rarely found, and when it exists, appears only to be the result of long tension on a hernia which had existed for some considerable time.

A further and more important fact has been pointed out, namely, that it is perfectly possible to ascertain during life, from the shape of the abdomen, whether prolapse of the mesentery and the rest of the viscera has taken place or not. This is, however, equally clear from the result of these measurements, in which, as we have just seen, only eleven per cent. of the whole hundred individuals had their intestines so fixed up that hernia could not possibly occur, viz. : that the abdominal walls must be of considerable importance in the prevention of herniæ ; in other words, hernia is the result of two conditions—(a) weakness of the abdominal walls ; (b) prolapse of the mesentery. To effect a radical cure both of these conditions must be reckoned with, but it is probably only in the severer cases that any operation for fixing up the prolapse of the mesentery should even be entertained. In all the slighter cases a complete closure of the abdominal wall is all that is required, but there are many points that go to make up this complete closure. In the first place, the operation must be conducted with aseptic precautions, otherwise, not only will the life of the patient be endangered, but the result of the operation will not prove to have been so satisfactory as it ought, for the cicatrix which is formed will have a greater tendency to yield than if union by first intention had taken place. In the next place, the sac itself must be completely and absolutely removed, the canal which the hernia has made for itself must be, as far as practicable, obliterated ; if these two conditions are insured, then, and then only, can the operation be rightly described as radical.

Such in the main are the points brought forward on this subject, and the conclusions which are derived from them. For our own part, it seems to us that there is one source of fallacy in the measurements which have been taken. The majority of them have been drawn from bodies in themselves pathological, that is to say, from those who have died from disease rather than from accident ; and it is probably questionable whether a similar proportion of disease would be found in those who may be described as healthy individuals. Not that we wish by any means to imply that great credit is not due to Mr. Lockwood for drawing attention to prolapse of the mesentery as the cause of hernia, but we think it possible that he has over-estimated the frequency with which it occurs. We are none the less sure that those who care to peruse the pages of his lectures, will derive much instruction from the manner in which the investigation has been carried out, as well as from the results arrived at.

1. *Reducible Hernia*.—One that can, by well adapted pressure or manipulation, be returned into its natural cavity, forming a

swelling that dilates on coughing, diminishes or disappears when the patient lies down.

In the treatment of this rupture, the hernial mass should be returned to its natural cavity, smeared over with the Mexican liniment,* kept in its position by a pad or truss, or other apparatus; and if the liniment is applied daily, compression moderately firm, it will contract the canal, excite adhesive inflammation and a cure.

2. *Irreducible Hernia*.—A hernia is said to be irreducible when the protruded viscera cannot be returned into the abdomen.

Causes.—Adhesion of the sac to the bowel, by a deposit of lymph bands; enlargement of mesentery, or omentum, or other organic changes.

Symptoms.—Besides the ordinary symptoms, there is likely to be a dragging pain in the back and abdomen; occasional attacks of vomiting, or obstinate constipation, and a feeling of exhaustion.

Treatment.—This may be either palliative or radical. The palliative treatment consists in the application of a hollow bag truss, or else a truss with a hollow pad, that shall firmly embrace the hernia, and prevent all further protrusion. Violent exercise, exertion, excess, or constipation, should be guarded against. The radical operation consists in cutting down upon the parts, breaking up adhesion, returning the bowel or omentum—an operation that is not justifiable unless strangulation has taken place.

3. *Strangulated Hernia*.—A hernia may be said to be strangulated when it is constricted in any way, so that the contents of the protruded bowel cannot be propelled onwards, and the return of the venous blood is impeded.

Causes.—A sudden protrusion of bowel or omentum through a narrow aperture, as a result of some violent exertion, or distension of the protruded intestine by flatus or fæces, or a tumefaction of the omentum, a swelling or contraction of the muscular fibres at neck.

* This great remedy is in the form of a healing and strengthening ointment, which invigorates the weakened, flabby membranes and muscles, stimulating natural secretions and causing healthy granulation, thereby contracting the hernial aperture and making the abdominal wall normally sound and solid. It is generally used in connection with a truss, because most persons can more conveniently wear some kind of truss or supporter for a few weeks while a cure is being effected, than they can stay abed or hold the bowel in place with the hand during that time. Evils incidental to the wearing of a truss, such as induration or callousness, atrophy, chafing, etc., are counteracted by the remedy; the pressure can be relaxed gradually as the cure progresses, and eventually the use of a truss may be entirely discontinued. Children in arms are cured by the same remedy.

Symptoms.—In addition to the ordinary symptoms of hernia we have, when it is strangulated, those of obstruction of the bowels and peritonitis. There is flatulence, colicky pains, a sense of tightness around the abdomen, a desire to defecate, and inability to do so. Vomiting, first the contents of stomach, then mucous bile; and lastly, matter from small intestine. The hernial tumor cannot be returned; it is uneasy or painful, tense and incompressible. There is a perfect obstruction; the swelling does not now dilate. The neck of the sac becomes tender, and this tenderness diffuses itself over the entire abdomen, which becomes painful and tympanitic. Peritonitis sets in; face white, pinched, anxious; vomiting constant; pulse small, hard, wiry; patient restless and despondent, and after a variable time parts begin to mortify. There may be much variety in the symptoms, death taking place early or remote.

Treatment.—The indications here are to return the intestine, and if this cannot be done to cut down upon the neck and divide it, and return the bowel and omentum. If inflammatory symptoms have not appeared, the best plan is to relax the muscular system by one or more of the following methods, and then perform the taxis:

To cause profound relaxation, you must be guided by what you can procure the quickest, and if it fails, then the others, one or more. We shall enumerate the best first, and so on; they are simply auxiliary measures to aid the taxis. Let patient inhale a little chloroform, and when he is just going under, insert a hypodermic injection of one-quarter grain of morphia into the cellular tissue. This causes very profound muscular relaxation, and lasts long. Or let the patient inhale alcohol, chloroform and ether, till anæsthesia is procured; enemata of an infusion of lobelia or tobacco, with warm bath, with a little tobacco or lobelia, or an infusion or fluid extract of jaborina could be given.

If there is any time to spare, large doses of opium and hyoscyamus; the latter drug has a remarkable influence over all the hollow viscera; and its liberal use in hernia often spares the surgeon's knife, and saves many lives. As a local application, heat is superior to cold; hot poultices of belladonna, lobelia and linseed. Once thoroughly relaxed, patient free from all clothes, an intelligent assistant should be selected, and instructed to knead, or press the bowels gently well up to the diaphragm; head and shoulders well elevated, and knees drawn up. Bladder and rectum carefully emptied before relaxant is administered.

The *taxis* is a term employed to signify the manipulation of

the hernial tumor by the hands of the surgeon. In performing the taxis the tumor should be drawn gently forward, between both hands (assistant kneading actively to diaphragm), in the aeris of the neck. Hold in this position a few minutes; if patient is awake cause him to make a deep expiration, and hold his breath. Then press tumor between both hands, so as to squeeze out its contents, or gas and venous blood; then manipulate with the fingers at the neck; by pushing a little you will likely have the satisfaction of feeling it leave your hands and hearing a gurgling noise accompanying the return of the bowel into its natural cavity. To effect this, the position of the patient should be such as will relax every muscle; the kneading must be vigorously carried out, and the tumor in all cases drawn gently forward. In all cases the taxis must be performed with gentleness; no force or violence to bruise or injure. If not successful by the above plan, which is rarely the case, after a trial of fifteen or twenty minutes, it is often better to rest a little, and try again. Try every means, even to introducing copious injections up the rectum, or hanging up the patient by the heels. Good common sense, kindness and patience are great elements of success. When once returned, if insisted on by the patient, and his friends concurring, a radical cure should be effected by some of the following methods, each one having the same object in view, to wit: to excite a slight irritation, so as to cause inflammation, with effusion of lymph, which will block up the orifice and render the descent of the bowel again impossible. For that purpose the following are successfully used:

If the parts are hairy, shave off, and apply the irritating plaster for about six weeks, and over it the truss, or pad, or compress. This plaster is to be spread fresh every morning, and applied, in size from three to four inches square. A good method, somewhat painful and tedious, but safe. Another plan is to introduce a small knife and scarify around the ring. Still another method, and a favorite one with many, is to inject right against, or in the inner surface of the ring, some irritant, such as fluid extract of oak bark, tincture of cantharides, tincture of iodine; this is done with the ordinary hypodermic syringe, or one specially prepared for the purpose. If those are used, case must be watched for peritonitis. Still another plan is the introduction of sutures of saddlers' silk, iron or silver wire, and other methods of a similar kind.

If strangulated hernia cannot be reduced, an operation for its relief must not be too long delayed; and when that is done, if successful, it invariably effects a radical cure. Although we say do not delay the operation, still, in aged people, with large

hernias, wait as long as possible and use remedies, and never forget the magnificent action of hyoscyamus and opium on the hollow viscera.

The operation is a simple one, free from danger, if the surgeon knows the parts and does not cut an artery or wound the bowel—dividing layer after layer over the tumor near its neck, down to the bowel, and then dividing the neck and returning the bowel or omentum, or both, into the abdomen, stitching up wound in the usual manner and applying a firm compress. In all cases avoid purgatives in the management of cases, as irritating and injurious.

Inguinal hernia is that which protrudes through

Rupture, one or both abdominal rings. There are four
Inguinal. different varieties—oblique, direct, congenital and encysted.

The *oblique* is the most common. It takes precisely the same course as the testicle takes in its passage from the abdomen into the scrotum. It begins as a fulness, or swelling, at the internal ring, a little above Poupart's ligament, and passes into the inguinal canal, and, if the protrusion increases, it descends into the scrotum of the male, or labia of the female. The coverings of this hernia are skin, a layer of condensed cellular tissue, a tendinous layer, cremaster muscle, a cellular layer and the sac. The internal epigastric artery is always internal to the neck of the sac, the spermatic cord behind the sac, but in old cases parts are somewhat changed.

The *direct* inguinal bursts through the conjoined tendon of the internal oblique and transversalis muscles, just behind the external ring. Its coverings are the same as the oblique. The epigastric artery runs external to the neck of the sac.

The *congenital* hernia is a variety of the oblique, and is so called because the state of the parts admit of it at birth.

The *encysted* is a variety of the congenital. The protruding bowel pushes before it a sac of peritonæum, either into or behind the tunica vaginalis, and this tunic and sac adhere together, so that this hernia has two sacs.

Diagnosis.—This hernia is to be distinguished by dropsy of the scrotum, as follows: Hydrocele begins at the bottom of the scrotum; there is fluctuation; if the serum is not turbid it can be seen through; does not dilate on coughing; whereas, hernia begins at top, is not transparent, does not fluctuate, dilates on coughing. In varicocele, where there is a varicose condition of the veins of the cord, it resembles hernia, as it

dilates on coughing, increases in erect posture, may disappear at night, but it feels like a bag of worms. Undescended testicles are very easily recognized.

Treatment.—If reducible it should be returned and kept in its place with a truss or other mechanical support; if irreducible, a hollow bag or truss should be worn, to prevent further protrusion; if strangulated, relaxants and the taxis should be resorted to, and if it fails, and trying every expedient, an operation should be performed.

In performing the taxis for this hernia, patient should be placed on back, head and shoulders well elevated, knees drawn up and thighs close together, the hernia drawn gently down; then the assistant actively kneading the bowels well up to diaphragm and the pressure by the operator made upward and outward.

Femoral hernia is that which escapes behind Rupture, Poupart's ligament, passes through the crural ring Femoral. and descends on the thigh. This hernia is covered by skin, fascia of the thigh loaded with fat, a layer of cellular tissue and sac. From its surroundings it never can become of great size. It is almost peculiar to females, on account of the extreme breadth of their pelvis. It is easily recognized by its location, increasing in size when she stands up, dilating in coughing; it is usually small. Psoas abscess also dilates when she coughs, diminishes or disappears when the patient lies down; but hectic and disease of the spine are always present in that form of abscess. Varix of the femoral vein bears some likeness to it, as it dilates when the patient coughs, diminishes or disappears when she lies down; but a careful observation will reveal the difference. It would certainly be a person grossly ignorant that would mistake it for bubo.

Treatment.—The reducible should be returned and kept in position by a truss. The irreducible supported by a hollow truss.

If strangulated, the taxis must be tried, and in performing this the patient should be placed in the usual position on back, head and shoulders elevated, knees drawn up, with the thigh of the affected side rolled inward and crossed over toward the other side. The tumor should be drawn downward, the kneading vigorously carried out, and the tumor pressed with the points of the fingers backward and upward. If the taxis and chloroform do not succeed, the operation should be resorted to.

Rupture at the navel is most common in children at birth, and in women who have been frequently pregnant; although in the so-called hernia of adults, the hernial aperture is really not at the umbilicus, but a little on one side of it. The coverings of this hernia are skin, superficial fascia and sac. They are always thin and rarely become adherent.

Treatment.—If reducible, there should be strapped over the ring or neck a convex piece of some hard substance, its convex side toward the abdomen, strapped to the abdominal walls by adhesive plaster, and over all a bandage or belt. The irreducible should be supported by a hollow bag or truss. If strangulated, the taxis should be resorted to; patient in usual position; all failing, an operation should be resorted to.

Ventral Hernia.—When the protrusion occurs at any other part of the abdominal walls, save at the ordinary places, usually a consequence of wounds or bruises.

Perineal Hernia.—Descends between the bladder and rectum, forcing its way through the pelvic fascia and levata ani.

Vaginal Hernia.—In which the tumor projects into and blocks up the vagina, displaces the uterus, obstructs the rectum. Very common cause, usually, tight lacing or wearing belts, in order to have a small abdomen.

Labial or Pudendal Hernia.—Descends between the vagina and ramus of the ischion, and forms a tumor in one of the labia. It is to be distinguished from inguinal hernia by the absence of swelling at the abdominal rings. These hernias are to be replaced by pressure with the fingers, and kept in place by pads and trusses.

Obturator, Ischiatic, and Diaphragmatic Hernia, so-called from their location, are very rare.

This is very prone to take place during labor, provided there be some obstruction, and ergot administered too freely during the first stage. The principle causes of obstruction are tumors, hardened fæces, exostosis of the promontory of the sacrum, deformed pelvis, an abnormal presentation, turning during a pain.

Some pathologists are inclined to the theory of degeneration of some of the muscular fibres of the uterus, or a thinning of its walls.

It is easily recognized by the sudden cessation of pain, fainting, pallor, death-like coldness, and on placing the hand over the

abdomen, the child can be detected out of the uterus, in the cavity of the uterus.

If such an event should take place, the abdomen should be slit up, its cavity exposed, the child, after-birth, blood, clots and water carefully sponged out, the cavity of the uterus cleansed, the whole stitched up and bandaged. An effort should be made to rouse up the patient by the administering diffusible stimulants; and if she rallies, treat like *metro-peritonitis*.

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Sanitary Science. Literally speaking, the best means of preserving health and avoidance of all conditions which would be likely to impair vital force. A science of immense utility to man, or it teaches how to resist the action of disease germs.

What are disease germs? What are bacteria?

Vegetable and animal organisms, each consisting of a single cell, microscopic in size, usually colorless, capable of rapid, enormous growth by fission, or by spores produced in their interior.

Under a magnifying power of from five hundred to two thousand diameters, they are seen in three forms, globular (micrococci), cylindrical (bacillus), and spiral (spirillum).

These germs are found whenever organic matter exists in the process of decay; and decay begins where life ends; they are to be found in the earth, air, water, food; the spores of some being indestructible unless under a great heat. Quite a large number of microbes have been isolated and separated by culture and inoculation experiments and proven to cause each a particular disease and no other, and are termed pathogenic.

What diseases are they?

Amongst the diseases thus proven, beyond a doubt, to depend upon the presence of special bacteria are: Anthrax or splenic fever, tuberculosis or consumption, relapsing fever and glanders; cholera, typhoid fever, small-pox, vaccine disease, measles, diphtheria, leprosy, septicæmia and some others.

The question now arises—If the bacteria of a given disease, tuberculosis, for instance, are almost universally present, *why* do some contract the disease whilst others escape? It is evident *something more* than the mere presence of the bacteria is involved in the production of infectious disease.

Like many other things of which we know little or nothing, however, it has several names. We call it vitality, idiosyncrasy, etc.; in effect it is the *resisting power* of living organic matter to the *agents whose duty it is to reduce it partially or wholly to inorganic matter*.

We may consider then, as the *two factors* in the problem of infectious disease: (1) diminished resisting power; (2) the bacteria.

In other words, the *soil* and the *seed*; either being inoperative without the other. To put the problem another way: It is as manifest that pathogenic bacteria, coming in accidental contact with *healthy* tissues, will fail to multiply in sufficient numbers to cause *disease*, as that *corn* sprinkled upon a *bouldered street* will fail to produce a *corn crop*.

But, we hear it argued, "Here is a man in *perfect health*, stricken down with cholera, or small-pox, or some other infectious disease"—how do we account for this? Inquire into that man's history for a week, a month or perhaps for years—Has he inherited a feeble organization? Has he been underfed or overworked? Is he dissipated in his habits? Have business or domestic affairs weighed too heavily on his mind? Does he sleep in a well-ventilated room?—in short, Are his *tissues*, to use a commercial phrase, "*below par*" from any cause whatever?

The cases of infectious disease in which some preceding anti-hygienic influence cannot be traced are certainly rare if not unknown. What then, is the most practical lesson we may learn from our present knowledge of the causes of infectious disease? Simply this: *The preservation of the normal integrity of the tissues is equivalent to depriving the bacteria of a soil in which they can multiply to a dangerous extent.* How may this be effected? In a word, by hygiene, possibly by vaccination; the future possibilities of the more extended application of this principle are great.

Of all the routes by which the cause of infectious disease reaches any community, none perhaps are more important and less regarded than the food and water supply.

The water supply then may be regarded as one frequent source of infection.

A second source is the milk; this may be a source of infection by reason of the water with which it is adulterated—or in which the vessels containing it are washed; or it may be a product of tuberculous cows.

As we cannot well watch all sources of infection by fluids, what may we do to protect ourselves against them?

The most effective weapons then, with which we may resist the onset of infectious diseases are: (1) Hygiene, which renders unproductive the *soil*. (2) Heat, which destroys the *seed*.

The idea that infectious disease will ever cease to exist is, of course, Utopian. It is a well-known fact, however, that these diseases are, in themselves, self-limited—that is to say, the bacteria cease to multiply after a time, and favorable cases recover spontaneously within a definite period.

We may now ask the question, How do pathogenic bacteria produce disease? Some affirm that by the rapid increase in numbers simply, the normal operations of the economy are so interfered with that disease is the result. In support of this, it is well known that blood-vessels are sometimes actually choked by the myriads of these organizations, and further, that the vast amount of oxygen required for their development must interfere with the physiological requirements of the body.

Others believe that the blood-globules, particularly the white cells, are greatly injured or entirely destroyed by the entrance into them, in too large numbers, of these organizations, as has been shown; this power of the white cells, ordinarily so favorable, being now overwhelmed and themselves destroyed. No doubt in some cases this is a powerful factor.

Still other theorizers, and particularly those who are opposed to this germ theory of disease, maintain that septic products are formed in the body by ordinary chemical or vital action—these poisonous ptomaines, as they are called, sometimes forming in quantity sufficient to react upon the body and produce disease.

It is improper here to follow the successive steps taken in the evolution of this theory, largely brought out by the researches of M. Gauthier. It is at the present time well known that, as shown by this observer, such toxic products are formed and found in the animal body, and that while some of them are formed by the oxidation of tissues within the body, other like products, even more toxic, are the result of the agency of bacteria. Koch is of the opinion that the comma-bacillus secretes or excretes a ptomaine whose reaction upon the tissues may be the efficient cause, or one of the efficient causes, of cholera asiatica.

In carefully studying these various theories in answer to the question, How do bacteria produce disease? the opinion seems justifiable that all these agencies are combined in inducing the general result, namely, what we call disease; that the bulk of numbers, the urgent demand for, and great consumption of, oxygen not supplied from the external air, the injury or destruction of the blood-globules, and the poisonous action of the bacteria secretions called ptomaines, all together act to produce the pathological result. We may take it for granted, then, at least, for the present, that disease results from (1) great numbers of bacteria; (2) great waste of oxygen; (3) injury of the blood-cells; (4) the toxic action of one or more of the ptomaines.

We now come to the more practical part of our subject, namely, the management of gynecological cases of disease induced by micro-organisms. The indications seem clear (1) to prevent the entrance of pathogenic microbes into the body; (2) to aid as far

as possible all the efforts of such infected body to rid itself of them, and of their effects. Nearly the whole subject of treatment is therefore included in what is known as antiseptis.

Water in my hands serves as the safest and most efficient antiseptic. Water is the great cleanser, and may be used freely and everywhere.

Fortunately for our race and for the advancement of true science, hygiene is asserting her lofty position in the conservation of human life. The power acknowledged for antiseptics may wane, hygienics never. Gynecologists, as well as others, have learned this well. Cleanliness cures septic diseases by forbidding even the presence of any and all noxious agents. Keep ourselves and our patient clean, and fear not—waiting, however, for the ideal germicide and antiseptic that may be discovered to serve as the handmaid of cleanliness.

Sanitary science teaches us that the air of all our large cities is heavily loaded with micro-organisms of a most deadly character; that these germs are most numerous close by and in sewers; that the class of micro-organisms which preponderate are chiefly micrococci; the saccharo-mycetes or yeasts, and the moulds. The schizomycetes include: *bacilli* (rod shaped), *e. g.*, *B. anthracis*, *B. tuberculosis*; *micrococci* (round), *e. g.*, *M. scarlatinæ*, *M. vacciniæ*; *spirilla*, or *spirochætæ* (twisted in spiral form), *e. g.*, *S. obermeiera*, the microbe of relapsing fever.

The examination of the air of sewers is carried out as follows: five gallons of sewer air, from the centre of culvert is aspirated into a sterilized rubber bag. This air is pressed into liquefied, sterilized, nutrient gelatine, and then poured out into a glass plate, covered with a bell-jar, and kept at a constant temperature for a few days when the germs have developed into colonies, which may be counted and their characteristics noted. If liquefaction of the gelatine be produced round a colony, it does not necessarily show that the germs there are pathogenic. Under the microscope the colonies may be separated into the different varieties of bacteria, moulds, or fungi. To distinguish which are pathogenic, pure cultivations must be made of each colony separately, and animals inoculated therefrom.

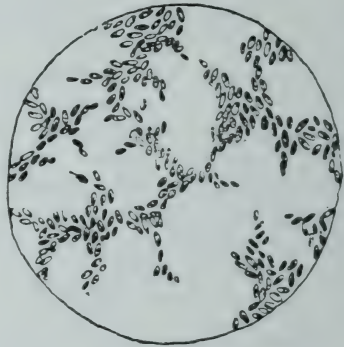
Every disease-germ within the entire range of bacteriology is to be found in the common sewer air. Microbes in the atmosphere; ptomaines, possessing the most extremely poisonous properties in the liquid contents of the sewer.

Five gallons of air were aspirated from a sewer in Fourth street, New York, at lowest level; after two days' cultivation, numerous colonies, moulds. The colonies appear as minute, yellow, liquid

points, on the third day the plate liquefied, and the microbes proved to be the *Sarcina aurantiaca*; the mould was the *penicillium glaucum*.



Sarcina Aurantiaca—Sewer air after three days' cultivation. It appeared as yellow circular liquid colonies, cocci in masses.



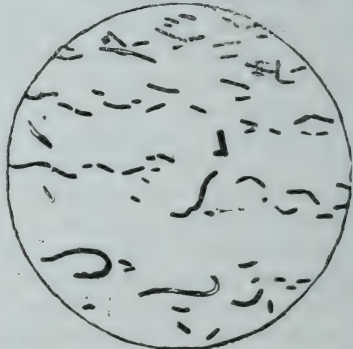
Saccharomyces.

Five gallons of air were aspirated from a sewer on Fourth street, near Broadway, New York, one week later, at lowest level, with most offensive smell; numerous colonies and moulds, all white, raised, non-liquid and circular; after five days' cultivation, non-liquid colony appeared.

Five gallons of air aspirated from sewer, later on near Broadway, New York. Rain during the previous twenty-four hours; after three days' cultivation, numerous colonies formed, together



Aspergillus albus.—Sewer air.



A species of *Bacillus subtilis* from sewer air.

with moulds. A large number of the colonies were of a grayish-white, sharply-defined circles, with granular centre, and a point in the centre, liquefying the jelly (bacterium termo); some of the colonies were gray in color, irregularly circular, and liquefying

the jelly. Moulds were nearly all *aspergillus albus*. One large one was *mucor mucedo*. A large number of micrococci.

Five gallons of air aspirated from sewer, later on, on Lafayette Place, New York, colonies and moulds; the colonies appeared as cream-white, non-liquid, and yellowish-white liquid. The cream-white were bacilli; the yellowish-white are micrococci. The entire populace of the street, whose closets emptied in the sewer at this time, were afflicted with hay fever.

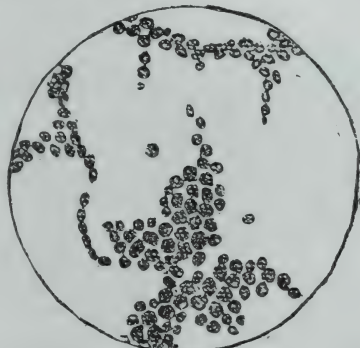


Spirillum identical with that found on vegetable infusions, found in the same air, in dense swarms.

Five gallons of air were aspirated later on from a sewer on Third street, New York; after five days' cultivation, yield colonies and moulds. One whitish-yellow colony, liquid in centre, consisting of diplococci and short rods. One large white colony which is *bacillus lævis*. Most of the moulds were *aspergillus albus*, the others *penicillium glaucus*.

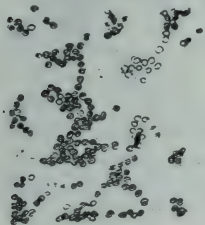


Bacillus lævis.—Source, sewer air magnified 1000 diameters.



A form of yeast plant magnified 750, found in sewer air.

Five gallons of air were aspirated from a sewer on Lafayette Place; from six to nine days' cultivation, colonies of microorganisms and moulds formed, with spore-like bodies. Very small cocci. After five days' cultivation, they appear as small circular, non-liquid colonies.

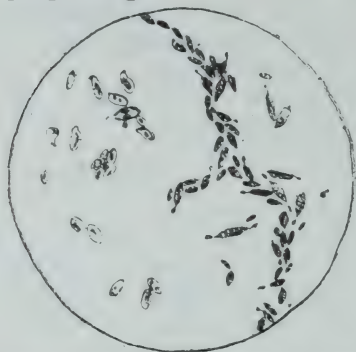


A smaller form of the yeast plant in the same sewer.

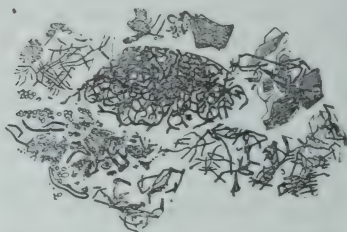
The moulds were *penicillium glaucum*; *mucor mucedo*, and *aspergillus glaucus*.

Five gallons of air were aspirated later on from a sewer on Fourth street near Broadway, New York; a most offensive smell issued from the opening. After six days' cultivation, colonies and moulds formed, *saccharomyces*, yellowish-white, non-liquid, raised colonies; cocci. The moulds were *penicil-*

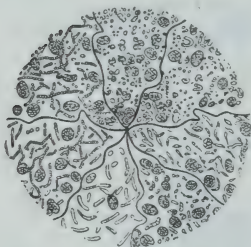
lium glaucum. A large number of micrococci, mixed with the aspergillus glaucus.



Saccharomyces liquefaciens, magnified 1000, from sewer air.



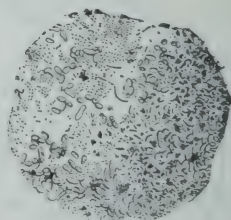
Air aspirated from a sewer connected with a brewery. Deposit under the microscope filaments of various microbes (bacillus), which produce disease; young microbes in an ever active state; others incruited in acids.



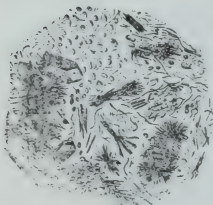
Air aspirated from sewer in Greenwich avenue, New York, near a brewery. After six days' cultivation it shows lactic ferments of ale, putrid wort, chaplets of *mycoderma aceti*,



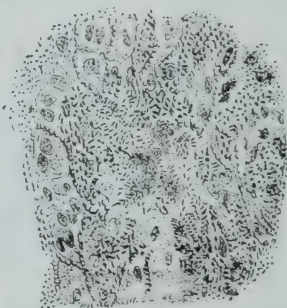
Putrid Blood Serum.—The evolution of numerous bacilli, all factors of disease from aspirated air, as well as the liquid contents of the sewer.



Aspirated air from a sewer in close proximity to a vinegar factory. Deposit seen on the microscope *Mycoderma aceti* still young, and older ones.



Air aspirated near a beer brewery, showing microbes which produce disease.



Bacillus of Typhoid Fever, aspirated from a sewer; cultivated, injected into animals, reproduced the original disease (pathogenic typhoid fever).



Young *Bacillus Anthrax*, mingling with the young broods of the malarial germ in a sewer.

Various other micro-organisms which the inhabitants of all our large cities are compelled to breathe.

Sanitary science says most emphatically, that typhoid fever is becoming more prevalent, being epidemic and endemic all over the world.

By the light of modern investigation, and with our modern knowledge of the influence of bacteria in the production of various forms of disease, it is not at all difficult to understand the way in which the surface water in its rise and fall may influence the spread of a disease of this nature. As we have seen by the considerations to which we have drawn attention, the excreta from typhoid patients find their way into cesspools or into defective drains, and are thus dispersed into the surrounding damp soil. Both the rise and fall of the surface water, with the amount of air which it must necessarily displace from the interstices of the soil, must be a potent factor in the circulation of typhoid germs. In the one case, when the water falls, air enters the soil to a greater depth, from which it can be sucked into the lower floors of dwelling-houses, whilst the rise of the water in the soil displaces the air upwards, which taking with it the typhoid germ, distributes it over certain localities. It seems probable that a wider study of the phenomena of this nature would afford a very adequate explanation of how it is that at certain periods of the year typhoid fever is so much more prevalent than it is at others.



Comma-Bacillus in sewage water.

Furthermore, the infection process requires special conditions. The germs will not flourish in every human being. They require a soil suitable to their growth. And such a suitable soil, such specially favorable conditions are found in nearly all persons who have been exposed to insanitary influences, such as bad drainage, foul air, or unwholesome surroundings of any sort, or who are in poor health or have suffered from any complaint of a weakening character. All these things tend to depress the strength and lower the vitality, and thus a fertile soil for the propagation of typhoid germs is at once produced. There is no doubt that the typhoid poison may enter many healthy and well-nourished bodies, and pass harmlessly away. But let the vitality be lowered by the inhalation of sewer gas or other foul air, by exposure to any insanitary conditions, or by any other cause, and *then* the entrance of the poison into the system is almost certain to involve the communication of the actual disease.

Every fresh patient is a new source of further danger. Yet the peril may be reduced to a minimum by the thorough disinfection of the evacuations before these are thrown away. This ought to be an invariable rule. Supposing, however, that some germs nevertheless escape, then the risk of contagion may fur-

ther be minimized by good drainage, by rigid care as to drinking-water and milk, and by the observance of sanitary rules generally. All water and milk as to which the slightest suspicion can exist should be boiled before being used, and a strict inspection of dairies is imperative. If typhoid fever is to be arrested or abolished in this or any other part of the world the greatest care must be taken to avoid all exciting, as well as predisposing causes, and to study the way in which it is introduced and in which it spreads in every part of a locality.

The terms *endemic* and *epidemic* are used in connection with preventible diseases, the former to imply that the disease is restricted within certain areas and depends on local or localized causes, and has a tendency to persist in the district; the latter to describe a disease which suddenly appears and spreads widely and rapidly, but its prevalence is usually of limited duration. The two conditions, however, may pass into one another, *e. g.*, plague, yellow fever.

The term *sporadic* is applied to diseases which occur in isolated cases, and appear sometimes as if of spontaneous origin, as typhus fever. Such cases are to be explained either by the sudden development of spores which have been waiting for a favorable set of circumstances, or, possibly, it may be that those conditions of overcrowding and filth may so aggravate the virulence of some organism (existing usually in the body without danger), that absorption of its products occurs and produces the symptoms known as typhus fever.

Action of the microbes in the body.—Microbes affect the body in one or more of three ways: (1) By rapid development and aggregation in the blood vessels, producing embolism, as in anthrax. (2) By producing a ferment which acts on the tissues, as, perhaps, in diphtheria. (3) By producing one or more definite chemical poisons (toxines), as in tetanus.

There is, for a longer or shorter time, a period of quiescence, latency, or *incubation*; the period of *invasion* which follows is characterized by increased temperature, rigors, etc. When the distinctive features of the disease appear the stage of *advance* or *eruption* has begun; these special features appear to be due to the fact that, after undergoing development in the invasion stage, the microbes and their products tend to accumulate in particular organs, as in the throat, bowels, nervous system, skin, etc. From these parts they are discharged from the body ready to propagate the disease, or they die out from causes unknown, producing the stage called *decline*, *defervescence*, or *resolution*, suddenly (crisis), or slowly (lysis). Various theories are suggested to explain why the microbes tend so often to die out in each case, as that

the high temperature of the body kills them, that the multiplication of the poison interferes with their growth. *Convalescence* is the period in which the body gets rid of the effete products, and restoration of the various functions is re established. *Sequelæ*, however, sometimes occur after the disease appears to have been cured; these are probably due to the action on the tissues of poisonous products which have not been eliminated or destroyed—perhaps on account of their late production. *Death*, however, may occur before a disease has run its course.

The great aim of sanitary science is the prevention of disease. The infecting nature of the tubercular bacilli is causing considerable alarm; strenuous efforts are being put forth by the various health boards to disinfect all suspected localities, and radical precautions so as to prevent its dissemination.

Pulmonary tuberculosis (consumption) is directly communicated from one person to another. The germ of the disease exists in the expectoration of persons afflicted with it. The following explains the means by which the disease may be transmitted: Tuberculosis is commonly produced in the lungs (which are the organs most frequently affected) by breathing air in which living germs are suspended as dust. The material which is coughed up, sometimes in large quantities, by persons suffering from consumption, contains these germs often in enormous numbers. This material when expectorated frequently lodges in places where it dries, as on the street, floors, carpets, handkerchiefs, etc. After drying in one way or another, it is very apt to become pulverized and float in the air as dust. By observing the following rules the danger of catching the disease will be reduced to a



Tubercle Bacillus.—
In the sputum
found on the floor
of a Pullman sleep-
ing-car.



Sputum of a tubercular from a
patient in a Pullman sleeper
suffering from lung-syphilis.



Pneumonia in
croupous,
magnified 1000
diam., found
and isolated
from the spu-
tum found in a
Pullman sleep-
ing-car.

minimum: 1. Do not permit persons suspected to have consumption to spit on the floor, or on cloths, unless the latter be immediately burned. The spittle of persons suspected to have con-

sumption should be caught in earthen or glass dishes, containing a solution of the sulphate of iron. 2. Do not sleep in a room occupied by a person suspected of having consumption. The living rooms of a consumptive patient should have as little furniture as practicable. Hangings should be especially avoided. The use of carpets, rugs, etc., ought always to be avoided. 3. Do not fail to wash thoroughly the eating utensils of a person suspected of having consumption as soon after eating as possible, using boiling water for the purpose. 4. Do not mingle the unwashed clothing of consumptive patients with similar clothing of other persons. 5. Do not fail to catch the bowel-discharges of consumptive patients, with diarrhœa, in a vessel containing corrosive sublimate, 1 part; water, 1000. 6. Do not fail to consult the family physician regarding the social relations of persons suffering from suspected consumption. 7. Do not permit mothers suspected of having consumption to nurse their offspring. 8. Household pets (animals or birds) are quite susceptible to tuberculosis; therefore, do not expose them to persons afflicted with consumption; also do not keep, but destroy at once, all household pets suspected of having consumption, otherwise, they may give it to human beings. 9. Do not fail to thoroughly cleanse the floors, walls and ceilings of the living and sleeping rooms of persons suffering from consumption at least once in two weeks.

Sanitary science has demonstrated beyond all dispute that pathogenic micro-organisms do exist in distinct and definite entity, that they show themselves as distinct, specific germs, begetting special disease. The micrococci of measles is the same to-day as it existed thousands of years ago; the same period of incubation, the same prodromata, the same eruption, the same complications and terminations.

That the essential nature of a pathogenic microbe is not changed by an alteration in the soil or other surroundings. The microbe may be shrivelled, dwarfed, or reproduction checked by lack of oxygen, unsuitable nutrition, improper temperature, but never changed in nature.

Up to the present time it has been found impossible to deprive pathogenic microbes of their pathogenic properties.

We lack as yet a sufficient or satisfactory explanation of the immunity conferred, though three plausible hypotheses have been proposed. The first is the theory of exhaustion, which assumes that the germs of the disease exhaust the elements in the blood necessary to their nutrition. Something analogous to this is seen in vegetation of higher structure, which cannot be made to grow indefinitely in the same soil. The second is the

antidote theory, or the theory of antagonism, which supposes that certain products evolved from the soil in the multiplication or growth of germs react upon them fatally. The analogy here is found in the process of fermentation, whereby the torulæ cease to produce themselves, become quiescent and sink to the bottom of the vessel as soon as the proportion of alcohol reaches twenty per-cent. There is reason to think that the fever evoked by micro-organisms is in some cases fatal to their growth and life. The third is the theory of accommodation, which maintains that the tissues in their first struggle with the micro-organisms acquire a higher degree of energy or vitality, whereby they are enabled to endure or resist future attacks. Perhaps a simile may be found for this hypothesis in the process known as acclimatization.

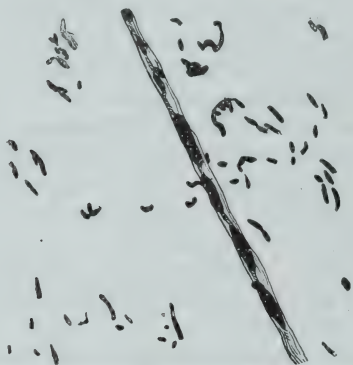
The question now arises, How do Pathogenic Micro-organisms produce the Phenomena of Disease? From the rapidity of their multiplications it might be inferred that the symptoms and lesions of the infectious maladies were caused by the mere presence of these organisms as foreign bodies. But it has been observed that the bacilli of milzbrand alone multiply in the body in such number as to produce extensive occlusions of vessels. Further, it has been shown that no mere mechanical presence, no mere foreign bodies, aniline particles, or granules of cinnabar, ever induce the signs of fever or toxicemia. The micro-organisms of disease live in the body, and must therefore be nourished at its expense, whereby they withdraw from the blood or tissues elements essential for their nutrition. Pathogenic micro-organisms require oxygen. In processes of fermentation, outside air is excluded, that the germs of fermentation may be compelled to withdraw oxygen from its soil. Pathogenic micro-organisms multiplying in great abundance seize upon the oxygen of the blood with such avidity as to develop in fulminant forms the symptoms simulated by prussic acid poisoning. But the other symptoms mentioned do not correspond either to deficient oxygenation or carbonic acid poisoning.

These symptoms indicate toxicæmia, and since the injections of fluids from which bacteria have been separated by porcelain filters remain innocuous, it follows that the toxic agent inheres with the bacteria. Then, inasmuch as blood-corpuscles show their reaction against bacteria on simple contact, it follows that the poison must lie upon or issue from their surface.

The only hitherto known poisons which may in such minute quantities induce such grave toxic signs are the poisons resulting from the action of the bacteria of decomposition upon organic matter. As these intensely virulent poisons were first

observed only in dead organic matter, they were called *ptomaines*. These matters, the *ptomaines*, though so newly known, have received so much attention in the past year as to form a subject in themselves. It may be said here that some cadavers develop no *ptomaines*, that *ptomaines* are developed as putrefaction advances in the course of weeks, next that they are also found sometimes in animal products, as in cheese, urine, fæces, etc., and lastly, that many *ptomaines* are perfectly innocent. Then it might be added that many phenomena attributed to their action have been found due to simpler causes.

Sanitary science teaches us that sewage should not run into our lakes and rivers, as the microbial product is a factor of disease and tends to poison all the fish in those waters. Take for example the shell-fish and others in all our bays and rivers where sewage enters, there is to be observed with an ordinary glass a red-dotted discoloration, in which there is a bacillus of a deadly



Bacilli found in fish and oysters which are cultivated in rivers, bays, creeks, into which sewage enters, found at thirty miles from the opening.



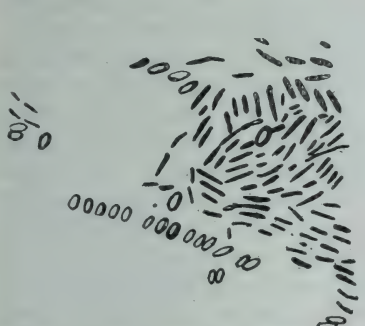
Vibrios and comma-bacillus in water contaminated with sewage on which our modern fish and oysters subsist.

character. In order to test whether this bacillus is toxic, eating a few of the infected oysters or clams, or some fish, give rise to bowel spasms, or inject into the tissue from the red spots, into some animal, a condition of disease analogous to cholera was produced, and the comma-bacillus found in the stools, together with other organisms of a virulent type.

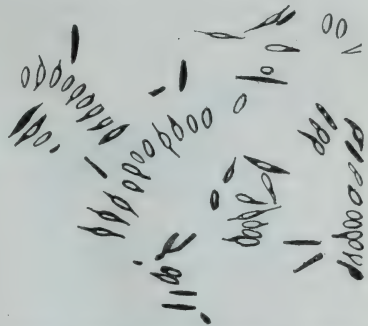
Sanitary science teaches us that the air we breathe at all seasons of the year is highly impregnated with disease germs or their spores.

In the summer season especially, we, in addition to microbes, breathe the pollen from grasses, flowers, vines, and trees, which

give rise to different forms of hay fever, or summer catarrh. Fungoid spores are more abundant in the atmosphere in hot weather than cold. Cities being comparatively destitute of ozone



Bacillus Alvei as found in honey, young broods, passing into a higher grade, as seen in next diagram.



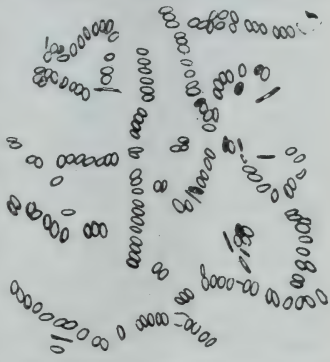
Bacillus Alvei, showing stages of transition between rod and fully developed spores, fowl brood on bees giving rise to flower, clover and buckwheat rot. Another transition converts the microbe into the bacillus subtilis of hay fever.

and loaded with the living organisms of sewers, have an atmosphere loaded with bacteria; at an altitude of 2000 feet no microbes are found. The largest percentage of microbes are to be found in the atmospheres of hospitals, or adjacent to them, whereas the reverse condition exists in the air of the country.

In this country the presence of microbes in houses, schools, etc., has been demonstrated by actual experiment of eminent bacteriologists; and they have shown the improvement that can be produced by proper ventilation. In houses the numbers of microbes increases in proportion as the living rooms decrease in size, and according to how many rooms constitute a house; thus, a one-roomed house contains more microbes than a two-roomed house, and sickness and mortality go *pari passu*.

That the following diseases attack the person through the medium of the air cannot be doubted, viz., scarlet fever, small-pox, measles, typhus, enteric fever, plague, pertussis, yellow fever, diphtheria, influenza, purulent and granular ophthalmia, erysipelas, hospital gangrene.

of sewers, have an atmosphere loaded with bacteria; at an altitude of 2000 feet no microbes are found.



Bacillus Alvei as found in honey, which, if eaten by individuals, give rise to intestinal irritation; and the transition of the microbe in the body gives rise to the fungus of diabetes.

Sanitary science teaches us that the prevention of endemic malaria by extensive drainage is a sanitary fact. The mortality caused by the malarial germ does not indicate the amount of misery caused by it. It usually takes from twenty to thirty attacks before the germ, with attendant fever, produces a fatal result, and then its sequelæ, its anæmia, leucocythemia, diabetes, dropsy, enlargement of spleen and liver, and other conditions which ultimately terminate the existence of the patient. In malarial sections, the number of yellow, sallow wretches, inhabitants of such districts, with their limbs shrunken, their muscles wasted, nervous and physical wrecks, can have the microbe of all their ills blotted out by a drainage of the soil; a perfect system of drainage will get rid of this microbe, and localities decimated with ague become perfectly healthy.



A bacillus found in stagnant water; found in all malarial sections. Probably the embryonic malarial germ.

Sanitary science teaches us that nearly all our domestic animals in and near our large cities are saturated with the bacillus anthrax and actinomycosis; that milk and meat poisoning are very common, cases being daily recorded. The inhibition of these microbes often cause immediate death from the reflex presence of the microbe, or from its spore, or the toxical effect of the ptomaine. So prevalent and fatal are those cases becoming, that efforts are being made to stem the evil, but with poor results.

Death before these germs can enter the blood is deplorable, and worse still when pustules, abscess in lymphatic, and pyæmia occur.

The microbe actinomycosis is a denizen, in its early stages, of the jaws; just how far it has spread among the human family cannot be correctly stated, but its prevalence is in a great measure due to the imperfect cleansing of the dentist's hands, forceps and other tools. We cannot always tell, until the microscope reveals its presence or absence.

That pus from an alveolar abscess is necessarily septic we cannot be sure; but there are three facts worthy of notice:

1. Pus from an alveolar abscess is often of foul odor.
2. As a consequence of alveolar abscess, necrosis of a portion of the jaw-bone is not at all uncommon.
3. There are cases recorded of patients who have died from pyæmia and septicæmia, as the result of alveolar abscess, with or without the actinomycosis.

In a case of anthrax, from eating diseased meat from an infected animal, the pus from the lymphatics was extremely fetid, and

when examined showed abundant presence of micrococci. Agar-agar plate cultivations were made on two consecutive days, but no development ensued. Thus, while the microscope revealed the presence of crowds of micro-organisms, the cultivation experiment showed that they were all dead. It would seem as if the microbes had been the cause of their own death; that is to say, they had multiplied so rapidly as to exhaust the soil upon which they had to live, and had produced products which were poisonous to themselves. The result of the investigation struck one with some little surprise. It is, perhaps, hardly what one would expect, that a patient should survive with such a quantity of putrid material in his body, in which even microbes were unable to live.

Sanitary science teaches us that from our drinking water we are suffering unconscious suicide, and this exists all over the land.

A number of cemeteries drain into Brooklyn's sources of water supply.

Long Island City pumps its water out of an underground frog pond.

Jersey City, Newark, Elizabeth and Hoboken secure their water from the dirty Passaic river.

Albany and Kingston have muddy supplies of water.

Philadelphia pumps up Schuylkill sewage and drainage of graveyards.

St. Louis is burdened with mud and filth from the Mississippi, which has rotted its water pipes. The same is true of cities deriving their water supplies from the Mississippi, Missouri and Ohio to an alarming extent, such as Louisville, Memphis and New Orleans.

Boston's water system is polluted by a poisonous vegetable growth.

Chicago sewage so completely invests lower Lake Michigan that in summer time the hydrant water actually smells of the



SECTION THROUGH A KIDNEY OF A CASE THAT DIED AFTER MEAT-POISONING.

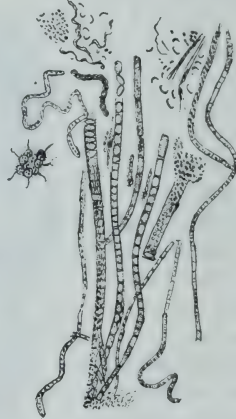
The figure represents part of a glomerulus of a Malpighian corpuscle, in which some of the capillary blood-vessels are filled with the bacilli. Magnifying power 700. 1. Capsule of Malpighian corpuscle. 2. Capillaries filled with bacilli. 3. Capillaries empty. 4. Bacilli contained between capillaries.

filth. In winter, the water, being taken from a considerable depth, is void of oxygen, the life-giving gas, and under the high pressure of the pumps, remains a dead liquid, injurious to the health and productive of malaria and winter cholera.

New York might have tapped Lake George for less money than the total expense attending Croton water, which has cost



Ophidomonas sanguinea of stagnant water (slightly magnified), often present in our drinking water of all our large cities.



Crenothrix Kuhniana.—This micro-organism, magnified 600, is taken from water pipes, rendering drinking water very foul.



Comma-Bacilla.—*Spirillum* as found in sewage, as it enters the river.



The Comma Bacillus as seen in river water into which sewers enter. The drinking of such water, even five miles below where the sewers enter, gives rise to diarrhoea.

upward of \$80,000,000. Croton water, politically and physically, is probably the most corrupt supply extant. Mineral matter is always visible in it; in the summer it is impregnated with a green and poisonous vegetable matter.

Grand Rapids, Michigan; Waukesha, Wisconsin, and a few other and small places are probably the only ones known having perfectly pure water supplies. At Grand Rapids, the Hydraulic Company's works, and those at Waukesha, are fed by enormous springs, cases exceptional and singular in the water-works history of this continent.



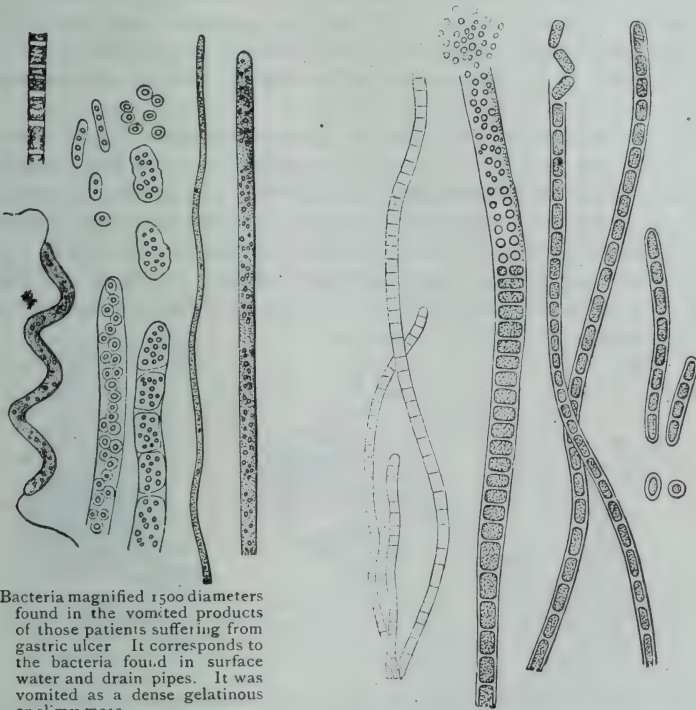
Spirillum volitans which is met with in marshes.

Nearly all farm wells in the rural districts receive the drainage of the barns.

Not long ago, nearly all the wells and water-works supplies in our State were found laden with germs, which if corrected, would decrease the mortality of our country.

As a general rule, the water which supplies all our large cities contains a large number of microbes in a perfect state of vitality. The rivers and lakes receive most of them directly from sewers which discharge into them; even most of the wells in the rural

districts receive them by infiltration through the soil. During epidemics of measles, scarlet fever, variola, typhoid fever, cholera, etc., the microbes of each of those diseases are to be found in all running and stagnant water, in close proximity, and therefore they often become sources of contagion and infection. Well-water near a barn, a cess-pool close to a dwelling, owing to its stagnant nature, and to the infiltration of microbial matter, is much more dangerous than running water.



Bacteria magnified 1500 diameters found in the vomited products of those patients suffering from gastric ulcer. It corresponds to the bacteria found in surface water and drain pipes. It was vomited as a dense gelatinous or slimy mass.

Aquatic saprophytes as found in marshes, wells, drains, stagnant pools, from decaying organic matter. Magnified 500 times.

Germ-laden well-water used in bread-making is dangerous to health, because the internal temperature of the loaf in the hottest oven is seldom sufficient to destroy the microbe, far less its spores. In testing well-water, we almost invariably find ova of a large number of parasites, spores of disease germs, and bacteria innumerable. As a general rule, well-water should be condemned for drinking purposes and making bread.

Rain, spring, or river water is more free from microbes than well-water. It is true boiling water will destroy all the disease

germs it may contain, but in the act of boiling, the natural gases of the water are destroyed, it is rendered heavy, indigestible.

Filtering, if correctly performed, seems to be the only method of clearing it of the ova of ascarides, and larger germs.

Mineral waters, such as apollinaris, vichy, if genuine, are excellent table waters, but their use is costly. Ice yields its microbes to any fluid or solid with which it is brought in contact, besides the use of iced waters, and other drinks is highly detrimental to digestion and productive of a tubercular habit.

Sanitary science teaches us that the modern methods of preserving meat and vegetables are erroneous—productive of bacterial evolution and disease—factors which increase the mortality of the nation.

To prevent chemical change, the evolution of fungi and microbes, in organic substances; to preserve them fit for alimentary use and the nourishment of the body for an indefinite period of time, they must be protected from the microbes and germs of the air, and germicides, as chloride of sodium, aromatic spices and salines; and when smoked, the aromatic principle of carbolic acid and creosote, contained in the smoke destroys the microbes and prevents all chemical change.



Bacillus megatherium as seen in decaying cabbage, canned tomatoes, peas, etc.



Fungi, or Moulds, found in hermetically sealed cans filled with salmon.



Moulds, or Fungi, found in hermetically sealed peas.

The preservation of meat, fish, fruit, vegetables, in hermetically sealed cans, with or without certain fluids, heated to a temperature of 110° Fahr., to insure the destruction of germs, appears to be correct in principle, but most pernicious, nay toxic, to the user.

The preservation of meat in fat, or by drying, or evaporation by heat, refrigeration by ice, is extensively used to preserve beef, mutton, poultry, fish, etc.

When congelation occurs in the fluids of the subcutaneous tissue, important cadaveric changes begin; these changes consist in the formation of the most deadly poisons, which may be held in perfect abeyance so long as the freezing point is main-

tained, but let the temperature rise, putrefactive changes occur in which ptomaines appear. As the temperature rises, and these changes occur, the meat becomes soft and mucky, and if cooked at this point has a sweetish taste. All animal food kept on ice, in the process of thawing, evolves toxical agents.

Cream or milk, acted upon by ice, so as to perfectly freeze it, if freezing be maintained, all is well, but let a thawing take place, and again freezing the same can, ptomaines or tyrotoxon are evolved.

Sanitary science teaches us that all cooked meats, cold articles of food which have been cooked some time before eating, produce toxic properties, ptomaines or alkaloids, which are indestructible; these dangerous poisons are generated in cabbage, pies, hams, and all canned meat or vegetables. That re-heating or cooking over does not destroy them.

These poisons are known as *ptomaines* when formed by the decomposition of albumen by the microbes of putrefaction in the dead body; the more poisonous bases produced by pathogenic germs have been named *toxines*, while those formed in the



Bacillus Figurans found in garden earth and on green vegetables, parsley, salads, which gives rise to choleraic symptoms.



Bacillus Megatherium found on cabbage, after standing one hour, being productive of intestinal irritation. The microbe effects a transition in the bowels, and becomes a pathogenic bacteria.

healthy living body by the breaking down of albuminous matter in the course of functional activity are called *leucomaines*. Fatigue-fever may be explained by the production of leucomaines being more rapid than the excretory organs of the body can keep up with; a similar explanation may also serve for uræmia.

Microbes in order to produce disease must obtain admission into the body, and when they gain an entrance there must be a lowered vital force, so as to enable them to grow. For with a high graded vital force no microbes can grow—the body is insusceptible.

Insusceptibility is a condition which is due to the absence of a proper soil, in which the microbes can grow. As it is believed that epithelial cells have normally the power to resist the attacks of bacteria, which may then be destroyed by the white blood-corpuscles; a lowered vitality, either hereditary or acquired, would, therefore, constitute a predisposition to infectious disease. As age advances this power of the cells probably increases, so that the susceptibility is greatest in infancy and childhood. (See article, *Disease Germs*.) Moreover it appears that germs will not develop in the blood unless it contains at first suitable food in the shape of effete matter. Another important cause of insusceptibility to some diseases is the (in a measure) protective influence of a previous attack. In the cultivation of micro-organisms in artificial media, it has been found that the presence or absence of very minute quantities of certain salts was essential for growth; this suggests that the first attack of a disease may use up some essential body which may not be reproducible, or only so after a long interval, or some product may be left behind which would be inimical to a second successful growth of the germ.

Microbes in their passage from race to race, from one animal to another, increase, diminish, or destroy their pathogenic properties. See the remarkable increase in virulence of all microbial disease in the passage of the germ from one race to another.

Sanitary science is strongly in favor of contagious or microbial disease hospitals, for diphtheria, small-pox, typhoid and other fevers.

That priceless object, human health, is best secured by an isolation of any case of germ disease; that bacterial-smitten patients in the ordinary currents of life do not receive the care so indispensable to their welfare, that no ordinary dwelling can be of utility as a means of stamping out germs; that a poor man's house does not afford the means of properly isolating a case of infectious sickness, neither can the natural affection of the patient's relatives provide all that is needed for the recovery of the sufferer. In a well-ordered hospital, however, the patient is sure to receive careful nursing, good treatment, and proper food. Recovery is thus much facilitated, and if the hospital is, as it should be, free for the use of the inhabitants of the district, no expense whatever is imposed on the patient or his family. Moreover, the other members of the family are relieved from the risk of contracting the disease, and are left free to pursue their ordinary avocations without endangering the public health. It is satisfactory to find from the reports of medical officers of health

and others that there is a growing inclination on the part of the public, both rich and poor, to avail themselves of the benefits of the sanitary hospital where the local authorities have been sufficiently far-sighted to provide such a building. Without a proper infectious disease hospital a district is without one of the most effective defences against epidemics.

Sanitary science has clearly demonstrated that the activity, growth and virulence of microbes are greatly intensified by their entrance into sewers; that the germs in sewers are most contagious, giving rise to the disease of which they are pathogenic, but more virulent; all fevers, cholera, pneumonia, dysentery are apt to be communicated through sewer air.

The symptoms of chronic sewer-air poisoning are of two kinds --the specific and the non-specific. The specific symptoms are those which result from pathogenic micro-organisms of various kinds suspended in the sewer air, and causing the various infectious diseases described.

Among the symptoms, where no specific disease-germs are at work, are malaise, headache, loss of appetite, with dyspeptic symptoms, drowsiness, and slight feverishness. There is a marked tendency to anæmia and general debility. These symptoms are frequently grouped under the name of "malaria." In children, to these phenomena may be added a smooth or glazed, broad, flabby tongue, with a marked tendency to digestive trouble, as vomiting, diarrhea, dysentery, and attacks of gastric catarrh and catarrhal tonsillitis.

The tendency of sewer-air poisoning is to derange the organs of primary assimilation rather than the lungs; as, for example, gastric catarrh, duodenitis, hepatitis, splenitis, diarrhea, enteritis, and colitis. Besides these effects, the debilitating influences of the polluted air render the persons so affected an easy prey to an intercurrent malady. Sewer air is more like to affect weakly and anæmic persons.

Sanitary science teaches us that diarrhea is a prominent symptom of different complaints, and is frequently due to the presence of some irritant in the intestinal canal. Children are specially liable to be attacked with diarrhea, when changes are made in regard to diet, as at the time of weaning, or when improper food is given, but in summer this tendency is so greatly increased (adults also being affected) that such names as epidemic, choleraic or infantile diarrhea have been given it. While this disease prevails quite as much (if not more so) among adults as among young children, yet the mortality is almost exclusively confined to the latter, and equals one-tenth of all other causes put together.

While it is true that improper feeding of children, and putrefactive changes occur more rapidly in food in warm than in cold weather, and might be sufficient to set up diarrhoea, yet it is now believed to be chiefly due to bacteria, and it is probable that they act in this as well as in epidemic cholera by producing poisons in the intestine.

Probably much of the diarrhoea which occurs, especially in children, after the use of milk, is due to the formation of tyrotoxin, or other more or less poisonous products by decomposition of the milk in the intestine itself; and as milk appears to be an excellent breeding ground for septic and other organisms, it is easy to explain the reason why infants, who are breast-fed, have a much greater chance of escaping diarrhoea than those who are fed by hand. That the risk of bacterial inoculation is practically small in the former.

That the essential cause of diarrhoea resides ordinarily in the superficial layers of the earth, where it is intimately associated with the life processes of some micro-organism not yet detected, captured or isolated.

That the vital manifestations of such organism are dependent, among other things, perhaps principally, upon conditions of season, and on the presence of dead organic matter, which is its pabulum. That, on occasion, such micro-organism is capable of getting abroad from its primary habitat, the earth, and having become air-borne, obtains opportunity for fastening on non-living organic material, and of using such organic material both as nidus and as pabulum in undergoing various phases of its life history.

That in food, *inside* of as well as *outside* of the human body, such micro-organism finds, especially at certain seasons, nidus and pabulum convenient for its development, multiplication, or evolution.

That from food, as also from the contained organic matter of particular soils, such micro-organism can manufacture, by the chemical changes wrought therein through certain of its life processes, a substance which is a virulent chemical poison; and that this chemical substance is in the human body the material cause of epidemic diarrhoea.

Certain factors have been noted as having an important bearing upon the development of diarrhoea, the chief of these being the nature and temperature of the soil.

1. Nature of the soil:—A high mortality occurs on loose soils, such as those composed of sand, gravel, marl, or marl with clay, which are easily permeated by water and air, and especially when such soils are contaminated with organic animal matter.

Excessive dryness or wetness of the soil is unfavorable to diarrhea.

2. Temperature of the soil:—The atmospheric temperature has very great influence, but it is exerted indirectly, as the mortality does not increase until the mean temperature recorded by an earth thermometer at a depth of four feet from the surface has attained to about 56° F.—no matter what the temperature previously attained by the atmosphere, or recorded by a thermometer at a depth of only one foot from the surface, may have been. The mortality rises and falls with the four-foot thermometer. It usually begins to rise rapidly in the middle of June, attains a maximum towards the beginning of August, the fall begins slowly in August, becomes more rapid in September, and recovers its ordinary rate by the end of October.

Minor influence on the mortality is exerted by the amount of rainfall, rise or fall of ground-water, wind or comparative calm, and by elevation above sea-level according to the way in which they hasten or retard the rise of temperature, or affect the wet or dry condition of the soil.

3. Density of population.
4. Density of buildings upon any given area.
5. Restricted circulation of air *about* or *within* dwellings.
6. Domestic darkness, and general dirtiness and mustiness of dwellings.
7. Emanations from sewers, cesspools, privies, and dust bins.
8. Filthy accumulations.
9. Polluted drinking water and food supplies, especially milk, and everything about a house which tends to lower health and vitality, exert a baneful influence, and should be remedied. We recommend subsoil drainage, concreted sites for dwellings, free ventilation, daily scavenging, proper drainage, and special precautions to protect the milk supplies from contamination, aerial or otherwise, both before and after it reaches the consumer.

Sanitary science has clearly demonstrated that the disease germ which induces the greatest mortality among the human race is the tubercle bacillus. This is the most important of all microbes. A nation tainted to its core with this micro-organism would quickly cease to be a nation at all. The presence of this disease germ entails sickness, infirmity, an actual, definite, national loss, in consequence of which we are weaker and poorer.

We do not properly appreciate the influence of disease germs on national prosperity, although we realize it in the individual. If our national rulers could only realize the extent to which it is impoverished by preventible disease, rendered poorer by the loss

of that wealth of which money is the token, they would soon devise means to wipe out glaring insanitary conditions and take measures to instruct the masses in sanitary science, so that each one would have a sound mind in a sound body.

The greatest possible amount of money spent by our government for efficient sanitary measures will always prove an actual and great economy, and result in a saving of human life and an increase of national wealth.

Nothing is so costly as disease, excepting death; no waste is so extravagant as the waste of human life.

1. Tuberculosis is the most important of diseases. As it affords the highest percentage of deaths, it is the most important from an economical point of view, as the sufferers from it generally die after prolonged illness with diminished or altogether abolished power of production. 2. The war against tuberculosis is to be carried on vigorously by the state, the profession and the community; it promises very considerable diminution, if not total stamping out. 3. The cause of tuberculosis is the bacillus; its existence outside the animal economy is not yet proved, but, it has the power of long preserving its infective qualities. 4. The bacillus of tuberculosis is obtained (A) by heredity—this is of slight importance; (B), by direct or indirect transmission from other tuberculous individuals; (C), by direct or indirect transmission from tuberculous animals, particularly by their milk and the parts serving as food. 5. Measures against the spread of tuberculosis—ad 4A, certain regulations impracticable; ad 4B, school hygiene (disinfection of the expectoration of teachers and children, regular wet cleansing and frequent disinfection of school-rooms); erection of disinfecting offices by the community, and the instruction of people in the *technique* of disinfection; repeated disinfection of dwellings and articles used by tuberculous individuals, obligatory disinfection of the dwellings and utensils of persons dying of tuberculosis; supervision of the health of nursemaids, midwives and hospital attendants; supervision of persons engaged in the preparation and sale of foods, exclusive of such as are coughing. Careful hygiene of hospitals, prisons, orphanages and similar institutions. Ad 4C, instruction of the people, strict compulsory meat inspection. Determination of all animals found to be tuberculous as regards breed. Veterinary superintendence of shippens from which tuberculous animals have come. Destruction of animals found to be tuberculous (with at most partial compensation), supervision of the milk trade.

A most complex disease of the blood in which **Scurvy**. the essential elements of anæmia, purpura are prominent factors, with a deficiency of the alkaline salts in the blood.

Monotony, sameness, isolation, together with the use of food deficient in the salts of potash, as fresh meat, fruit, vegetables, are the usual causes.

Symptoms.—The earliest and best marked symptoms are observed in the countenance; the face is pale, and may be bloated; the eyes and lips have a dirty hue; the features are somewhat depressed; the gums are spongy, livid, and bleed when slightly irritated; teeth loose, breath very offensive. There is great lassitude and debility, pains in the legs, limbs very feeble, joints stiff, unable for any exertion. There is great difficulty of breathing, skin dry and harsh, sometimes rough and scaly, especially around joints, oftentimes puckered; although more generally it is shining, with patches or spots of brown, blue, black or livid blue. These patches are first seen on the legs or thighs, but generally extend over the entire body, except the face, and the disease continuing, the feet and legs become œdematous.

If not arrested at this point, the symptoms increase in severity, the gums become more livid and swollen, the breath more offensive, the pains more severe, and so with the other symptoms. In the latter stages there is often hemorrhage from the mucous canals, and the loss of blood is often so great as to prostrate the vital power of the patient.

In these stages, the evacuations from the bowels are often frequent and offensive, and we often have scorbutic dysentery, albumen in urine. The pulse is jerking, appetite impaired, intellectual faculties slightly affected.

In nearly all cases there is a tendency to faint on the slightest motion or exercise, which is often fatal.

In distinguishing purpura from scurvy, to ascertain the *cause* is of the *first importance*. The latter disease can always be traced to hardships and the absence of fresh meat, fruit and vegetables; and it is readily amenable to treatment by proper diet and lemon juice. Purpura, on the other hand, never depends on the above-mentioned causes, and does not yield to treatment. The following additional points of distinction may be mentioned:

1. Scurvy does not usually appear in isolated cases; all those exposed to the unfavorable influences above indicated suffer from it more or less.

2. Debility, want of energy, depression of spirits and pains in the limbs are always present as an early symptom in scurvy,

while in purpura these symptoms are generally absent, especially at the commencement of the disease.

3. In scurvy painful swellings and ulcerations are apt to occur, especially in the legs; these are not present in purpura.

4. In *purpura hemorrhagica* the bleeding is more general, copious and continuous than in scurvy.

5. There is generally a high temperature in the later stages of purpura hemorrhagica.

Treatment.—Rest in the recumbent posture; attention to liver, skin, kidneys, fresh air, generous diet, wholesome animal and vegetable food; fresh meat and boiled fish; juicy, rare meat; all kinds of vegetables, with fresh fruit in abundance. Precisely the same treatment as for purpura, with the exception that five grains of chlorate of potassa in water should be given three times a day, in order to supply the deficiency of alkalies in the blood. Cinchona and mineral acids are of great efficacy.

In land-scurvy, change of diet is of the greatest importance, and an avoidance of salted meats and fish.

More recently scurvy has appeared among the ill-fed children of large cities who reside in crowded insanitary localities.

It yields readily to fresh air, meat-juice and abundance of food.

Pellagra, or scurvy of the hills, used to be confined exclusively to the Alps, but several well-marked cases have taken place in Montana and Arizona. It is a species of scurvy; blood disease, with an altered state of skin, the eruption being symptomatic of the blood disease. The cause is a want of varied food, or insufficient nourishment.

It ends in mania, imbecility and slow death with softening of brain and spinal cord.

When first seen patient should be removed to better quarters and have a varied diet, because when once established all remedies fail.

The best success has attended the use of a highly animalized diet, with vegetables. The glycerite of ozone and kephaline operate most favorably in aiding blood formation, their use being pre-eminently constructional to brain and blood.

Or *motion sickness*, as it may be termed,
Sea-Sickness. for it occurs on lakes, rivers, or other turbulent motions, and by riding backwards, is a disturbance of a special sense, whose function is to determine the position of the head of man in space, and to govern and direct the mechanism by which the body is maintained in the erect posture and in equilibrium. This special sense is highly devel-

oped in the highly civilized Caucasian, and is his peculiar prerogative; by it the grandeur of the heavens, the beauties of nature, are realized; by it, man's mind is endowed with divine energy, and he can better appreciate his divine origin. This faculty of equilibrium is connected or seated in the brain, the optic lobes, the nervo-vital fluid or bed-plate of cerebrum and cerebellum, and other parts of the nervous organism, but its principal seat is in the semi-circular canals of the internal ear, which may be called the sense of equilibrium.

Motion produces sickness by disturbing the endo-lymph in those semi-circular canals, the viscera of the abdomen, the bed-plate of brain, or the nervo-vital fluid upon which the brain rests. The motion may be either backward, forward, downward or oscillating, and should be continued for a certain length of time. A combination of these conditions is the most effective, especially if there be an element of irregularity or uncertainty.

There are three varieties or forms of sea-sickness, which can be clearly distinguished from each other, and each of which is susceptible of relief by appropriate treatment. Nausea and vomiting is a prominent feature of all the forms. They may be classed as follows:

1. *The Endo-lymph*, flowing freely in the semi-circular canals of the inner ear, is subject to all the laws of fluids, inertia, gravitation, friction. It flows in a straight horizontal current, follows the motion of head and ship. The plane of the canals corresponds most nearly to the direction of the motion, face forwards; reverse the motion, and the endo-lymph continues to flow on, until it is arrested by friction, this causes undue pressure in one or more of the ampullæ which causes a wrong impression to be carried to the sensorium, and insubordination and giddiness is the result; the fluid in the canals is agitated, rocked or washed about, the finer nerve filaments are irritated and abused, and when this process is repeated a number of times, nausea and vomiting take place.

In the recumbent position, head low, feet to the stern of boat, in which position nature has some beautiful anatomical contrivances to prevent sickness. She has made provision for the equilibrium of the body in the horizontal position, by the change in position of the fluid at the base of the brain into the spinal cavity, in the position of the semi-circular canals on their present extremities. In consequence of these, when the body is recumbent or thrown back, the endo-lymph gravitates to the least sensitive part, and disturbance of them will not have that tendency to alter pressure. This explains why the backward motion in carriages causes nausea. In auditory vertigo we have pre-

cisely the same condition by pressure within the inner ear, decided vertigo, headache, nausea, etc. Motion sickness is a semi-physiological prototype of sea-sickness. All authorities are agreed on the point that a reversion of the movement in the semi-circular canals is a cause of nausea, vomiting. This form is most common in all steamships, with sea motion and vibration of the engine.

Second class.—Visceral vomiting, due to mechanical disturbance of the viscera; contusion of the abdominal viscera, produced by the violent heaving of the ship in a heavy sea, has a tendency to cause mechanical disturbance. Here, again, we are compelled to go back to the brain. The endo-lymph in canals follows the motion of the head, and after that motion is stopped, continues on its course for a second or two, and then moves on in its original direction. During this change erroneous impressions are conveyed to the brain, which in turn sends a mistaken message to the abdominal muscles and viscera, and they are brought into action, and complete abdominal contusion is the result. This is of the greatest importance to the viscera, altering their basis of support, and causes them to thump on each other. Besides, there can be little doubt, as the viscera are all covered by the sympathetic and the pæinian corpuscles, that their movement causes a disturbance of the centre of equilibrium. In this form vomiting is very violent.

Third class.—A mechanical disturbance of the fluid contents of the stomach gives rise to paleness, goneness and vomiting. Sea-sickness exists independent of visual impression, although it may exercise an important influence in some cases. Visual vertigo depends upon an exhaustion of the optic mechanism; but in the visual vertigo of sea-sickness there is a discord between the immediate impressions and a visceral sense of the fitness of things, which passes into a feeling of uncertainty, dizziness and nausea.

All the phenomena of sea-sickness have a rapid tendency to pass away. Nature has so constructed the organ of equilibrium that it is eminently fitted to receive impressions through the physical behavior of the contents and habit taught that organ, to convey to the sensorium within, correct information of the experience of those impressions. The ocean habit teaches the canals to adapt themselves to the new condition of things, and to pass over erroneous impressions unheeded, which were noticed at first. In fact, the new habit becomes so strong that a disturbance of it by return to land will be marked by a peculiar phenomenon, as is witnessed in the unsteady gait of a sailor, and others.

Sea-sickness teaches us that there is within us a sense of passive motion. We see it in the child being lulled to sleep in the rocking-horse, rocking-chair; horseback exercise, vehicular motion of all kinds, passive movements of the body. It is agreeable, when mild, and when in a line with the semi-circular canals; disagreeable, when the natural harmony is broken. The feeling of goneness is due in a great measure to the subsidence of the abdominal viscera in the erect posture, and irritation of the nerve centres by ceaseless movement of the ship.

Best remedies to act on canals, sulphate quinine, nitrite of amyl, pills of nitroglycerine, bromohydric acid, cocaine tablets, or coca wine.

Bandage round abdomen, recumbent posture, and, when about, face to the front of ship, etc.

The vesiculæ seminales are two membranous receptacles, situated one on each side, beneath the base of the bladder between it and the rectum. Their length is usually about two inches, and their greatest breadth from four to six lines; but they vary both in size and shape in different individuals. Their posterior extremities are separated widely from each other, but anteriorly they converge so as to approach the two vasa deferentia, which run forwards to the prostate between them. With the vasa deferentia thus interposed, they occupy the two diverging sides of the triangular portion of the base of the bladder, which lies upon the rectum, and is bounded behind by the line of reflection of the recto-vesical fold of the peritonæum. The seminal vesicles themselves rest upon the rectum, but are separated from it by a layer of the recto-vesical fascia which attaches them to the base of the bladder. Their posterior ends lie beneath the openings of the ureters.

The common seminal or ejaculatory ducts, two in number, are formed on each side by the junction of the narrowed extremities of the corresponding vas deferens and vesicula seminalis, close to the base of the prostate. From this point they pass side by side through the prostate between its middle and lateral lobes. After a course of nearly an inch they end in the floor of the prostatic portion of the urethra by two valve-like slits placed in the verumontanum, one on each prominent margin of the opening of the prostatic sinus.

Seminal vesiculitis is usually secondary to mischief in the urethra. It is a common accompaniment of gonorrhœal epididymitis, and originates in a precisely similar manner. When the

inflammatory process has crept from the urethra along the common ejaculatory duct to its termination, it is as likely to proceed along the short seminal tube to the vesicle as along the twenty-four inch vas deferens to the epididymis. I believe it commonly extends along both these structures.

I have seen the vesicles inflame secondarily to urethritis, set up by the passage of a bougie, by the presence of a stricture, by masturbation after coitus with a leucorrhœal woman, and by the elongated front of a bicycle saddle. I have seen both vesicles suppurate in one case where their inflammation appeared to be primary; at least there was no antecedent cause discoverable in the urethra.

When acute inflammation attacks a vesicle it gives rise to a swelling at the side of the base of the bladder, the greater part of which is due rather to effusion of inflammatory products into the perivesicular connective tissue than into the cavity of the vesicle itself, just as we see that in epididymitis the bulk of the enlargement depends upon inflammatory infiltration into the connective tissue between the tubules of the epididymis.

Seminal vesiculitis, like acute epididymitis, most frequently terminates in resolution. It sometimes ends, however, in suppuration, and, when this occurs, pus may make its way laterally into the ischio-rectal fossa, or may diffuse itself deeply around the rectum (constituting one of the varieties of peri-rectal suppuration), or may discharge itself by the ejaculatory duct, or may open either into the bladder or rectum, but never into both cavities together.

Some cases pursue a chronic course, distend the cavity of the vesicle, cause permanent choking of the ejaculatory duct, giving rise to a cystic swelling behind and beneath the bladder and blighting the spermatozoa.



Perfect Spermatozoa.
Sprightly, active.

Imperfect Spermatozoa,
as seen in inflammation
of the seminal
vesicles, opaque, motionless.

The symptoms of vesicular disease are essentially those of vesical irritability, resemble prostatitis, consist in uneasiness about the perinæum, painful defecation, frequent painful micturition or retention, nocturnal emissions, persistent moisture or weeping penis, with some priapism. All the symptoms are easily explained: The distended vesicle

produces a degree of pressure upon the back of the bladder in the neighborhood of the trigone, and this gives the frequent desire to urinate. Pain or uneasiness increases as the bladder

fills: nocturnal emissions, undue erections are always present, owing to the irritation or hyperæmia produced by the distended vesicle, and reflected irritation to the deep urethra and its connections.

Prolonged or ill-treated gonorrhœa, masturbation, perversion of the sexual act, bicycle riding, etc., are frequent common originators of this malady, which is affecting a very large proportion of our male population.

Modern therapeutics, which rests upon a scientific basis, has crystallized a treatment of infinite value, one in which definite results are obtained.

In all cases an efficient alterative and tonic course, with attention to secretions, bathing, diet, etc., should be pursued.

Specially the green-root tincture of gelsemium in doses ranging from five to fifty drops, three times daily is a genital sedative of the highest order; alternated with the ozonized extract of the black willow in doses of from a half to one teaspoonful thrice daily, acts as a true sedative, astringent and vitalizer of the ejaculatory ducts, and the entire reproductive area.

In the entire materia medica there are no two things which can excel these in allaying irritation of the seminal vesicles—directly sedative, nay, anæsthetic to this part of the organism. They not only control inflammatory action, but effectually check all leakages and emissions.

Their activity can also be greatly increased, and the deep-seated urethra entirely rejuvenated, by the introduction every other night into the urethra, well up to the prostate, of a bougie prepared from the glucoside of the *salix niger*.

Still further, a cocaine suppository could be introduced into the rectum, to render treatment still more effective.

There is a great variation of sight among the different races of men; the sense of sight, like that of hearing, is much greater and keener among all colored races than the white.

Vision, or sight, is performed by the brain, through the most perfect optical apparatus, the eye, by or through which the brain looks at the exterior world.

In *normal* vision in the Caucasian, between fifteen and forty-five, with a healthy brain and eye, he can distinguish an object the six-one hundredth part of an inch in size, at a distance of six inches.

Myopia, short or near-sightedness, may be said to exist when the distance at which ordinary type can be read is less than

twelve inches, and when near objects can be seen distinctly, bright light aggravating the condition.

Near vision may be hereditary, a typical type of conformation; usually too great a convexity of the cornea or crystalline lens, or both. It may also be due to lengthening of the eye-ball, to an undue density of its refractive media. The rays of light from objects at usual distances are brought to a focus before reaching the retina, instead of being concentrated upon it.

Overcrowding in our public schools in large cities is most productive of myopia. It is brought about by a low form of purulent ophthalmia, which is always present where density of population, insanitary conditions prevail. Want of phosphates in children's food is a common cause. This is often caused by the introduction into bread of alum, to whiten, but which destroys the elements of brain and bone nutrition. Adulterated food (cerebral starvation) and overcrowded schools are manufacturing a myopic race of children.

Masturbation in both sexes is a cause. Permitting lights in sleeping apartments deprives the eye of its natural rest in darkness, hence this is a common cause. Overwork, excesses, reading by gas-light and oil lamps, etc., are causes.

Long-sightedness; an alteration in the refractive power of the eye, producing presbyopia. It is always associated with weakness of vision, an indication of cerebral atrophy, of approaching old age, often a precursor of glaucoma, vision imperfect for near objects; distant ones clearly seen.

Weakness of vision, asthenopia, eyes weak, but appear normal; inability to read or write for any length of time, usually associated with headache and *muscæ volitantes*.

Color-blindness, an inability to discriminate between certain colors, an affection of vision of the greatest interest to the general public, as regards the exclusion of affected individuals from the position of engineers on railroads, signal-men, pilots.

Quakers and Jews are most affected with it; in the former it is brought about by a marked characteristic, a general coalescence of the typical fissures of the brain, induced by monotony, sameness, isolation; a condition often present in insanity, epilepsy and other low types of the human brain; in the latter class relationship or consanguinity wipes out the mental characteristics and obliterates the convolutions. This in-and-in breeding, as well as solitariness, predisposes to suicidal mania and causes color-blindness.

The average per cent. of color-blindness among any given people will depend upon the preponderance among them of Friends and Jews, or persons who possess the same characteristics. It

always diminishes as we ascend the social or educational scale. Among deaf mutes the percentage is even greater than the two classes mentioned. Intermarriage is not only a great factor, but the same law extends to temperament and races. Intermarriage not only creates the defect, but aggravates it, causing the most intractable form, which is red blindness. There is also to be found an unusually high average of color defects among the children of either fathers or mothers who work among colors. Trades requiring great concentration of sight, as engraving and watchmaking, seem to bring it about. Women are equally affected with men. The average percentage in people of low civilization or culture is great; among deaf mutes, ten per cent., and among Friends and Jews, about six per cent.

Color-blindness is a defect which is quite compatible with perfect vision in other respects. Color-blindness is found to exist in three forms:

1. Inability to distinguish any color, properly so called; black or white, or light and shade.
2. Inability to distinguish between nicer shades of more composite colors, as brown, gray and neutral tints.
3. Inability to distinguish between primary colors; red, blue, yellow; or secondary and tertiary colors, as green, purple, orange.

In the latter form there is a defective appreciation of all colors. Little good results from any treatment; and as there is about one per cent. of the entire population affected, care should be exercised by railroad officials, pilot boards, etc., that no affected person be employed, so as to avoid serious accidents.

Convexity of the cornea from above downwards, or from side to side, gives rise to an inequality of the refractive power of the several meridians of the eye (astigmatism). It is often considerable, and interferes with the sharpness of sight.

Oversight; a condition in which the refractive power of the eye is too low, or the optic axis too short; consequently when the eye is in a state of rest, parallel rays are united upon the retina, but behind it, and only convergent rays are brought to a focus upon the latter. Distant objects are not seen clearly; eyes look smaller and flatter than in health; likely to be headache, dull pains in the eyes, with heat and fulness; when reading words run into each other.

There are a very large variety of drugs which affect the brain disastrously, and cause weakness of the optic nerve, "*amblyopia*," such as morphia, tobacco, chloral, and the long list of hair washes and dyes.

Double vision may be due to the use of drugs, such as gelse-

mium, or to some irregularity of density, or paralysis of the muscles of the eye-ball.

Night blindness, or day vision, hemeralopia, is common among travellers, soldiers, sailors, in tropical countries, brought about by long exposure to intense sunlight, or to the reflection of the sun's rays on the white sand of the desert; this exhausts the sensibility of the retina. It is occasionally a symptom of scurvy, of sexual excesses, masturbation, and organic changes in the brain.

Intolerance of light, photophobia, is a constant prevailing symptom of all inflammatory conditions of the eye and brain.

A dilated pupil, mydriasis, is invariably present in all states of cerebral anæmia, and gives rise to imperfect vision. It may be induced by the use of acro-narcotic drugs, especially belladonna.

A contracted state of the pupil is present in all states of congestion of the brain (myosis), and it can also be induced by the use of calabar bean. Certain trades, in which they are compelled to look at minute objects, as watchmakers, wood engravers, acquire it. Great obscurity of vision in a weak light.

Vision is often most powerful or acute during twilight, myctalopia.

Specks or spots before the eyes—*muscæ volitantes* are present. When the vital integrity of the brain is lowered or depressed, and either anæmia or hyperæmia is present, the nerve filaments that supply the aqueous humor and vessels of choroid are relaxed. If the debility be great, vessels take on varicosity; and when the brain looks through the eye at the external world, it sees the varicose vessels, tortuous, and anastomosing in every conceivable form, and it then compares them with objects seen or described in the external world; if depression be not very great they will be compared to small objects, as flies, specks, spots; if depression be great, the vessels are greatly engorged; then the patient will compare them to large objects, as men, devils; they are real, no hallucination, as the patient sees them in his own eye. It indicates brain exhaustion, in a mild or aggravated form.

Protuberant eye-balls are present as a symptom in tuberculosis, in all its varied forms.

Why we sleep, and how we sleep, are questions still awaiting solution. The periodic suspension of the activity of the superior nerve centres is the dominant character of sleep; even the automatic centres for the respiration and circulation are less energetic, so that the breathing is slower, pulse quieter.

The variations of the cerebral circulation present a certain relation with the alternation of sleep and wakefulness, but these variations require an explanation, they do not suffice for any theory of sleep. The great, nay vital, importance of oxygen in keeping up the activity of the tissues once recognized, its less absorption, giving rise to anæmic states of the brain.

An active state of the brain cells necessarily gives rise to waste, a sensation of fatigue; and those fatigue substances operate by monopolizing the oxygen, sleep follows by default of this agent. The products of exhaustion are continually forming within the brain when active; that their accumulation brings on sleep, and that during that process they are eliminated by the blood which passes through that organ.

All organic activity gives rise to products of exhaustion, to the formation of a substance termed "*ponegenes*," which accumulates in the brain during wakefulness, and being very oxidizable, terminate, by diverting to their own profit, the oxygen destined to keep up the activity of the different glands, muscles and brain, in such a fashion as that the mental acts and voluntary movements are depressed, the organism falls asleep.

Among the ponogenic substances are lactic and uric acid, and a group of bodies closely allied to them.

It would thus appear that there is a sort of self-regulating mechanism in the body, by which sleeping and waking are made to alternate. During the waking hours soporific products are formed, and these, gradually accumulating, will by-and-by induce sleep, while during sleep stimulating products are formed which, after a certain number of hours, will stimulate the brain to wakefulness.

Microbes in the throat are common in all
Sore-Throat. diseases.

From breathing microbe-laden air, from relaxing and damp weather, or living badly and working hard, will in the end produce a relaxed condition of the throat. For this, pure air, better food, and swabbing or gargling the throat with a solution of tannic acid and chlorate of potassa, to which a few drops of peroxide of hydrogen is added, is the best remedy. *Sore throat* is common among those exposed to the vicissitudes of weather. It is a common, universal symptom or indication of the presence of the micrococci of scarlet fever or the streptococcus of diphtheria; it may follow a shock from cold, damp, or excessive talking. It is common in 99 cases out of 100 in all persons who have had syphilis or tubercle; in

all individuals who are close to or near by any syphilitic or tubercular individuals.

The hoarseness, or soreness, or the ulceration are due to the inroad or deposit of those two bacilli.

It is preposterous in this microbial age to look for anything else.

Look for the brown copper-colored mucous membrane, with yellow flakes of pus; the impress, the stamp of syphilis; or the pale mottled mucous membrane, with cheesy specks or particles, the insignia of the tubercle bacilli. Those microbes work silently, there is neither pain, nor rawness, nor redness.

Inhalations of glucozone are most effectual in killing and rooting out those microbes. Its daily use sterilizes the mucous membrane, renders it unfit for their deposit and growth.

Convulsions in young children, subject to laryngitis (spasmodic laryngitis); they are respiratory convulsions, but may become universal. I suggest that the age of the patients, the fact that there is a manifest impediment to respiration at the gateway of the respiratory apparatus, and the occurrence of the attacks mostly at night (in sleep), point to an over-stimulation of the respiratory centres by too great venosity. If so, the hypothesis that attacks of laryngismus are similarly caused is favored. "Spasmodic" laryngitis usually occurs in children under two or three years of age; the attacks usually occur suddenly during sleep, and the next day the child may be seemingly well, except for a little hoarseness and cough; the attacks are sometimes mistaken for laryngitis.

Treatment of Inward Fits.—Let us now see if the results of treatment favor the hypothesis put forward. It is good practice not to let the child who is the subject of laryngitis sleep too long at a time; not to let it remain too long in a condition favoring venosity; I suppose the same applies to laryngismus stridulus, to which morbid affection I confine further remarks on treatment.

It is understood, of course, that attention is given to diet, digestion, and state of the bowels. No one fails to treat the rickets, the approved medicine being kephaline. The good effect of the highly valued remedy, cold sponging, favors my hypothesis; manifestly it will stimulate the respiratory centres. So do the good results of carrying the child out, even in cold weather, and change from town to country air. The several remedies will tend to reduce venosity.

Now for drugs, more especially in the treatment of what we

call laryngismus itself. The best remedies should, on the hypothesis, be those which stimulate the respiratory centres. Of special drugs fl. ext. musk-root and belladonna are most useful in laryngismus stridulus. The former can be given to a child of twelve months old in doses of one-half teaspoonful every six hours, and will be found to have a powerful influence in checking the tendency to spasm. Belladonna, to be of service, must be given in sufficient doses. The comp. tincture of lobelia is a never-failing remedy; it should be administered in small doses, frequently repeated; con. ozone applied to the throat and chest is good. Musk is a stimulant to the respiratory centres, as is also belladonna. It is well known that children tolerate large doses of belladonna; bearing in mind Soltmann's researches, this may be because in them it acts more as a stimulant, or rather that the parts it can render negative (inhibitory and secretory nervous arrangements) are not largely present in the infant to be paralyzed.

Chloral is a remedy for fits of laryngismus lauded by high authorities. It is the best remedy for a rapid succession of fits of any kind; for putting an end to the seizures, that is. It is not, I presume, actually curative of the morbid condition inducing them. It may be given when fits of laryngismus are frequent.

Now for treatment after the paroxysm. When the fit is over, the child usually comes round spontaneously. But supposing that after a severe attack respiration no longer goes on. The respiratory centres are exhausted, or what remains of them unexhausted is not enough to produce respiratory movements; the child is seemingly dead. There is paralysis of the respiratory apparatus after respiratory convulsions, just as there may be of a limb after an epileptiform convulsion which had affected that limb first and most. Here we must bear in mind that after asphyxia fits produced in lower animals, the heart, as a rule, continues to beat for a short time after respiration has stopped. Hence if luckily present when a child is seemingly dead after a fit, we should give him a chance of recovery by artificial respiration. We should not waste time to see whether the heart has or has not stopped.

Spasm of the Bladder

means the violent and uncontrollable action of some particular set of muscles. Spasms are generally described as of two sorts, viz., *tonic* and *clonic*. In tonic spasms the muscles of a part contract violently, and remain rigid and immovable by the will of the patient for a greater or less length of

time. Such contractions occur in tetanus and in ordinary cramp. Clonic spasms again consist in sudden contraction and relaxations regularly alternating. The jumping of the legs and arms, which occur under certain conditions, are examples of this.

All muscular structures are liable to attacks of spasmodic action; the bladder having such a coat is frequently affected with spasm. Spasmodic attacks are accompanied with great pain, as well as contraction.

Causes.—The presence of a stone in the bladder; disease of the rectum or uterus; abscess of kidney; an inordinatd amount of uric acid; ulceration of the walls of bladder; disease of prostate gland; excessive sexual congress; hysteria; the use of drastic diuretics or emmenagogues, as oil of turpentine, juniper, cantharides, savin.

Symptoms.—Severe pain in the lower part of the abdomen, extending to urethra. There is either continence or incontinence, or dribbling of urine. The difficulty is not so great when the urine flows involuntary; when there is retention, with urgent desire to micturate, and tenesmus, with inability to do so, suffering is great. If allowed to continue, may terminate fatally.

Treatment.—If patient is seen during the attack, hot baths, enemata of warm water and lobelia; fomentations or poultices, with belladonna, linseed poultices, with lobelia and belladonna; suppositories of opium and belladonna.

Internally, mucilaginous drinks, with cream of tartar and nitrate of potass; either the compound of lobelia, valerian and capsicum, or else sumbul and tincture of green root gelsemium.

When attack is over, removal of cause, alteratives and tonics, iodide potass and sulphate of quinine.

Diet regulated, an avoidance of all stimulants; tea, coffee, warm clothing; forbid horseback exercise, or sexual intercourse; use appropriate remedies as to cause.

Spasm of the rectum; contraction of the
Spasm of sphincter muscle accompanies ulcer of the mucous
Rectum. membrane that covers it.

The spasmodic condition is distinguished by the absence of pain after defecation, and an examination of the bowel will show no stricture.

The treatment of spasmodic contraction of the bowel is best effected by a general course of nerve tonics to remove the nervous irritability of the system, and the use of the cocaine suppositories.

There is very frequently met with in highly developed and intellectual ladies and in neurasthenic males a neurosis of the nerves of the rectum, which gives rise to frequent spasm, with painful defecation, and constipation; a state which is either brought about or aggravated by emotional states, without any ulcer or breach of surface. This state yields to alteratives and tonics with the use of the cocaine suppository.

If this treatment fail, seclusion, rest, forced feeding, massage and electricity.

Some of those cases are very troublesome. Lack of nervous co-ordination of the sphincters and irritable bladder; painful coition, asthma, difficulty of breathing, aphonia. In strict neurosis the sphincter develops chronic spasm as well as neuralgia, which gives rise to great exhaustion after any motion of the bowels.

This term is applied to the flowing away
Spermatorrhœa. of the seminal fluid, and designates all varieties and forms of spermatic losses, which occur beyond the limits of health.

True spermatorrhœa, or seminal incontinence, the flowing away of the spermatic fluid, is primarily dependent upon weakness, or exhaustion, or neurasthenia, with increased impressibility, mobility, or excitability of the genito-urinary spinal centre, phenomena usually induced and perpetuated by hyperæsthenia of the nerves which supply the prostatic portion of the urethra, induced in nine cases of out of ten by masturbation.

In seminal incontinence there are three conditions which may exist separately or be blended together.

1. Nocturnal emissions, which occur during sleep, attended with an erection, *pleasurable sensation*, erotic dream.

2. Emissions during the day, excited by slight mechanical or physical causes; incomplete erections, diminished sensation, and no erection.

3. Spermatorrhœa proper, in which there is a continual flow of semen from the urethra, without erection, sensation, or during urination or defecation.

In the first form, namely, involuntarily nocturnal seminal discharges, we have the bulk of the affection. This is common to all men after the epoch of puberty, especially if they lead a chaste and virtuous life. Their frequency may vary with the condition of life, age, climate, habits, constitution, temperament, diet, precocity.

Their frequency varies greatly. Single men, who live a moral life of contentment and possess an inherent vitality, sound

nervous system, healthy occupation, mental and physical, strictly avoiding all the unhealthy literature and debasing amusements, may have no emissions, no leakages of any kind, still, if he had an emission not more frequent than one every two or three weeks, it might not be inconsistent with a high standard of health. If such were the case, it would merely exhibit a slight weakness, or merely a reflex sign of fulness or distension of the seminal ducts.

Ungratified sexual instinct in those whose nervous systems are slightly impaired is apt to be followed by emissions, but if these are not any more frequent than what has been stated and are not followed by languor, headache, backache, dimness of vision, and noises in the ears, with mental depression, etc., they are not regarded as very materially wrong, although we see in them a precursor or indication of an impairment of the sexual appetite at the base of the brain.

In the second form, where the afflicted individual has emissions, or ejaculations, or leakages during the day, we have a clear case of nervous bankruptcy, combined with weakness of the genital organs and of the reflex nerve centres. In such cases, the slightest degree of peripheral irritation, as the friction of the clothes, the crossing of the legs, horse-back or bicycle riding, driving on rough roads, reading libidinous dime novels, attending variety theatres; looking at indecent pictures; or the *full bust of a beautiful woman* excites in their mind lascivious ideas, and emissions. In such a case, if there is an erection, it is but partial, as the penis is flabby and flaccid.

In the third form there is a true condition of seminal incontinence; there is a moisture, or leakage all the time, a passive loss, without the concurrence of the organism, and this oozing, leakage or partial ejaculation is associated with positive physical symptoms, such as a dilatation of the orifices of the ejaculatory ducts, from atony of their muscular fibres; great and unconscious discharge of semen at stool and in urinating; an irritable weakness of the seminal vessels and dilatation, with atony of the ejaculatory ducts. Spermatic fluid escaping all the time, and the spermatozoa are so feeble, so infertile, that they die in their escape, and we have azoospermorrhagia, or the passive loss of barren semen.

Inflammation of the prostate urethra invariably exists, which leaves the mouths of the ejaculatory ducts open, patulous; this is very frequently a result of masturbation, or chronic inflammation from gonorrhoea, or bicycle riding, or from lifting heavy weights, the seminal vesicles are injured, and the semen oozes out.

Any of those three forms may exist separately, or they may be

blended together, or the one pass into the other, beginning with the mild form and proceeding from bad to worse, giving rise to a general train of symptoms.

Emissions increase in frequency and severity, erections become most feeble, ejaculation on coition is precipitate, general nervous debility, pain in the back of the head, dilated pupils, muscular languor, mental incapacity, slight paresis of the brain, dulness of perception; impairment of memory; vertigo, mental dejection; weakness of vision; trembling of the limbs; palpitation of the heart; shortness of breath; a sense of oppression in the chest; flatulence, constipation, dyspeptic symptoms. Daily losses, due to mechanical or psychical causes, are soon followed with leakages all the time, with no erections, no pleasurable sensations whatever, sexual intercourse is impossible, being impracticable either from the flabby or feeble premature erection; or the wasted state of the parts, or the general nervous bankruptcy present.

The patient becomes progressively worse, he broods over his lost virility, great mental depression, which passes into hypochondriasis. His gait becomes unsteady, he is erratic, he suffers from neuralgic, rheumatic pains; headache; hands and feet habitually cold and clammy; insomnia; shuns society; fears to look any one in the face; utterly incapacitated for mental and physical exertion; thinks of nothing but his genital organs, dejected, vertigo, noises in the ears, specks and spots before the eyes, muscular weakness, trembling of the limbs, crackling of the joints, chilliness, indigestion. There is increased irritability of the prostate urethra, and brain and spinal cord; these suffer fearful exhaustion from the persistent and constant oozing, which daily becomes augmented. His mental status merges silently into epilepsy, chorea, ataxia, insanity, or other nervous disorders.

Spermatorrhea then or the flowing away of semen, however, induced, terminates in a functional derangement of the nervous system, which is apparent from the increased sensibility of the brain and cord, or feebleness of the powers of life. No one can shut their eyes to the fact that our literature, amusements, exciting erotic ideas, are powerful factors in the production of an irritable state of the genital organs. Seminal incontinence is usually acquired by those erotic ideas, superadded to which masturbation, sexual excesses, or unsatisfied sexual desire, produced by toying with females, or sexual perversion if the act of coition can be consummated, and like conditions, give rise to exaggerated irritability of the genital organs, which is soon followed by inflammation of the prostate, patulous, dilated, or relaxed state of the ejaculatory ducts, with the nerves of the part morbidly sensitive, and out of gear.

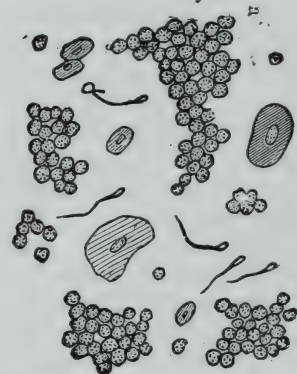
In addition there are numerous local exciting causes, as phymosis, retention of the sebaceous secretion around the corona glandis, tetter, narrowness of the meatus, diseases of the rectum, especially ascarides, or fissure, or pruritus, or piles.

The rectum being supplied with the same nerves there is the finest degree of sympathy between it and the seminal vesicles.

Promiscuous sexual intercourse debilitates the sexual organs and inevitably brings about an oozing of semen. Certain trades, as photographers.

The only correct method of diagnosis in all cases of spermatorrhea is to make a microscopical examination of the discharge which constantly oozes from the urethra. A microscope of five

hundred diameters is sufficient. Their urine, if there is no moisture apparent, will demonstrate or exhibit a class of objects devoid of living spermatozoa, but will show numerous dead or variously deformed small, motionless bodies, incapable of fertilizing any ovum, however vigorous that may be, or a No. 12 catheter could be inserted up to the prostate urethra and enough of fluid obtained to exhibit an exhausted, watery fluid, devoid of living elements. If not cured insanity is the termination.



Spermatozoa as seen in the urine of patients suffering from seminal weakness.

A chemical examination of his urine will demonstrate the state of his brain, and very likely show that instead of there being six per cent. of vitalized phosphates that it is reduced to two and a half, a state of things which exist only in incurable cases of insanity.*

Self-abuse is an etiological factor in a large number of cases of insanity, but only those cases should be designated as insanity of masturbation in which the connection between the excesses and the symptoms is direct. Self-abuse, to produce insanity, must have been carried very far, or the subject must be predisposed. Often onanism can be traced in other members of the family, and very often it is found that the maternal ancestry is a weak one. Mania, melancholia and epilepsy occasionally occur in young masturbators, the former two usually having a favorable prognosis. Stuporous insanity and katatonia are both common, and the former presents good prospects. The forms thus far men-

*The chemical constituents of the average brain of man, in health, is in one hundred parts: Water, seventy-five and a half; albumen, seven; fat, eleven and a half; various salts containing phosphoric acid, six.

tioned when occurring in masturbators present no essential difference from the typical psychoses. They should therefore be designated as mania, melancholia, stupor, etc., *from* masturbation, and not as masturbational insanity. There is a chronic delusion of insanity in grown persons who have been devotees of self-abuse, and it is usually a hypochondriachal *paranoia*. Clinically, it is very like typical paranoia, and etiologically it is not the direct result of self-abuse, but rather of an intermediate neurosis, a cerebrospinal irritation which is due to self-abuse. Finally, there is a form of insanity developing about or after the period of puberty which does merit the name "masturbational insanity;" it is chronic, has a tendency to agitated dementia, is characterized in its early period by anxiety, timidity, suspicion, fear and a cowardly, mean disposition. Later there are confusion, meddlesome, aggressive behavior, vague delusions, loss of memory and deterioration. After these are observed spells of fury or destructiveness. This form is never due to any other cause, and resembles no other form of insanity than the one already alluded to.

In forming an accurate prognosis of the case it is not by any means so unfavorable as many would think, as a rule they yield readily to treatment, provided the prostate is not hypertrophied, or there is no stricture, hæmorrhoids or no chronic inflammation of the seminal vesicles, or sexual hypochondriasis. Cases brought on by bicycle riding, the use of chemicals, as in photography or gonorrhœa, or sedentary habits; any cause but masturbation.

Spermatorrhœa from onanism, sexual perversion, are more intractable than from any other cause, as the brain waste is greater.

We give a synopsis of the *treatment* of spermatorrhœa. In all cases of involuntary seminal emissions there are certain rules which must be observed, such as bathing the entire body daily, followed by brisk friction or massage, the shower bath; the diet should be light but very nutritious and easily digested; all stimulating articles of food carefully avoided, as well as alcoholic and malt liquors. Before retiring at night the bladder should be completely emptied, and the patient should sleep upon the right side, on a hair or straw mattress with as little covering as possible. An alarm clock should be set, so as to awake the patient at an early hour, so as to empty his bladder, as a full bladder induces erections. Interdict sedentary habits, horse or bicycle riding, or driving over rough roads, or toying with ladies, or reading sexually exciting literature or shows. Everything calculated to excite erotic thoughts or dreams avoided, mind and body should

be occupied with healthy exercise. Causes, as far as ascertained, should be removed, the corona glandis should be bathed two or three times a day, the anus and rectum should be thoroughly syringed out with a solution of boroglyceride or infusion of Virginia stone crop. Remove all sorts of irritation; even an elongated prepuce keeps the sensitive glands of the penis constantly moist, and favors the collection of sebaceous secretion. Herpes of the prepuce, stricture, piles and fissure, puritus, habitual constipation, varicocele should if possible be speedily cured. True, of all the exciting causes, the most common is an inflamed or irritated prostate, urethra.

In all cases of seminal incontinence the remedies to commence with are those which would be the most likely to overcome the sensibility of the mucous membrane of the urethra, the ejaculatory ducts and seminal vesicles—to diminish the reflex excitability of the genito-urinary spinal centre.

To accomplish this, a sitz-bath morning and night, drying the parts well and then bathing them with a distillation of hamamelis, wearing a suspensory during the day.

The remedies which have a calming, sedative effect are to be selected from some of the following, which we arrange according to our idea of their efficacy:

The green root tincture of gelsemium in doses from a few drops up to such a dose as will give its peculiar physiological action, administered on retiring, diminishes the sensibility, the reflex mobility of the genito-spinal centre, paralyzes the movements of the cells of the acinous glands, and checks their secretion, so it can on no account be dispensed with. It is an invaluable remedy.

Numerous acro-narcotic drugs have a very similar action, such as digitalis, belladonna, hyoscyamus, coca erythroxyton.

Another invaluable remedy for the cure of spermatorrhœa, and the arrest of diurnal or nocturnal emissions, is the salix nigra, or the fluid extract of black willow bark. This is a sexual sedative of the first order, superior in its action to the bromides, but without their depressing or deteriorating qualities.

This drug is a tonic, carminative, stimulant and germicide, with a special action upon the sexual appetite in the brain, and when this centre of inhibition gets out of gear, it gives excellent results.

It is a remedy of great value in all forms of prostration and spermatorrhœa, controls emissions most effectually.

The appropriate dose is about half a teaspoonful thrice daily.

The resinoid of the black willow bark is also made into a urethral bougie and applied, and into a suppository, and used with marked success.

The use of the ozonized extract of black willow bark is indicated in every case of spermatorrhea whatever other remedies are being used, a mixed treatment is always the most salutary.

The cocaine suppository is a preparation especially adapted to weak, nervous debilitated men, who have suffered from those discharges for an indefinite time.

The very celebrated spermatorrhœa pill which is composed of the following abstractæ: Cocaina, jerubalum, hypophosphite of lime, gelsemium, and extracts of ignatia and leptandra.

Tonics should follow the sedative plan of treatment. A general tonic course, embracing such as columbo, stone crop, cinchona and mineral acids, coca.

Oats in the form of a phosphated tincture is an admirable tonic for those cases; alone its action is unsurpassed, but better still when alternated with damiana and ignatia.

Of local remedies, the organized soluble gelatine bougies are the best; they hold the first rank, especially if there is a limited or circumscribed area of inflammation and tenderness including the openings of the ejaculatory ducts.

Those bougies have entirely superseded all the older methods of treatment—they are most efficient especially when prepared fresh, from thallin, beberine, brucine, arbutin.

Under good management recovery is the rule, but in some few rare cases, it may happen that the reflex genital centre is still impressible, in which case a few doses of the ozonized sumbul will prove highly serviceable.

If there is reason to suspect dilatation and atony of the ducts, the bougie should be run right up to the prostate-urethra and retained there, and permitted to dissolve and be absorbed.

Spermatorrhœa, if not cured, will give rise to wasting, and atrophy of the generative organs; to white softening of the spinal cord and brain; to suicide, insanity, and death.

A healthy man, who never masturbated, may have unnaturally small or atrophied organs of generation, and be able to perform the duties of married life, although rarely in a satisfactory manner. Very different however with the masturbator, he not only has seminal disease, or impotence with either dwarfed spermatozoa, or none at all, with wasting and stringiness of the testicles and smallness of the organs.

It is true some cases of smallness of the genital organs may be congenital, but its common origin is the damage inflicted by masturbation, by unnatural excitement without gratification; by withdrawal, non-completion of the act; by wearing condoms; mumps; gleet; stricture; paralysis; blows on the head and spine. These, and numerous like causes, produce wasting and

imperfect development. No one can be surprised that it is very prevalent, as nine-tenths of all patients suffering from spermatorrhœa are its victims. This is an appalling truth, visible in marital infelicity, quarrels, dissension, desertion, suicide, or else a life of shame and disaster.

Eminent chemists, scientific physicians of all schools, men of profound intellectual calibre, are earnestly and vigorously at work in the discovery of remedies to destroy the germs of disease, and to some extent have succeeded in revolutionizing the art of medicine by their discoveries.

The time is ripe for important discoveries in new remedies to vitalize the genito-urinary tract.

Spermatorrhea and impotence are now being cured by eminent specialists, who bring to bear on their cases a class of powerful drugs which wipe out every symptom of lost vigor, and cause the weak, debilitated victim to become strong, healthy, and vigorous. The vitalized principle of the brain, "cerebrin" in kephaline; the "avena" in oats; the vital element of thought; the glucoside of the saw-palmetto and damiana are growth-fostering remedies to the genital system, to the ganglia and plexus of both penis and testicle, and do good work in sexual atrophy. Electricity must not be despised. Cold water hip-baths, retracting the prepuce, and bathing the corona-glandis with castile soap, thrice daily, and then drying. After each bath, the following developing powder should be applied; rubbed all over the penis and scrotum, and kept constantly in close approximation by means of a suspensory bandage.

The formula for this developing powder is: Take the oil of saw-palmetto, and digest it in peroxide of hydrogen for two weeks, then evaporated to a resinoid, which is triturated in pulverized boroglyceride until it makes a fine powder.

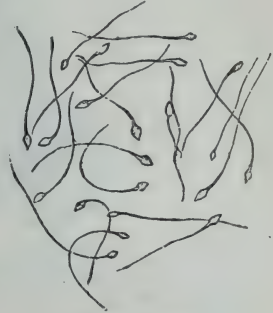
How well, how efficiently this powder acts is proven by experience in a large number of cases. It causes a determination of blood to the penis and testes; promotes molecular growth in a large number of cases; it is rapidly absorbed by the vessels, and would almost seem to furnish nourishment to the parts. Although it is a powder, the moment it touches the skin it is taken up by the absorbents, permeates every cell and fibre of the part, acts with increased force and rapidity on the wasted vessels and tissues; fostering growth, imparting power and vigor, with acuteness of sensation; in short, restoring the weak and wasted muscles to tone, vigor, strength and size.

The practical application of this principle and the internal use of vitalized kephaline and oats, meet the wants of a large class of men, helpless and useless (sexually), and the attention of the members of our profession to this subject is a step in the right direction.

Spermatozoa. Human semen (healthy), as seen in the field of the microscope, magnified 600 diameters, five minutes after ejaculation.
(Healthy.)

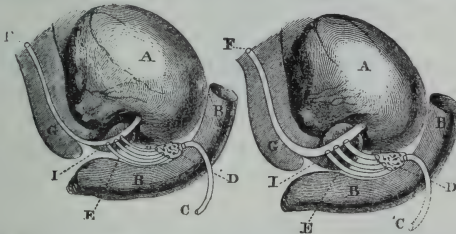
The seed of a Caucasian, the fertilizing agent secreted in the epithelial lining of the tortuous seminal tubes of the testes.

At puberty in man, the seminal tubes are filled with cells, from which the spermatozoa are developed, they are set free by the bursting of the cell walls, and arrange themselves in parcels, symmetrically placed, with the so-called heads in one direction, and the tails in the opposite. The spermatozoa are clear hyaloid bodies, each of which consists of a dilated portion (the head or body), from which a long tail or filament issues. The head is flattened from side to side, and of a conical form, the pointed extremity being anterior, terminating in a long tapering tail which is in rapid undulating motion, and which propels the head directly forwards.



Spermatozoa.

These movements may continue for twelve hours or longer, after they are ejaculated into a healthy vagina, but if they are exposed to cold or acidity, they seldom live over thirty minutes.

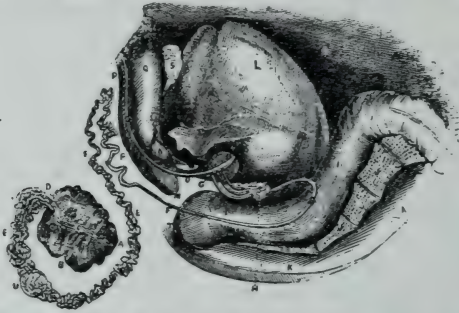


A, the bladder; B, B, the lower bowel; C, the spermatic chord which conveys the seminal fluid from the testicle to D, the vesiculæ seminales or seminal reservoirs; D, the vesiculæ seminales; E, the seminal ducts entering the urethra through the prostate gland; F, the urethra; G, a part of the penis showing the urethra cut open; I, the prostate gland. FIG. I, shows the prostate gland and the seminal ducts in their healthy state.

The recognition of different discharges from the urethra is of vital importance.

Spermatorrhœa, or the flowing away of semen, is readily distinguished, although complicated, by the general bankrupt state of the nervous system, the careworn, haggard appearance, the withered, wasted, pendulous state of the testicle, the indurated

epididymis; besides, there is always a slight, almost imperceptible discharge from the urethra, most frequently seen after urinating, or defecating, or when in the society of females.



A, the body of the testicle; B, B, the tubuli testis; C, the rete testis; D, the vasa deferentia; E, E, the epididymis; F, the vas deferens; G, the ducts which convey the seminal fluid to the prostatic portion of the urethra, and when open allow the seminal fluid to escape with the urine, and on going to stool; H, the vesiculæ seminales, showing the spermatozoa conveyed by the vas deferens from the testicles; I, I, I, the rectum; J, J, the division of the vertebræ; K, K, the skin divided; L, the bladder; M, the bulbous portion of the urethra; N, the corpus spongiosum; O, O, the urethra; P, P, the corpora cavernosa; Q, the body of the penis; S, the symphysis pubis; T, the anus; U, the epididymis indurated, which explains how impotency is produced by preventing the seminal fluid passing to the vesiculæ seminales.

Seminal discharges are frequently mistaken for gleet and prostaticorrhœa, especially if the patient has had repeated attacks of gonorrhœa, or indurated chancres in the urethra, whereby the urethra has become thickened, or if the prostate has lost its tone.

It is a matter of great importance to know in all cases what we have to deal with, to distinguish the gonococcus of gonorrhœa; the spermatozoa of the seminal secretion; the discharge present in gleet, or that peculiar to catarrh of the prostate; or to a concealed urethra chancre, as each requires a different mode of treatment.

To the microscope we are indebted for the means of unequivocally being able to discriminate between the different discharges.

It may, however, be remembered, that the *gonococcus* is never present in the urethra without some pain, heat, redness, swelling, due chiefly to the micrococci burrowing in the follicles of the mucous membrane; when the discharge is chiefly *spermatic*, it is glairy, starchy, like the white of an egg, glueing the lips of the orifice of the urethra together; whereas, when from *ulcer*, either in the urethra or prostate, or *stricture*, usually greenish. As we have just stated, no reliable diagnosis can be effected without the microscope, aided by urinary analysis.

|| The annexed diagram shows the appearance and the location of the three principal discharges.



A, C, and D, represent the appearance of the discharges in spermatorrhœa, gonorrhœa, and syphilis. The dotted lines on each side of F point to the seminal ducts.

True, the spermatorrhœa are often mutilated and mixed with the other secretions, and are difficult to detect.

This may be looked upon as a prolongation
Spinal Cord. of the brain downwards. It lies within the spinal column in the vertebral canal safe from any external violence, unless the injury be very severe. It sends off on each side numerous nerves which supply every part of the body. Like the brain, it is covered by three membranes, and it consists of two portions, a gray matter, where various nerve-cells are met with, and a white portion, which is formed of nerve-

fibres, which convey motion and sensation. Any injury to the cord will cause more or less loss of motion and sensation in the parts below, and then paraplegia is said to occur. The cord is liable to inflammation, and the patient is said to have myelitis; to chronic degeneration, causing progressive locomotor ataxy; to cancerous and other tumors, causing paraplegia; to destruction, through fracture or dislocation of the vertebræ surrounding it; to concussion, as in a railway accident, and to inflammation of its membranes, or spinal meningitis.

The medulla oblongata, the seat of reflex action, is the connecting link between the brain and the cord, and all nerves of the body, have more or less a common connection with the medulla, the bulb of which is the common centre or fountain of nerve supply, the spinal cord being but its prolongation, not so highly organized as the medulla, but nevertheless a reflex centre from bulb to sacrum.

All irritations from organs are transmitted here by the gray or efferent nerves to the root or origin of the nerves that supply that organ, in other words, the same kind, quality, or intensity of irritation is transmitted to the origin of the nerve which supplies it; the same irritation exists in the cord as is present in the periphery or terminal end; that when the disease in an organ is removed, it is still necessary to wipe out the irritation at its central origin in the cord.

Like the brain proper, the cord is covered with serous tissue which secretes a nervo-vital fluid for its protection, when the structures are so devitalized that they fail to secrete this fluid, and the brain and cord rest against their bony casement, there is trouble and often a puzzling problem to the physician.

There are thousands of weak, nerveless men, who do not know what ails them; thousands of invalids, whose physicians are puzzled and perplexed by their symptoms and cannot account for the rapid waste of strength, energy and vitality, much less check it; and thousands of others, on the street, in the pulpit, on the bench, in the counting room, whose nervo-vital troubles, illness and misery are due to losses of vital fluid. Some know it, many more do not. Some are being properly or improperly treated for it, many are being dosed and drugged for malaria, neurasthenia, consumption, overwork, brain troubles, paralysis, etc. They sicken, die, destroy themselves in hopeless despair of ever getting well and strong again, verge into hopeless idiocy or go raving mad, simply because their trouble is not understood; because day by day and hour by hour there is draining from them in their urine, at stool and otherwise, that precious nervo-vital fluid that represents life, health and energy to them.

And is it surprising that the continual losses do drain away strength and vitality? This fluid is the most vital, intrinsically, the most valuable in all nature; is the only one charged with life—actual life; capable of producing life; of creating offspring; of impregnating and developing into perfect being with thinking and reasoning brain and mind, pulsating heart, expanding lungs, sentient nerves, motive muscle, and all that beautiful, minute, and co-ordinate mechanism that forms a perfect human being; the only secretion in the body capable of propagating species; carrying life within life.

Surely this was not meant for waste. Surely the influence of its loss upon the system, especially of a boy or young man (growing and not fully developed) must be great, and it is. Many and many a young man thus wastes away before the eyes of his friends from no other cause. How much better if all this false modesty, social hypocrisy, and blundering medical dosing and drugging, without thorough examination and full understanding, were wholly done away with, and the young men and old men too, were brought to understand two cardinal facts:

The causes of spinal irritation, poverty of the nervo-vital fluid, spinal bankruptcy, are to be found in both sexes in irritation transmitted to the cord.

The recognition of spinal irritation, or exhaustion, or neurasthenia is, as we have said, often difficult.

The acquisition of strong nervous temperament, with great prostration, persistent headache, dyspepsia, constipation, phosphates and chlorides in the urine are significant. Then by passing a sponge electrode from a good running battery, we are almost invariably assured of the seat of the irritation.

This may be complicated with neuralgia or spasmodic affection involving the organs supplied with spinal nerves. If the irritation is on the dorsal portion it is generally referred to one side, frequently the left, and is only felt below the mammæ, often complained of as a constriction, or tightness, or suffocation, with accelerated action of the heart, with spasmodic cough. If the irritation is in the lumbar, there will be spasmodic action of the viscera; numbness, cramps and excessive tenderness, with impaired motion and sensation in the lower extremities, with constipation, retention of urine, irritable bladder and uterus, with disturbed menstruation.

It is not common in the cervical portion, still if it took place there it would give rise to neuralgic pains in the neck and face, difficulty of swallowing, loss or impairment of voice and affection of speech, cough and altered sensibility; partial paralysis; coldness and numbness of both hands, or a pricking sensation.

In the treatment of spinal irritation, we must endeavor to appreciate the immensely destructive effects of an impairment of this nerve centre, it tells upon every organ, every secretion, so that the bowels are constipated, and require the action of the cascara sagrada lozenge; daily bathing followed by brisk friction; massage; gentle exercise in open air if strength permits, and when not exercising, rest in the recumbent position. Comp. tincture matricaria to stimulate the stomach, improve the appetite; diet to be very generous, consisting of the elements of the blood.

Local stimulation the entire length of the spine by keeping applied two strips of irritating plaster, or the application of the electrical brush, or some other convenient stimulant.

The internal medicaments are of two classes, green-root tincture of gelsemium, belladonna; ozonized fl. ext. musk root, to induce sedation; glycerite of kephaline, tincture of oats, cerebrin, to vitalize and reconstruct the cord.

The materia medica affords an abundant class of remedies which operate directly on the cord, as rhus rad., ergot, nux, calabar bean, atropia, ignatia, etc.

The simple stretching of parts is often attended
Sprains. with much suffering.

Of the back.—Commonly caused by a fall from a height, or from a weight coming down suddenly on neck and shoulders.

The structures suffering are the fibrous ones generally, such as the muscular fascia, tendons and ligaments. There is considerable swelling in the loins soon after the accident, and great pain on any attempt at motion. The inconvenience arising from a severe sprain in the back lasts a long time; so that a person may be confined to his bed or sofa for a fortnight, and it may be many weeks or even months before he completely loses pain. There may be some transient effect produced on the kidneys, and blood may be found mixed with the urine for a few days, but rarely any bad effects ensue.

The treatment consists in perfect rest in the recumbent posture; the application of either the arnica or marigold lotion, or ozonized iodine to the stretched muscles

Pain must be relieved by large doses of hyoscyamus.

Knee.—Sprains, or twists of the knee joint are very common, often setting up great irritation, inflammation, and the damaged part is slow in recovering.

Having had considerable experience with the older methods

of treatment, clay is now the favorite local remedy. The ozonized clay is simply mixed with water to form a paste of a thick and moist consistence. This is spread on muslin to the depth of a quarter of an inch thick, and applied entirely around the part. Over this a rubber roller bandage, just light enough to keep the dressing from shifting, and to retain the peroxide. At the end of a few hours the joint and all its structures is completely saturated with a powerful bactericide, microbe evolution prevented, resolution is perfect. Rest is all important.

Ankle.—The lower extremity is the most frequent seat of sprain of all the limbs, and particularly the ankle joint, and the ridiculous fashion of wearing high-heeled boots, whereby the base of support for the body is diminished, is a frequent cause of the accident. In the slighter sprains of the ankle the ligaments are stretched, or, perhaps, a little lacerated; but in the severe ones they are completely torn. Severe sprains are often mistaken for fractures, and should the case be one, when from swelling and pain there be any doubt, it should be treated as a fracture, bearing in mind that proper treatment of fracture is the best that could be adopted for a sprain.

Impediment of speech (stuttering) in nearly

Stammering. all cases is a nervous affection; having as its origin a want of equilibrium of the gray and white matter of the cervical portion of the cord, resembling chorea. The vocal apparatus is usually perfect. It may be congenital, but more likely to be the result of some shock in a fright, blow, or reflex condition, or follow some fever, worms, masturbation.

White skin, dilated pupils, soft muscles, debility, point to a neurasthenic condition of the nerve centres; or when it appears as a sequel of microbial disease, the spores of the germ cause the difficulty.

The treatment consists in the removal of the cause; improving the general health by bathing, clothing, frictions to the cervical portion of the spine, thus raising its standard of vitality.

Same remedies as for *chorea*. Make the child speak slowly and distinctly. Let him fill his chest well before he articulates a word, and then enunciate one word after another. If unable to do that, let him beat time for every word he utters in talking or reading. A persistent course of measuring the words until the stammerer can read and talk straightforward for an hour, daily, will soon overcome the habit. Let the diet be brain-food, boiled fish, oatmeal porridge and massage.

Staphyloma. By this term is meant an unnatural protrusion of the tunics of the eye-ball. It occurs in the cornea and sclerotic.

Staphyloma of the Cornea.—Of this condition there are two varieties. In one the cornea, rendered soft and weak in consequence of a slow inflammatory process, yields to the pressure of the clear aqueous fluid collected in the anterior chamber of the eye, and forms a rounded or conical prominence in front of the globe which presses upon and, in some cases, protrudes between the eyelids. This condition is usually associated with more or less marked corneal opacity. In cases where the cornea remains clear the patient complains of impairment of vision and is often short-sighted. In the other variety of staphyloma a portion of the cornea has been destroyed by ulceration; the gap thus formed is filled up by portions of protruded iris, which become adherent to its margins. The protruded and exposed iris is subsequently thickened by the formation of delicate scar tissue on its surface, but still yields to the pressure of the aqueous fluid and forms a projection in front of the globe. The most marked instances of this kind of staphyloma may be observed in patients who have had an attack of purulent ophthalmia, which has caused sloughing, and removal of nearly the whole of the cornea. Patients afflicted with the latter form of staphyloma usually suffer from frequent attacks of ophthalmia, and of pains and inflammation in the displaced iris. Distension of the staphyloma by accumulation causes much pain and irritation, which is generally relieved for a time by rupture of the protruded membrane. This, however, is always followed by closing of the orifice and reaccumulation of the aqueous humor. Sympathetic inflammation often attacks the opposite eye. The palliative treatment consists in guarding the eye against possible causes of irritation, and in applying the ordinary means of relief during the recurrent attacks of ophthalmia. When there is painful distension of the staphylomatous cornea and iris in consequence of a great accumulation of aqueous humor, considerable though temporary relief may be effected by making a small puncture into the thinnest and most prominent part of the projection. When the opposite eye is affected with sympathetic inflammation it becomes necessary to remove a part or the whole of the damaged globe.

Staphyloma of the Sclerotic.—This term is applied to protrusion of a portion of the sclerotic, due either to thinning of the membrane itself, or to thinning or rupture of the subjacent tunics—the choroid and retina. This condition may be caused by wounds of the sclerotic, blows on the eye-ball, or slow inflammatory changes, resulting in a loss of firmness and diminished

resistance in the tunics of the eye. Staphyloma may affect the anterior, lateral, or posterior portions of the globe of the eye. In cases of anterior or *ciliary* staphyloma, may be perceived one or more bluish, small and irregular-shaped prominences, which contrast strongly with the surrounding portions of white and smooth sound sclerotic. The cornea and the walls of the anterior chamber generally remain healthy. The same changes occur in staphyloma of the lateral portions of the sclerotic. This affection, which is called equatorial staphyloma, is often associated with much impairment of vision and severe recurrent attacks of ophthalmia. Posterior staphyloma generally occurs at that part of the sclerotic which corresponds to the optic nerve and yellow spot. This is frequently a congenital condition, and is the cause of that defect of vision known as myopia, or short-sightedness.

The generative act on the part of the male im-
Sterility. plies the completion of sexual congress, with an
 ejaculation of fertile semen, and its deposit in the
 upper part of the vagina. The capacity for copulation depends
 upon the perfect erection of the penis, the failure of which renders
 man impotent.

Sterility includes certain distinct states, or conditions :

As one in which no semen whatever, or unproductive or infertile semen is secreted, termed, azoospermism.

Another in which the spermatic fluid is secreted but not ejaculated, termed aspermatisism ;

And still another, in which there is a failure to deposit fertile semen in the upper portion of the vagina, called mis-emission.

In the first form, intercourse and ejaculation are natural, but the essential elements of life, of fecundation, are dead ; in the second form, the power to ejaculate is prevented by an impediment, and in the third variety, coition and emission are perfect, but fruitful semen, fails to reach its destination, in consequence of some congenital or acquired deficiencies of the urethra.

1 A man having no semen at all, or at the best unproductive semen, may be due to malformation or disease of the testes, obstruction of the vas deferentia, and abnormal conditions of the semen ; with no testes, and the accessory organs rudimentary, is unable to ejaculate a drop of semen. If the parts are mutilated in early life, the individual may have an erection but is absolutely impotent and sterile. When the testes are retained in the abdomen, that is have not descended in intra-uterine life, they may have erections and perform the sexual act but they emit a fluid, thin, watery, devoid of spermatozoa ; other abnormal deficiencies

which obstruct secretion, as atrophy of the seminal vesicles, varicocele and morbid states of the blood in which disease germs are present, more especially the microbe of syphilis, or the bacilli of tuberculæ; the lithiate of soda of gout and the like, are prone to set up in the testes a process of interstitial disorganization and degeneration, which destroys the secreting cells, causes obliteration of the excretory ducts of the testes, and abrogates their functional activity.

Besides, the quantity, quality and composition of the ejaculated semen, may be altered or poverty-struck by sexual excesses, masturbation, exhausting diseases, inflammation of the seminal vesicles, and prostate urethra.

There may be an entire absence of spermatozoa in the ejaculated fluid, induced by grief, worry, struggle, excesses, nervous bankruptcy. Neurasthenic masturbators suffer from emissions, seminal and prostatic discharges, the result of their violation of

divine law, venereal excesses, or ungratified desires, with no spermatozoa, or if any be present they are motionless. The vitality of the spermatozoa is dependent up a healthy secretion of the prostate, when excess or pollutions damage that gland, overstep a natural limit, the spermatozoa are liable to suffer, become few, small, and their place is usurped by spermatric crystals.



Spermatric crystals.

Among our physically drained young men various diseases of the spermatozoa

are met with, such as fatty degeneration, abnormal density of the semen or purulent state of that fluid, watery or colloid.

In masturbators, or men who have committed excesses, or practiced sexual perversion, the semen is thin, watery, and the spermatozoa few and motionless, incapable of impregnating the ovum.

When their semen is permitted to dry and placed under a 300 diameter power a considerable number of transparent, variously modified, rhombic prisms, with their bases in apposition, the ends of these terminating in fine points, composed of ammonio-magnesium phosphate.

The more numerous those crystals are they denote a diminution of the spermatozoa or their entire absence.

Among the same class of patients the semen is often watery,

having a whey-like appearance, destitute of all spermatozoa, except a few deformed and motionless, but a few spermatic crystals, lymph corpuscles.

Disease, acute or chronic, impairs the vitality of the semen, renders the spermatozoa scarce, small, motionless, infertile.

The semen of men, after fifty years of age, becomes gradually less and less charged with spermatozoa, until about eighty, when few are visible, hence their inability to procreate arises more from impotence than sterility.

Sterility in the male is far more frequently the cause of barren marriage than is generally believed to be the case. Aspermatism is associated with complete impotence, but azoospermia or absence of spermatozoa in the semen, a condition by no means rare, may exist with perfect potency, and on that account is very easily overlooked. With few exceptions, azoospermia is caused by obliteration of part of the seminal ducts. This condition is generally caused by double gonorrhoeal epididymitis, or inflammation of the vas. After that malady, the chances are nine to one that azoospermia will follow. Prognosis appears to be hopeless when the condition in question is not discovered until three or four months after the onset of the local inflammation. The chief importance of the management of the case lies in accurate diagnosis. True aspermatism is traced to arrested development of the ejaculatory ducts. In several cases of sterile marriages under our own observation the unfortunate wife had been sent from physician to physician, or from hospital to hospital, and her cervix divided, or her endometrium scraped, until a glance at the microscope proved that nothing was wanting to insure the blessing of children, except spermatozoa. No doubt the increase of intemperance involves the relatively greater frequency of those forms of gonorrhoea where the earlier symptoms are very mild. Hence the first stages may now be as much neglected by patients as they have ever been wont to neglect later stages. The more a case of gonorrhoea is neglected the greater will be the chance of serious secondary complications.

Of all germ diseases that of syphilis is the most destructive to spermatozoa. Of all drugs which will annihilate it, the use of morphia and bromide of potassa stand pre-eminent; of all morbid states, catarrh of the prostate; the micrococci and cryptococci of fever kills the most vigorous semen.

The correct diagnosis of sterility must in all cases be made by the microscope, or by a bulbous sound. It must always be borne in mind that sterility does not include impotence, but is often met with in vigorous subjects, who ejaculate a fluid which presents all the visible properties of normal semen, hence it is difficult for them to realize that they are the result of a barren marriage.

Semen is the mixed product of the secretion of the testes, vasa deferentia, seminal vesicles, sinus pocularis, prostate, Cowper's glands, mucous follicles of the urethra, etc., presided over by the brain.

The thick, white, pasty secretion of the seminiferous tubes consist mainly of seminal cells, out of which the spermatozoa or fertilizing elements are developed; but the spermatozoa first make their appearance in the rete testis and constitute nine-tenths of the glutinous mass.

In the epididymus and vasa deferentia, the zoosperms are perfectly motionless, from the density of the medium in which they are contained, but when they reach the seminal vesicles they are in active undulating motion.

2. When sexual intercourse is not finished by the ejaculation of semen, that is, does not enter the urethra, because its expulsion is prevented by some obstruction, or obstacle in the ejaculatory ducts; or perverted sexual appetite in the brain, or deficient excitation of the spinal centre, or a blunting of the nerves of the glans, congenital occlusion of the ejaculatory ducts is rare, but a damaged condition of these ducts, brought about by wearing condoms, or the act of withdrawal during ejaculation to avoid impregnation, retards an emission; acts most disastrously on the entire force of erection and ejaculation.

Tight or adherent foreskin, stricture, induration of the corpus spongiosum.

Lethargy, loss of passion through fear, disgust, suspicion of infidelity.

3. A failure to deposit fertile semen in the upper portion of the vagina may be due to mechanical obstruction, owing to which it regurgitates into the bladder, or slowly oozes away from the urethra as the erection subsides. Ejaculation may have a faulty direction, owing to malformation of the urethra, although deformity does not always involve sterility. Fistulous openings above or below, congenital or acquired, malposition of the urethra; or its orifice located far back, will prevent the ejaculated semen from reaching its destination.

Again, all depressing emotions, desires, affections, passions; all acro-narcotic drugs; alcohol, gout, syphilis, impair the ejaculatory power.

What is meant here by "atonic sterility" is a state of prostration of the nerve-centres which preside over the genital functions, so that the sexual act is not performed naturally and completely. There may not be an absence of spermatozoa in the testicles or the fluid ejected, but they fail, on account of the incomplete sexual act to reach their destination.

Now, assuming that an inflamed prostate urethra will produce the class of symptoms described above, and finally atonic sterility, it is well to look for the cause of the local inflammation and irritation of that portion of the urethra. The cause that I have usually found was stricture; often not a close one, but a constriction sufficient to retain behind it a few drops of urine at each time the bladder is emptied. These few drops of urine decompose and act as an irritant. This irritation constantly kept up soon excites an inflammation which extends to, and often into, the bladder. This inflammation of the bladder is often the first symptom that calls the attention of the patient to his urinary apparatus. Constant excitement of the genitals by over-indulgence in sexual intercourse or masturbation may cause a state of hyperæsthesia of the urethra. No doubt that strictures are often caused by masturbation, an inflammation being excited and kept up by free indulgence, and eventually the same results are obtained as arise from a gonorrhœal inflammation. Sometimes congenital discrepancies serve as an exciting cause.

The *treatment* of the first form is as a rule most unsatisfactory. Nevertheless, much can often be accomplished if the cause can be removed and the patient placed upon a prolonged alterative and tonic course, together with daily massage, followed by faradization of the entire body, and the administration of the glycerite of kephaline and tincture of *avena sativa*.

The *treatment* of the second form is much more hopeful; invariably good is to be derived from the use of alteratives and tonics, massage, baths.

If the ejaculatory ducts are obstructed, a No. 12 silver catheter may be introduced into the bladder, and retained there for ten days, so as to excite a dissolution and effusion of the lymph in their mouths. Add to this introduction a No. 12 rectal silver bougie, its presence may possibly squeeze out the coagulated lymph.

If stricture be a cause, then it must be dilated and absorbed.

If the chemical secretion of the prostate be changed through inflammation, or the prostate urethra sensitive, then urethral bougies of thallin.

The cocaine suppository per rectum, and internally such drugs as nux, saw palmetto, damiana, should have a trial.

The treatment of the third form is chiefly by surgical procedure; faulty or mal-formed states of the urethra; fistulous openings above and below, adherent prepuce, all admit of prompt relief.

Even atrophy of the organ admits of a cure by judicious management.

Sterility is rapidly increasing and it is important that a clear idea of the physiology of reproduction should be disseminated.

All the factors concerned in the process of conception must operate in harmony, the woman must produce healthy ovules and the man normal spermatozoa. These products must unite; there must be no abnormal condition that will destroy their vitality before or after they come in contact, nor after fixation to the uterine mucous membrane.

Many women are potentially fertile, yet practically sterile, as a result of the prevention of conception; a practice common in all stations of society which is undermining the health, morals, and our very national existence.

All means of prevention are prejudicial to the mental and physical health of husband and wife, and the moral effect of withdrawal before emission is nearly identical with that of masturbation, and the physical disturbance may be greater, as the vasa deferentia remain partially filled, producing an irritation that causes a more frequent desire for sexual connection than is healthful. When the semen is not deposited in the vagina, and the connection is imperfect or unfinished, the active congestion of the female pelvic organs finally become passive, resulting in engorgement, hyperplasia, displacement, etc., entailing various local and reflex disturbances, or even insanity. Women in *so-called* refined, religious, and cultivated society, being controlled by a desire for social pleasure, and for position and wealth for their children, practice prevention more than women in the obscure walks of life. Their daughters are taught nothing about the anatomy or the physiology of their generative organs, but are trained to abhor offspring, and are told how to avoid becoming pregnant. The higher education or *brain-cramming*, of girls nowadays, with the absence of exercise, and other hygienic measures, and the reading of sensational or love novels, destroy their power to bear well-developed and healthy children, or to supply them with enough nutritious milk for the natural period.

As woman ascends in the scale of education and refinement, child-bearing becomes more difficult. She is more sensitive to pain, and bears children with greater cranial development. Her mode of dress distorts or displaces her thoracic, abdominal and pelvic viscera, and so weakens the abdominal muscles that the auxiliary forces in parturition are very much impaired.

Sterility may be absolute or relative, congenital or acquired. In absolute or congenital sterility, the ovule is not impregnated, or if impregnated, conception does not follow, the ovule being destroyed in the tubes or uterus; or conception may occur, but the woman aborts before the child is viable. In relative or ac-

quired sterility, the woman has had one or more living children, but in number not according to the duration of married life. A woman may marry successively, two or more men, and have children by only one of them; or a man may marry two or more childless widows, and have children by each of them. This is sterility from incompatibility, these women being potentially fertile. One-child sterility exists in one out of thirteen marriages. The average time from marriage to the birth of the first child is seventeen months, and between the birth of children nineteen months, and women, upon an average, bear children from twenty-five to thirty-eight years of age; less than fifteen years. As one in thirteen women bear their first child after having been married three years, no woman should be considered sterile until the fourth year of married life.

Sterility may result from mechanical obstruction, from uterine or pelvic diseases, or from constitutional disturbances, or from some defect in the husband. The spermatozoa may be prevented from entering into the uterus by any congenital or acquired defect that interferes with sexual connection, such as imperforate hymen, vaginismus, atresia vaginæ, etc., or by constriction or obliteration by stenoses or flexure of any part of the cervical canal, or by an elongated cervix. The vitality of the spermatozoa may be destroyed by secretions from diseased mucous membranes of the vagina, cervical canal or uterus, but the most poisonous secretions result from glandular cervical endometritis, and from latent gonorrhœa. Tumors connected to the uterus, and in the parenchyma of the uterus, or any disease of the mucous membrane and walls of the vagina.

Difficult breathing may be due to

Stertorous Breathing. a number of causes, as inflammation of the fauces and tonsils; from the presence of the microbes of croup, diphtheria, tubercle, syphilis, cancer, irritating the nerves of the larynx; also from the presence of foreign bodies; growths in the same locality; to ulceration; narrowing or pressure of the trachea; to bronchitis; asthma, emphysema, and consolidation of the lung; to organic disease of the heart; to the presence of ptomaines in tetanus, cholera, typhoid, *whereas*, stertor, or stertorous breathing is due to one or other of three states:

Nasal or Palatine Stertor, when the air is rushing through the nose or mouth, causing a vibration of the soft palate.

Pharyngeal Stertor, when the air passes through the narrowed interval between the base of the tongue and the posterior wall of the pharynx.

Mucus Stertor, when there is mucus in the air tubes, and the air in breathing bubbles through it.

Stertorous breathing is a mere mechanical condition, and in a large number of cases can be got rid of.

Mucus stertor, when unaccompanied or unconnected by living engorgement, may occur in serious cases, when the nutritive process of the lungs are interfered with by some injury to the seat of life in the medulla oblongatata, injuries to the brain, convulsions, poisoning with opium, drowning, epilepsy, apoplexy, and the so-called death rattles of profound prostration, whether there be fluids in the bronchi or not. Snoring in these and other states shows that there is an impediment to the ingress of air, so that the blood and tissues fail to be oxygenized; a condition of non-aeration of blood and embolism; a failure of the heart's action and death. It is very doubtful whether a large percentage of death does not really occur from this cause, and most of those mysterious deaths that occur during sleep. When snoring or stertor forms a symptom it should be treated by placing the patient on either side, and keeping him there. This seldom fails to give instant relief to this distressing and dangerous symptom with its consequences, and death in many cases can often be obviated.

Squinting, or strabismus, is a want of harmony in the muscles of the eye. The common form met with in young persons is where the eye is turned inward, or, *convergent*; the other form, in which the eye is turned outward, or *divergent*, is more rare, and is chiefly met with in elderly persons, from paralysis of the internal muscles. Both eyes may be affected, but this is not common.

The causes of squinting are very numerous. It may be congenital, or induced by bad habits, by imitation, by looking at pimples on the nose; or it may come on from a stye, which often interferes with the motion of the eye; by the use of one eye to the neglect of the other, or by shading one; it may also result from slight opacities of the cornea; from a variety of nervous causes, and it is often the result of reflex irritation in morbid conditions of the stomach, worms, teething and constipation; disorders of the sympathetic system, as fright, passion, etc., and also to disorders of the brain, as convulsions, congestion, effusion, hydrocephalus, etc.

Treatment.—If it be recent, that is, not over a few weeks' standing, the difficulty can be frequently overcome by the removal of the causes, as teething, worms, disorders of the stom-

ach and bowels, by the proper remedies ; by avoidance of study and reading ; by proper exercise to the eyes, and by wearing glasses for the purpose. But if the squint be of long standing, and is habitual, and above all, if there is the slightest disparity in vision of the two eyes, very little good can be effected, unless the internal rectus muscle be divided. This is a very simple proceeding, consisting in placing the patient under chloroform and placing a blunt hook under the muscle and raising it, and then dividing it. If the squint depends on some opacity of the cornea, or organic disease of the brain, no interference should be permitted.

The orthopædic treatment of paralyzed muscles has been recently tried in strabismus with marked success ; this treatment consists in seizing the conjunctiva over the affected muscles by a pair of forceps, the eye being under cocaine, and moving the globe in the line of action of the paralyzed muscle and its antagonist.

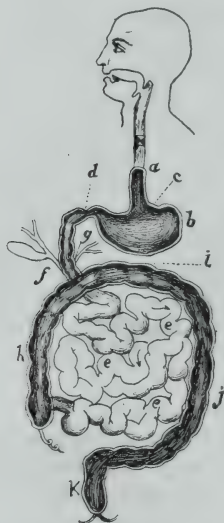
Protrusion of the eye-ball is a general symptom of wasting disease, as consumption, anæmia, but it may be due to aneurisms, tumors, fatty deposits, osseous and encysted growths. The danger of tumors are twofold : destruction of the eye from continued pressure ; and protrusion through the roof of the orbit into the cavity of the skull, with compression of the brain. The diagnosis is most important.

**Stricture
of the
Œsophagus.**

This may be met with in either a spasmodic or organic form. In the former it comes and goes ; in the latter there is effusion of lymph, which forms a permanent obstruction. The œsophagus being made up of circular muscular fibres, or rings, each of which is supplied with both sensient and motor nerves, renders it susceptible of the slightest irritation, which gives rise to contraction, and repeated contractions give rise to effusion of lymph ; thickening.

Spasmodic stricture is that which is not permanent, but comes and goes away. This may originate in two ways. There may be some weakness or irritation of the cervical nerves, issuing from the spinal cord, which supply the circular muscular fibres of the œsophagus, a sort of neurosis, or extreme sensibility, when in hastily swallowing a cold fluid, like ice water or beer, it acts as an instantaneous depressant to the weakened nerves, which causes contraction of the circular muscular, a sort of spasm, which prevents deglutition. It is more apt to come on in swallowing a cold fluid than otherwise, for fluids are much more diffi-

cult to swallow than solids. In the act of swallowing a liquid all the rings of the œsophagus are brought into active exercise; whereas in swallowing a well masticated solid, it will slip down without a movement. In the other class of cases the integrity of the nerves are normal, no neurosis, no nervous irritation, but it may come on from decided carelessness in the hurried drinking or suddenly gulping down large draughts of ice water, cold beer and other cold drinks in hot weather. The pungent coldness and haste produces the shock, followed by contraction, which once induced is liable to be repeated, if the same cause is brought to bear on it. It is most generally met with in beer drinkers and among young ladies who bolt large quantities of ice-cream.



Stricture of the œsophagus and human alimentary canal: *j*, œsophagus; *b*, stomach; *c*, cardiac orifice; *d*, pylorus; *e*, small intestine; *f*, biliary duct; *g*, pancreatic duct; *h*, ascending colon; *i*, transverse colon; *j*, descending colon; *k*, rectum.

Symptoms.—Difficulty in swallowing; at first confined to fluids, usually cold; then it extends to warm drinks and solid food; but the difficulty is not always; it comes on by spells; often a sense of fulness and choking under the influence of excitement. It cannot be confounded with permanent stricture, because the difficulty of swallowing is only now and again, and a bougie will pass down without a particle of obstruction.

In the treatment of spasmodic stricture the greatest possible care should be exercised in eating and drinking; food should be bland, soft, nutritious; well masticated and swallowed slowly. All liquids taken should be warm and sipped with caution. Forbid strictly cold or iced drinks, iced lemonade, beer, ice-cream.

The medical treatment should consist in daily baths, massage, electricity, sumbul, kephaline, avena, matricaria.

Organic stricture is a condition in which lymph is effused in or on the circular muscular fibres of the œsophagus; thickening produced; it may involve the entire ring clear round, or only a part, and forms a permanent obstruction to the descent of solids, and often liquids. The effusion may be mere lymph, or even cartilage.

The cause is some irritation, as spasmodic stricture or the swallowing of some irritant, which gives rise to the effusion of lymph.

Symptoms.—Vomiting after taking food which descends to a point, and apparently sticks, and is thus rejected; or if the diet is very bland or soft, or the drink mucilaginous, it may pass through the obstruction. If case is seen here, and proper treatment inculcated, a cure may be effected. But if neglected, after the end of six or eight months the inability to swallow becomes greater, until little can be swallowed. Then emaciation, debility, takes place, and increases rapidly. The stricture can be felt, its size and shape well made out by bougie. If not cured, starvation takes place in spite of nutrient enemata.

In the treatment of organic stricture there must be great care exercised, in order to maintain the nutrition of the patient. The diet should be of the most nutritious and blandest character, such as the juice of meat, raw eggs, cream, with enemata of the same.

The seat or location of the stricture can be easily made out by the introduction of a bougie and feeling for the stricture. Once its location is determined, put an irritating plaster four inches square over the seat of stricture on sternum, another on the spine; spread fresh every morning and applied.

The patient must be placed upon an alterative and tonic course of treatment, such as compound saxifraga and phytolacca, alternated with matricaria. Three times a week the patient should swallow a bolus of thirty grains of papoid, large enough to be stopped by the obstruction; while so obstructed a bougie should be introduced which should push the papoid closely against the obstruction of the effused lymph. On this the papoid acts as a solvent, a digestive agent.

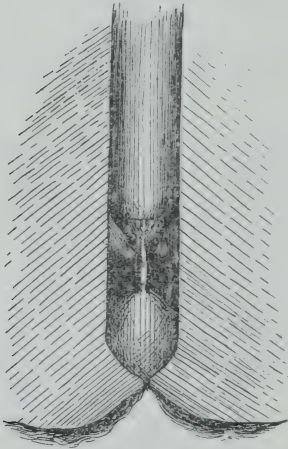


Stricture of the Rectum. By this is meant a narrowing, or a diminished calibre of the canal. It may be so slight as not to attract attention, or do appreciable harm, or it may be so complete as to close the canal and prevent the passage of any substance whatever. It may involve the entire ring, or a half, or a part of it.

Causes.—Usually an effect of acute or chronic inflammation; lymph is effused, generally about two and a half inches from the verge of the anus, or more properly speaking, at the spot where the tenesmus is experienced. It rarely exists without ulceration, and this alone may cause stricture. Congestion around an ulcerating surface, and the constant effusion of lymph in attempts to heal the ulcer, very soon form an undue deposit of lymph in the rectal walls, whereby they become thickened and hardened. In

patients of feeble health this process goes on till the elasticity and contractility of the muscular coat is lost, and the rectum becomes passive, a steadily narrowing tube through which fæces pass when liquefied or semi liquefied, forced through by the stimulus of cathartics and spasmodic effort of the intestines.

Symptoms.—These vary considerably in the early stage, but, as the stricture becomes more marked, there is constipation often alternated with diarrhea. Stools if solid are passed with great difficulty, in small, flattened, chopped pieces, usually about two and a half inches in length;



Stricture of the rectum, usually found $2\frac{1}{2}$ inches from the verge of the anus; the effusion of lymph may be all round or only partial.

and cord like; severe straining efforts in voiding the motions if solid; pain in the loins and sacrum; flatulence; often mucous discharges stained with blood; if there is ulceration above the stricture, burning pain and tenderness about sacrum and fundament; discharges of blood and pus. The reflex symptoms are often very decided and severe, languor, lassitude, debility, headache, constitutional disturbance, burning in hands and feet, brain disorder, vertigo, fits, impairment of the general health, depression of spirits, hypochondriasis.

The diagnosis is easy, the history of the case, the constriction of the bowel can be felt by the finger about two and a half inches from the anus,

so that it cannot be confounded with spasmodic constriction caused by spinal irritation.

Treatment.—This necessarily varies according to the state of the stricture, the condition and circumstances of the patient. In all cases one thing is essential, every possible means should be resorted to to build up, improve and maintain the highest standard of health possible; to effect this the patient should resort to daily bathing, flannel clothing, a most generous diet, an alterative and tonic course of remedies. The most appropriate alterative is the saxifraga comp.; as a tonic no remedy can excel the Virginia stone crop, collinsonia, mineral acids.

The stools should be kept soft and liquid by a dose of kolutina; or olive oil and glycerine; or juglandine before retiring at night.

Then an absorbent action must be excited in and around the

stricture by some one or more of the following methods: The introduction of a metallic bougie, well warmed and gelatinized, with belladonna and salicylate soda, a size that will pass easily through the stricture should be inserted first, and permitted to remain at least a half an hour. These bougies should in length be twelve inches long, and inserted gently up for eight inches. From week to week they should be gradually increased in diameter, until the largest size pass easily. This method will take from three to four months. To aid this treatment, various suppositories should be used, as the cocaine; belladonna and opium; salol.

The idea which must be rigidly carried out is absorption of the effused lymph, which constitutes the stricture, never dilatation.

It is useless to experiment with sponge tents, sea tangle, or to torture the patient by cauterization, incisions, forcible rupture or tearing, for they may be for a week or two of utility, but the stricture returns under those methods.

We might enumerate other methods by which absorption of the lymph can with some degree of success be effected, such as electrolysis; suppositories or bougies six inches long, in which papoid, trypsin, boroglyceride, salicylate soda, salol, creolin, are incorporated.

The development of blenorrhagia takes

Stricture of the Urethra. place in the following order: The micrococcus deposited on the anterior portion of the mucous membrane of the urethra encounter there a very thick epithelium, upon which they fertilize. Perhaps here we have an explanation of the theory of incubation, for the micrococcus only develops well in the globules of pus. The epithelial cells desquamate, allowing the germ to penetrate into the chorion and thence into the lymphatics; then true suppuration commences, propagating itself little by little to the deep parts of the urethra, always following the course of the lymphatics. At the close of the malady, either because the soil is exhausted or the pathological modifications of the tissues render them unsuitable to the growth of the germ, the latter returns to the superficial parts of the mucous membrane, and localizes itself on the surface.

This is found to be done in nests, on the inferior aspect of the canal, and signalize the points where lymph is effused to form stricture.

Stricture in the urethra is essentially due to rapid microbe

evolution, in points with foliaceous colonies, which present themselves in the form of diplococci, forming masses of greater or less extent, render the canal narrower than what it is by nature, and incapable of resuming its ordinary capacity. When the urethra contains the micro-organisms of morbid action, they produce one or other of three conditions, either a weakness of some of the circular rings, which give rise to spasmodic contraction, or when the germs are freely elaborated in urethral pus; inflammatory or when the cultures have given rise to a permanent effusion of lymph. All forms of stricture, whether they be spasmodic, inflammatory or permanent, arise either from microbe growth, a specific cause, and capable of being removed by one uniform and easy treatment.

As a rule, few persons take little notice of a stricture till some inconvenience arises therefrom. A man may have a slight moisture, or gleet discharge, or a diminished flow of urine, from which he experiences little or no inconvenience, he may not even suspect the existence of any other complaint, and therefore gives the matter no thought, till at length prostatitis, inability to micturate drives him to seek professional advice, and an examination of the urethra being submitted to, the presence of a stricture is detected, which may have existed for a length of time.

Spasmodic stricture arises from the circular muscular fibres of the urethra being weakened in times gone by or by the saprophytic bacteria of masturbation or the gonococcus, the slightest stimulus will cause the weakened part to contract, and thus cause the stream of urine to be suddenly obstructed, or if able to pass it, it will be spiral, corkscrew, or split; cold, damp, exposure, microbes in the canal may act as exciting causes. The difficulty micturition comes on suddenly.

In, or during inflammation, nests of micrococci weaken the nerves and circular fibres by burrowing in the follicles and lacuna.

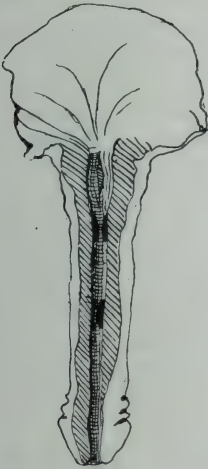
Permanent strictures are always due to effusion of lymph, and its organization either into a band across the inferior aspect of the canal, or a flattened exudation. The cause of this effusion is due to a microbial nest, and effusion of lymph over the germ colony, which gradually diminishes the calibre of the canal.

Among the earliest symptoms of permanent stricture is the retention of a few drops of urine in the urethra, which drops soon escape and slightly wet the linen; the bladder becomes irritable, necessitates frequent efforts to urinate, as the lymph infiltration increases, there is a discharge of mucous from the urethra, attended with a sensation of itching, heat and pain in making water; the steam of urine becomes forked, spiral, flat-

tened, or scattered, which, if let alone, eventually grows worse, until the urine is voided drop by drop. At this period the slightest irritation, cold or wet, intemperance in diet or otherwise, may be immediately followed by a complete stoppage of urine.

Stricture of the urethra may arise from any form of irritation, but ninety-nine cases out of one hundred are due to the micro-organisms of gonorrhoea.

Independent of the symptoms enumerated, the stricture must be felt by a metallic bougie.



Two urethral strictures, the posterior one in the deep urethra.



Three urethral strictures.

Treatment.—The general treatment should consist in placing the patient upon a general alterative and tonic course, saxifraga in alternation with cinchona. The local management of the stricture is somewhat varied; some believe in burning them out; others in cutting them with the stiletto; while another class advocate forcible dilatation; some are believers in their dissolution by electrolysis; while others again believe in the old and best method, exciting absorption in them by the persistent introduction and retention of graded metallic medicated bougies; three days in the week for ten or twelve weeks.

The merits and demerits of all other methods, it is unnecessary to discuss, suffice it to say, that after its removal by those methods, they invariably return.

This method is the best as there is no recurrence; by the other methods, the disposition to recur after removal, originates in the stricture itself; thence to the bladder and contiguous parts

and anteriorly in a less degree in the urethra; smearing the bougie, or using bougies of thallin, belladonna, papoid, trypsin, operates like a charm.

In the management of the case, the simple bougie should be increased in size weekly, according to the facility with which it is absorbed. A little and little is gained by its passage every other day or twice a week. Following the use of the bougie, an iodol gelatinized bougie should be inserted and permitted to dissolve.

The good effects of frequently and gently stretching a constricted part, is the true successful method of cure; a perfect cure can be effected, without pain or inconvenience; and no recurrence demonstrates the superiority of the simple metallic over all other forms of treatment.

The treatment of stricture of the urethra by electrolysis has, within the last few years, been brought before the profession, and from its success, we may fairly conclude that in the near future, it will occupy an important place. In the application of electrolysis to the urethra, a battery of thirty cells, and a galvanometer to measure the strength of the current, together with filiform bougies and electrodes of various shapes and sizes, are required. The bougie electrode used for passage into the urethra has a metal point, usually of olive shape; its stem is covered with isolating material, and is connected with the *negative* pole of the battery. The other electrode, connected with the positive pole, is of a convenient shape to hold in the hand or apply to the back. In all cases it is absolutely essential that a galvanometer should be in the circuit of the electrical current, so that its strength may be known and regulated. The usual current strength employed is five milliamperes, though it may sometimes be increased to ten milliamperes without the patient feeling any discomfort. The time occupied at a sitting varies from about five minutes to half an hour. The *modus operandi* of electrolysis on the stricture does not seem to be clear; hydrogen gas is disengaged during the operation, and a thick, granulous discharge comes from the urethra. That electrolysis produces a change on the tissue forming the stricture, seems to be proved without doubt, from the alteration which is found to occur after the electrode has passed through the stricture, as compared to what obtains after the passage of an ordinary metallic bougie. If a metal instrument be pushed through a stricture which grasps it tightly, and is immediately withdrawn, it will be found that about the same amount of force is required to withdraw the instrument as was required to pass it. With the electrode the case is different. Although a considerable time may have been taken and some pressure needed to pass through the stricture, it can always be

withdrawn with ease, being no longer grasped firmly like the metallic instrument. With it, with care, a permanent cure can be effected, but too often it is neglected; and the stricture will return, unless an instrument is passed and retained for some time. By weekly electrolysis, resilient or non-dilatable stricture, or those which are impassable, can be successfully got rid of.

Follicular irritation, effusion of lymph, with sup-
Styes. puration in one or more of the sebaceous follicles, at edge of eyelids.

The cause is invariably mal-assimilation, perversion of nutrition, which gives rise to the same micrococci that we have in boils.

In hordeolum or stye, there is great fetor of the breath, brown-coated tongue, constipation, slight pyrexia.

These cases are benefited by an emetic, opening the bowels, and administering some germicide.

Locally, to the lids, if it is just about to appear, painting the lids with saturated solution of boroglyceride; if it has progressed to near the point of suppuration, pack the lids with the same. Boroglyceride solution is death to the microbe in all cases and under all conditions.

Suicidal mania is a peculiar morbid state of the
Suicide. brain of civilized man in which its typical fissures coalesce. A deviation from the normal type takes place, termed *atypic*, which is present in hereditary insanity, and in the boy children of mothers who have exhausted their mental powers in literary pursuits, over-stimulating their nerve-power and thus causing a defective power of brain assimilation in their offspring. It is a low state of human brain in which the facial angle is lowered.

Maternal impressions also give rise to it, as the witnessing of the slaughtering of cattle and killing of fowls; the insatiable desire of some mothers during pregnancy to have criminal abortion performed, or in taking emmenagogue drugs to destroy and evacuate the contents of the uterus, thus impressing a suicidal disposition in her child. The true influence of our present trashy, demoralizing literature can scarcely be adequately appreciated as a prolific cause; besides, we have most important factors in isolation, solitary confinement, masturbation and supposed loss of sexual power. The worry, the struggle for existence, is supposed to be a prominent cause; but this is not correct, because suicide

is more prevalent among the unmarried and the widowed than among the married, in whom the struggle is greatest. The anæmia of the brain and cord induced by excess of study and sexual losses is an important factor. Infidelity, Darwinism have an important bearing in its production.

It is also to be regarded as epidemic. There is a singular regularity of the law which governs the return of suicides. The regularity is conclusive. There is a perfect uniformity with which the numbers of suicides are repeated from year to year in each country, especially in those countries in which the rate of suicides is high, such as France, Germany, England, the United States. Side by side with this remarkable regularity is a progressive increase of this morbid condition during recent years in the above-named countries.

It has, besides, a seasonal distribution, the first months of the year, being few, but a steady increase to June, when it is at its height, and from its maximum there is a steady decline to the end of the year. The variations in the prevalence of suicide in different localities depends a good deal on their moral, social and religious status and absence of monotony. The influence of sound, honest Christianity (no sham) retards it. In Scotland, where the rigid Presbyterian has a hold; in Ireland, Spain and Portugal, where Catholicism is pure, the affection is rare. The number of suicides increase in countries where religion is a mere show or trade-mark. The proportion of suicides to the population is less where the tenets of the Bible are absolute, whereas the largest proportion occur where infidelity is rampant, as in Germany and the United States. In Europe the pure Germanic race shows the highest proportion of suicides, followed closely by the Scandinavian races; whereas, among the Latin race, all except France, the rate is low, in Russia seldom known.

In the present state of pathological anatomy, the old theory of suicide being the effect of the struggle for existence and of human selection, which works according to the laws of evolution among civilized people, will not stand good. The proportionate relation between male and female suicides is pretty constantly from three to four males to one female. The proportion of suicides is largest between forty-five and fifty-five, very few taking place later in life.

The humanizing effects of an implicit faith in God, of man being part and parcel of that immortal existence, and of endless immortality well grounded into a people, seems to be the best prophylactic.

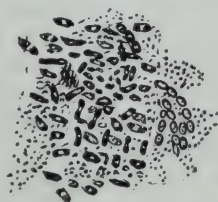
When the malady is suspected, rest to the brain, freedom from care, worry; liberal administration of cerebral tonics of great utility.

Micrographic germs are to be found in both the **Sweat.** insensible as well as the sensible perspiration of the skin, probably most numerous when the sweat glands are devitalized, as in—

Hyperidrosis, in which we have an excessive effusion of sweat. In this we make no reference to normal sweat, the physiological result of active exercise or excessive heat, but to general or partial pathological sweating.

The latter is common in the adipose, the feeble, the victims of microbial disease, as in the tubercular, syphilitic rheumatism, fevers, etc.; partial sweating in hands and feet due to neurasthenia, or where it may follow the course of a special class of nerves, and may or may not be accompanied with fœtor. In all cases the integument is weakened, its nutrition impaired, being constantly macerated, it becomes painful, tender, exfoliates and becomes loaded with disease germs.

Sudamina, confluent or discrete, superficially seated, of the size of a millet seed, or larger, translucent vesicles, each one containing a droplet of sweat, with a germ lurking in the serum, often due to the same causes.



The bacillus of feet-sweat.

No localized centre in the brain for excito-sudoral or inhibitory effects has yet been recognized, although we have very positive evidence that a bankrupt, nervous system, especially the sympathetic branches, give rise to it.

When the sweat centre is weakened, sweating all over is usually mitigated by either the tincture of oats, or mineral acids, or nux vomica, matricaria, quinine, belladonna, agaric, ergot, jaborandi.

Localized sweating, in which a pathogenic microbe is present, such germicides as lycopodium, boroglyceride, quinine lotion, ichthyol, naphthol, microbe powder in socks, etc.

Anidrosis, a state in which there is no sweat secreted, owing to some pathological condition of special nerves, or to destructive changes in the skin, produced by burns, blisters, cicatrices, keloid and other growths.

Bromidrosis, fetid or stinking sweat is invariably due to microbes, as the brood of syphilitic germs in an ulcer, or swarms of the micrococci in small-pox, but in a sweaty foot, the odor of which is so offensive, there is a specific microbe which is pathogenic. It consists chiefly of short rods, which are aerobic, and anaerobic, develop rapidly in beef tea or broth; will retain its offensive odor even after numerous cultivations and inoculations.

Any one of one of the following germicides brought in con-

tact with the microbe will cause its instant death: Solutions of boroglyceride, peroxide of hydrogen, ozone ointment, microbe powder, resorcin jelly.

Other antiseptic precautions are bathing the feet, twice daily, with solution of boroglycide, washing the socks, saturating them before drying with some germicide.

Chromidrosis.—Sweat of an abnormal color, is often attributed to the presence of drugs, as antifebrin, antipyrine, indican, preparations of phosphorous and of iron, vegetable parasites or vegetations.

The red, malodorous, sweat of the arm-pit is due to the presence which is found in the sweat, or massed in the form of zooglæa and adherent to the hair of the skin, which it causes to become brittle. This microbe bears cultivation well at blood heat, on white of egg. In its growth it retains its original color, odor and microscopic appearance.

In excessive and odorous perspiration of the feet and axillæ, a variety of remedies will either sterilize or kill the microbe, almost incredible relief is at once experienced, and both the odor and sweating gradually disappear by bathing the parts with boroglyceride solution, or a wash of peroxide of hydrogen.

Sudden prostration from some shock; a partial

Syncope. suspension of vital power.

(*Fainting*.)

Best treatment recumbent posture, one-drop doses of nitro-glycerine on tongue, head low, cold air; cold water dashed over the face and chest; smart beating hands, feet; friction; mustard plasters over the region of heart; aromatic spirits of ammonia or brandy.

If the syncope be due to or associated with anæmia or chlorosis it must be cautiously treated with brandy, ammonia and beef-juice, administered both by mouth and rectum. The recumbent posture should be maintained until the action of the heart is nearly normal.

Synovia consists of water, albumen, soda, chloride of sodium, phosphate of lime, a fluid to lubricate the joints, but one of the very best culture fluids for very many disease germs, especially the micrococci of scarlatina; amylobacta of rheumatism; bacillus of tubercle; the syphilitic germ, and others.

This joint-fluid is a most nutritious pasture field for those germs, affording them all elements suitable for growth and reproduction.

The micrococci of scarlet fever, when oxygen is deficient in the blood, take to the joint water, where they can receive nourishment and protection more frequently than is generally supposed; it goes there alone and has neither identity nor affinity for any other microbe; it may possess eccentricities, but it alone is the cause of the joint-lesion. It is impossible to describe or state the time of migration, or joints affected, but smaller joints, as the fingers, wrists, etc., in which the synovia is richest, and pink marrow abundant, are those generally affected.

The synovitis caused by the presence of the micrococcus of scarlatina in the synovial sacs, and other white fibrous tissue, in which it breeds, evolve spores and ptomaines, should invariably be treated by the local application of bactericides, as concentrated ozone, sulphur, ozonized tincture of iodine, iodoform, iodized oil, or some of the essential oils, menthol, thymol, etc.

The *bacillus amylobacta* of rheumatism germinates most actively in the larger joints; it is an active germ, leads to an accumulation of effete material in the system. Occupies joints in which pink marrow is not so abundant, therefore in its immediate results is not so productive of anæmia; the excretion of ptomaines are considerable, hence the joint pain is usually great.

The treatment same as rheumatism, with local bactericides.

The favorite location of the tubercular bacilli in joints is around the cartilaginous ends of the bones, and the joints selected are the knee, hip, wrist. (See *Tuberculosis*.)

The syphilitic and other germs often localize in the joints.

A term used to distinguish peculiar organizations of the body in different individuals.

Temperaments.

It is customary to arrange them in four principle groups.

1. The *sanguine* temperament, characterized by plumpness of body, fair or red hair, blue eyes, a soft, thin skin, active circulation, and a full, quick pulse.

2. The *phlegmatic* temperament is distinguished by a round body, soft muscles, fair hair, pallid skin, and slow, languid circulation and pulse. All the functions, mentally and bodily, are torpid.

3. The *bilious* temperament, known by firmness of muscle and flesh, defined sharp features, black hair and dark complexion, a full, firm, and moderately quick pulse.

4. The *nervous* temperament, characterized by a small spare frame, quick, impulsive movements, and a delicate constitution; the pulse is small and weak, and easily excited; the whole nerv-

ous system is susceptible, the thoughts quick and imagination lively.

Some physicians place great reliance on the indications of temperament in the treatment of disease, and find that those who possess a sanguine temperament are most liable to acute inflammatory diseases; the phlegmatic inclining to scrofulous complaints; the bilious to affections of the liver and digestive organs; and the nervous to mental disorders and diseases of the nervous system generally.

A microbial disease of great intensity, capable of destroying life in either a few hours or from three to five days, patient conscious but in a state of rigid spasm, said to be idiopathic or traumatic, whichever it is a specific contagious disease, due to the action of a specific virus, which exists in the tissues at the seat of infection in the blood and in the central cerebro-spinal nervous system.

The conclusions arrived at with reference to the origin of tetanus, is that it is an earth poison, or microbe.

1. Tetanus is transmissible, not only between animals of the same or different species, but also from man to man and from man to animals, and *vice versa*.
2. The demonstration is established as regards solipedes.
3. The contagion from horse to man may be made directly or indirectly, the latter being most frequent.
4. Intermediate agencies, whether in prolonged or slight contact with a tetanic horse, receive without destroying the poisonous element, consequently enlarging the sphere of infection.
5. Living beings may serve as the means of transmission without being themselves affected, but are constantly in danger of traumatic auto-inoculation.
6. A wounded man may receive infection of tetanus from surrounding objects, but of all these the horse and all his belongings are the most dangerous. Next in order is cultivated ground and its products.
7. The earth case acquires tetanic virus when contaminated by a tetanic horse.
8. Statistics show that tetanus occurs most frequently among those persons whose calling brings them in contact with horses—that human tetanus is parallel with equine.
9. The equine theory is confirmed by a majority of facts.

In view of the experimental evidence which we possess at present and of numerous unassailable observations of many surgeons and veterinarians, there seems to be ample warrant for the admission that not infrequently tetanus in man is acquired directly and indirectly from some of the domestic animals which surround him, notably the horse, and also from newly cultivated ground.

When this microbe enters the body, it is by the nerves, and makes directly, as if by magic, for the medulla oblongata and its membranes, where it breeds with amazing rapidity. The germ is contained in the medulla and spinal marrow, and spreads along the cord, being strengthened in its progress, and grows more intense all the time.

Such an active microbe breeding freely, with a deadly ptomaine excreta, even greater than rabies, runs along and implicates all nerves in connection with the medulla and cord; first the microbial chain traverses the nerves that supply the muscles of the jaws and throat, they become rigid, fixed with the mouth firmly closed, giving what is termed *trismus*, or lock-jaw. As the microbial colony spreads, descends the spinal cord, the muscles of the face, throat trunk and extremities become involved in the spasmodic contraction. Angles of mouth drawn outward and upward; muscles of neck, back and abdomen, hard, tense, contracted, and from time to time violent contractions occur. Spasms never entirely cease, except in some cases during sleep; aggravated every quarter of an hour or so, increased, cramps lasting for a few minutes and then partially subsiding. When the nerves that supply the strong muscles of the back are most implicated or affected, they draw or bind the body in the shape of an arch, the patient resting on the occiput and heels, which is called *opisthotonos*. If the nerves that supply the anterior or front muscles of the body are weakened by any cause, the irritation may exhibit or spend itself there and thus bend the body forward by strong contractions of the muscles of the neck and abdomen; this is called *emprosthotonos*. If the nerves that supply the muscles on either side be affected or weakened, the irritation may spend itself there and the body be drawn sideways, which has been designated *pleurosthotonos*. By and by, the nerves that supply the involuntary muscles become affected. Frightful suffering, caused by tetanic spasms; face pale or as white as snow; brows contracted; skin covering forehead corrugated; eyes fixed and prominent, sometimes suffused with tears; nostrils dilated; corners of mouth drawn back; teeth exposed and features fixed in a grin—*risus sardonicus*. Respiration performed with difficulty and anguish; severe pain at the sternum or pit of the stomach; great thirst, but agony increased by attempts at deglutition; pulse feeble and frequent; temperature very slightly raised; skin covered with perspiration; patient cannot sleep, or if he does, it is only for a few minutes at a time. In spite of all the suffering the patient's intellect remains clear and unaffected. It terminates either in death or recovery, or by a breaking up of the spasm into chronic, from which, with proper management, recovery is almost certain.

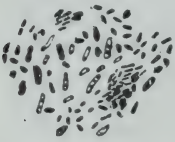
The duration of an acute attack is usually between three and five days, death taking place partly from suffocation, partly from exhaustion. It is very easily recognized by its history and symptoms, the absence of fever, the clearness of intellect and the continued spasm. No other disease like it. The appearances after death are great serous effusion in ventricles of brain, around the spinal cord; the whiteness of skin and laceration of muscles by the spasm is also present.

In the serous effusion around the medulla oblongata and spinal are to be found the bacillus of tetanus.

Rods, very fine, like thread forms, mostly collected in irregular masses, with characteristic spore-formation.

Inoculation of garden earth subcutaneously into rabbits induces tetanus. The bacilli found in their blood is identical with the microbe in man.

The germ is pathogenic of the disease, bears cultivation well, and is as active after several generations of culture as in its primitive state. Pre-eminently contagious and infectious, it has an uncertain period of incubation, depending upon the status of vital force of the inoculated. Cases occurring twenty-four, thirty-six or forty-eight hours after injury rarely survive the third day, but comparatively few are lost when it comes on the ninth or eleventh day.



Microbe of Tetanus.

The excretion of ptomaines is most active in and around the medulla, death often takes place from them before they have time to enter the blood.

As tetanus has thus been clearly shown to be a disease due to the presence of a pathogenic bacillus, its curative treatment depends almost exclusively upon the administration of bactericides, but before any drugs can be given the spasm must be relaxed. For this purpose move the bowels freely with compound powder of jalap and senna with one drop of croton oil. Apply at once the galvanic cautery at a white heat every three quarters of an inch on both sides of the spine, from the nape of the neck down about ten inches. After its thorough application, poultices, composed of equal parts of flaxseed meal, pulverized lobelia and stramonium should be applied as hot as can be borne and changed every three hours. While this is being done, an effort must be made to relax the spasm, as the recovery of the patient depends upon that. For that purpose, take one heaped teaspoonful of lobelia seed, fresh crushed, one teaspoonful of the

fresh plant of lobelia, one tablespoonful of American valerian, and one tablespoonful of pulverized capsicum; place all in half a pint of brandy, shake well, let it settle a few minutes, then begin to give a teaspoonful every few minutes until the spasm relaxes. If there is a hot bath handy, put the patient in it (97° Fahr.) Throw in the bath a pound of lobelia, and while in the bath enemas of a strong infusion of lobelia should be given. The lobelia, by the stomach, bath and rectum should be pushed to thorough relaxation of spasm, avoiding emesis if possible. If there are no facilities for a hot bath, then cloths wrung out of a decoction of lobelia should be applied to chest, abdomen, thighs. Half an hour is sufficient for the bath, but if cloths are applied they should be constantly used, keeping them hot and moist. If spasm breaks, the case may be considered pretty safe, if well managed, and the proper bactericide administered.

The dioxide of hydrogen is the germicide combined and alternated with sumbul and bromide of potassa. Other germicides might be tried, as resorcin, soziodol, concentrated ozone, etc.; sulphur water ozoned; par-aldehyd, etc.

The lobelia, antispasmodic, must be still persevered with in small does, and small doses of calabar bean added to it.

If there be a wound, a scratch, an abrasion, or laceration, from a rusty nail, with the microbe from the earth or from something in use near a horse, it should be attended to; all irritating particles should be removed and the wound sterilized; the nerve, if lacerated or torn, might be divided, and poultices of either creoline or naphthaline, or ozonized jequirity applied. Otherwise, treat on general principles. It is folly to think either of dividing the nerve high up in the limb, or amputation, for once the microbe reaches the medulla (vital force slightly impaired) it will breed in the nervo-vital fluid and cause the disease.

Spasm well broken, and microbicides administered, acro-narcotics, like belladonna, conium, might be tried.

Inhalation of ether, chloroform, hypodermic injections, alkaloids of opium, chloral, are decidedly hurtful and likely to cause death.

Infantile tetanus, or as they are sometimes termed, nine-day fits, occur in infants after birth, from cutting of the cord with scissors which had been on the ground or earth, or old linen rags, trichinous lard, etc. Great care is necessary to guard the new-born from cold, foul air, poisoned lard to skin, imperfect cleaning of sebaceous secretion, retention of the meconium. Cord should in all cases be properly cared for, never left in the hands of an ignorant nurse.

Puerperal tetanus often makes its appearance during and subse-

quent to labor. Pressure of the foetal head on the sacral plexus of nerves is said to be the common cause, true of an irritation transmitted to the medulla oblongata, but the disease is most common in spring and fall, when the accoucheur for pleasure is occasionally working in his garden or with his horse. Here we have all the symptoms of the disease; the peculiar germ-laden medulla; the germ excreting ptomaines, the tetanine irritating motor nerves, which supply the muscles, causing rigid spasm.

In our diagnosis it must not be confounded with anæmia or hyperæmia of the brain, which are very common.

The mode of management here is to deliver quickly and pursue precisely the same treatment as one of general tetanus.

The coagulation of blood in the heart or

Thrombosis. blood vessels during life, is predisposed to by malaria, carbonaceous food and drinks, indoor life, sedentary habits, non-aeration of the blood, breathing deleterious gases, germ-laden air with sewage, pregnancy; such drugs as ergot.

The blood thick, clotty, is prone to attach itself to some neoplasm, some calcareous body on its inner lining of the vessel, some atheroma, or some weakened or inflamed patch, or dilated vessel; agents that will slow the heart's action, hasten the coagulation.

The nature of the clot is most variable; the coagulated fibrine may fill the vessel, and the thrombosis may be uniform; the blood may coagulate along the inner walls of the vessel only, flowing freely in its centre.

When once formed it may organize or undergo shrinking, softening or suppuration.

The symptoms will depend upon its location, the size of the vessel and the amount of clot; for example, when the blood in the femoral vein is clotted it gives rise to phlegmasia dolens; thrombosis of the cerebral vessels gives rise to special phrenic symptoms; clotting of the blood in the vessels of the lower extremities gives rise to anæmia, necrosis, hemorrhagic infarction, dry or moist gangrene.

In the treatment of thrombosis, rest, abundance of fresh air, alkaline bathing, friction or massage, with stimulating liniments; internally a judicious use of alkalies in alternation with belladonna and general treatment for embolism.

Precautions.—As nearly all the new coal tar preparations, as exalgine, antipyrine, antifebrin, salol, etc., cause thrombosis, great care must be exercised in their administration.

In structure the tongue consists essentially of muscular tissue covered by mucous membrane. The muscular fibres, omitting those of muscles inserted into the organ, are arranged in two horizontal and several vertical layers, the former set lying immediately underneath the mucous membrane, and the latter passing vertically from between the horizontal layers, leaving intervals which are occupied by gland structure. The mucous membrane is furnished with papillæ. 1. The circumvallate, which are a dozen or so in number, and are arranged at the base of the tongue like an inverted V; these papillæ are greatly concerned in taste, and are supplied by the glosso-pharyngeal nerve. 2. The fungiform; these are scattered over the tongue, and are specially observed at the sides and tip. 3. The conical or filiform, are distributed all over the tongue. The tongue is divided into two symmetrical halves by a fibrous septum, the existence of which is marked by a raphe in the median line.

Diseases.—*Tongue-tie* is a condition in which the frænum, or fold, seen on the under surface, extends to the tip, and appears to tie the organ down to the underlying structures; its division, by means of a pair of blunt-pointed scissors, readily remedies the defect.

Inflammation of the tongue (glossitis) may be caused by wounds, or stings, or by the application of some acrid substance; occasionally it comes on without any apparent cause. If the symptoms are not peculiarly urgent—*i. e.*, if there be no great pain or swelling, or threatening of occlusion of the fauces, a leech or two under the jaw, and a smart purgative, usually afford relief. If the inflammation be very sudden, its progress rapid, and suffocation threaten, then a few longitudinal incisions should be made on its surface to allow of the escape of fluids. In very severe cases, where these measures afford no relief, and the symptoms are very urgent, tracheotomy must be performed. Glossitis is sometimes brought on by the excessive use of mercury; the treatment in such cases consists of purgatives, astringent lotions, and careful bandaging of the organ, and full doses of chlorate of potash internally.

Ulceration. Ulcers of the tongue may have their origin from several causes, either from local irritation, such as decayed teeth,



The upper surface of the tongue showing the papilla, and the dorsum on which disease germs localize.

or from some derangement of the digestive organs, in fevers, or from syphilis, or from the prolonged and mal-administration of mercury. In all cases there is a marked foulness of breath. The constitutional treatment of course varies with the case, and removal of all obvious irritation, attention to the bowels, and locally the application of a solid stick of lunar caustic, the sucking a few crystals of chlorate of potash, and in syphilitic ulceration, the application of a little calomel powder diluted with flour, are about the best remedies. Those connected with microbe of syphilis are the most intractable, and frequently defy all treatment. Malignant ulcers of the tongue are epithelial in their character, and their development is frequently ascribed to local irritation, such as a sharp stump of a tooth, the habit of smoking short clay pipes, etc., but such causes are very questionable. The margins of such ulcers are composed of hard granulating masses, implicating the substance of the tongue, and ultimately involving the glands at its base; under the jaw and in the neck they are attended with great pain, and are usually deeply excavated. The prognosis in these cases is very unfavorable. The treatment is very unsatisfactory, and consists in removal as the only chance for the sufferer.



Organisms found in the human mouth, almost invariably present.

Enlargement (hypertrophy) occurs in young persons, and is nearly always congenital. The tongue protrudes from the mouth, becomes ulcerated from contact with the lower teeth, and there is a constant dribbling of saliva. The treatment consists in attention to the state of the digestive system, bandaging the organ, and astringent lotions. In cases where this treatment is of no use, removal of a portion, or the whole of the protruded part, must be performed.

Tumors in connection with the tongue are sometimes met with. Of the most frequent occurrence is ranula, to which a special article is devoted. (See *Ranula*.) Encysted tumors, closely resembling ranula, fatty tumors, and nævi.

The ducts of the salivary glands, the parotid, and submaxillary, are sometimes the seats of *concretions* composed of phosphate of lime and animal matter, oval in shape, of a brownish or yellowish color, and of variable size, sometimes being as large as a small egg. Occasionally they come away of their own accord by ulcerating through their confines, but their treatment consists in their removal by the knife and forceps.

Wounds of the tongue almost always bleed very freely; in slight cases, iced water, or styptics, will arrest the hemorrhage or occa-

sionally a vessel may be tied, or pressure may be kept up by a pair of common forceps, the blades of which are kept together by an elastic band. The edges of a severe cut or laceration should be approximated with sutures. All pain, swelling, etc., should be allayed by iced drinks, and astringent and disinfecting gargles or washes.

The tongue is a most valuable index of the state of the stomach, bowels, liver, kidneys, etc.

In the mouth, but especially on the tongue, are to be found almost every pathogenic microbe.

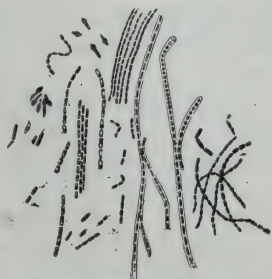
By taking the mucus, or coat, and placing it under a microscope, we see the *sarcinæ ventriculi* of gastric catarrh; the bacillus of typhoid fever; the micrococcus of measles, scarlet fever and variola, are all to be found on the tongue. The bacillus of tubercle and amylobacta of rheumatic syphilis, cancer, are invariably found on the dorsum or root of the organ. Even simple mal-assimilation can be detected in the myriads of bacteria and *oidium albicans* present.

The physician of the future will not only tell that transverse cracks and fissures mean intestinal irritation from microbes or parasites, but what those really are; that elongated papillæ at root or edge, are the starved-out *crepta syphilitica* seeking nutrition.

The frequency with which bullous erythema and hydroa attack the mucous membrane of the mouth, especially the lower lip and cheek, is one of the characteristics of these diseases; whether they ever also attack the mucous membrane of other parts of the alimentary canal is, I think, doubtful. No doubt, however, exists on this point with regard to pemphigus, for the disease not only attacks the mouth and vagina, but also the whole of the large bowel except the lower part of the rectum; this has been placed beyond doubt, not only by general symptoms and dysenteric diarrhea, but also by the results of *post-mortem* examination. (See *Pemphigus*).

Urticaria is especially liable to attack the mucous membrane of the throat, producing sometimes most alarming symptoms, with great dyspnoea and difficulty in swallowing. Violent symptoms of gastric irritation are also not very uncommon in cases of acute urticaria.

In our present state of microbial surroundings, the human



Different forms of the bacillus amylobacta found in the mouth and tongue in rheumatism.

mouth should be kept *aseptic* by washing it out with a few drops of the tincture of the soap tree bark, and dioxide of hydrogen; or some anti-microbe powder, added to a little water; boroglyceride also is excellent mouth wash. A very favorite anti-septic gargle consists of thymol; benzoic acid; eucalyptus, added to water.

**Tonsils, the
abode of Pathogenic
Microbes.**

In quinsy, so called in various forms of irritation of the tonsils, from inflammation to hypertrophy, there is found in addition to the ordinary bacteria of mal-nutrition, the bacillus of tubercle and syphilis, the streptococcus of diphtheria, the micrococci of scarlatina and variola, a special pathogenic microbe of quinsy. Requires bactericides; exalgine for fever.

Chlorate of potash alone, or in combination with hydrochloric acid in the form of gargles, or taken internally, is so often disappointing in the treatment of enlarged tonsils that better means are desirable. The disease is of parasitic origin. Whilst the harmless, if not very active boroglyceride has pretty well displaced the chlorate in domestic practice. Then salicylic acid was used, and with excellent results when applied judiciously. In the form of gargle it is least satisfactory, and often fails to reach the affected surface; a spray of glucozone is better, but to use that effectually trained hands are needed.

The best and simplest mode is to apply the powdered acid directly by means of a rather large camel's hair pencil, which may be slightly moistened. In this way it is brought directly in contact with the diseased surface, and but few applications are necessary. And it may be used with very young children after a little coaxing.

When the tonsils are covered with a thick mucous coating, which may be diphtheritic, it is necessary to previously remove it, and the following liquid, to be also applied with a brush, acts extremely well:

Pepsine, thirty grains; dilute hydrochloric acid, one drachm; water, five drachms; glycerine, four drachms.

The coating is quickly dissolved (digested) in this solution.

Besides applying the acid locally, it is advisable to give it internally at the same time, thus:

Salicylic acid, thirty grains; mucilage of acacia, one ounce; simple syrup, half an ounce; water, four and one-half ounces. Mix. A tablespoonful every two hours.

In the more chronic forms it is well to pencil the tonsils over

with tannin, fifteen grains; ozonized iodine, two drops; glycerine, five drachms; water, one pint; or it may be used as a gargle still more diluted.

For the prompt dispersal of threatened quinsy, apply with a brush three times a day, the following solution :

Tannin, fifteen grains; ozonized iodine, three drops; carbolic acid, half a drachm, glycerine, five drachms; water, two and one-half ounces.

Invariably the result of disease germs, either
Toothache. the microbe of dental caries, or the amylobacta of rheumatism, the former going for the body of the tooth, the latter for the fang. There are numerous others, one especially which forms lactic acid in a substratum containing sugar or starch. The salts of calcium in the sub-



Bacterium of dental caries.



Bacterium of dental caries as seen in the dentine of spontaneous caries; as seen in tissue-starved teeth from precocious brain evolution.

stance of the tooth are dissolved by the excreted acid, and the micrococcus is thus constrained to force its way into the tooth; as more and more of the calcium is used up in the tubuli of the dentine of the tooth and ultimately spreads through and destroys the tooth.

The microbe of dental caries is due to a degradation of the dentine, predisposed to by a want of phosphates, in the blood and brain of tissue-starved precocious children, imperfect nutrition; the presence of heat and cold, and of sweets, with the formation lactic acid in and around the tooth, add to the progress of microbe growth.

The microbe of dental caries is a polymorphic micrococcus, the chains and filaments being but different phases of the same

germ. Deposited in and around sound teeth, the germ will contaminate the most healthy, and induces caries.

The microbe bears culture well in beef tea and phosphates of lime, is pathogenic, for the injection of the germ into animals gives rise to caries of the teeth.

The germ is sterilized by the microbe powder; by soap tree bark and resorcin; by peroxide of hydrogen.

Tubercular Bacilli. This term is used to designate a state of body in which the tubercular bacilli is being constantly evolved in the blood. The disease germ tubercular bacilli is simply a change or an alteration, or degradation of the embryonic or primary elements of the blood. The precise method of degradation is unknown, but all states inimical to a high standard of vital force are productive of it.

The primary cause is some inherent defect, or depreciation of the nerve centres, especially of that portion which presides over organic life and the elaboration of the blood, some adverse state either within the body or out of it, which causes the degradation of the primary molecule or cell into a disease germ, which when once formed is capable, either in the blood and tissues, or out of the body if in a nutrient menstruum, of a new and independent existence, with endless, nay prodigious power of reproduction to multiplication.

The causes that bring about the defect of the nerve centres, this vital deterioration of the human race are very varied, races are distinct, therefore are incompatible, just like age and temperament; the use of alcohol and tobacco; vaccination, isolation, monotony, or sameness; vice, immorality, debasing literature; deleterious trades, as factory labor; operatives in lead, phosphorus, mercury; masturbation; drastic drugs; meagre, unwholesome and insufficient food; insanitary surroundings; absence of sun light; contaminated water, or water loaded with sewage; drinking snow or ice water; disease, or irritation in the body reflected to the nerve centres; reflex emanation, or assimilation of morbid states; city life or overcrowding; immoral amusements.

Observation and experience confirm the fact that the children, the product of two distinct, opposite antagonistic races are all *tubercular*; individuals identical in temperament, the same in all physical and mental traits, are really consanguineous, and their union is equivalent to *in-and-in* breeding offspring highly *tubercular*. In a series of observations of the brains of drunkards,

tobacco users, monotonous, or isolated persons, there was noted a general coalescence or obliteration of typical fissures of thought, a state present in hereditary insanity, epilepsy, idiocy, and other low types of the human brain, the offspring of all such are *tubercular*, and notably of a brain type. Vaccination directly from the heifer, or drinking the milk of cows may convey the tubercular bacilli direct, as two-thirds of all domestic animals are loaded with this disease germ.

The vitalizing effects of virtue and morality, the depreciating effects of vice and immoral literature, produce their reward: in the former, health; in the latter, *tuberculæ*. The absence of sunlight; the isolation of the sexes, solitary confinement, drinking water laden with disease germs; insanitary states and other defects of modern civilization have a decided effect in depreciating vital force and causing *tuberculæ*.

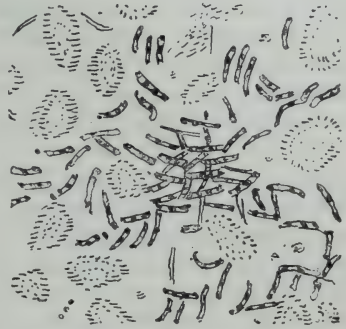
The children, or progeny of all operatives in lead, mercury, phosphorus, tobacco, cotton and woolen factories are tubercular. The loss of important secretions, as in masturbation, render all the outcomes *tubercular*; reflected irritation operates keenly in children, such as teething, worms, gastric catarrh, everything that has a lowering, or levelling, or pruning influence may be enumerated as a cause.

The tubercular bacilli as seen in the blood and during cultivation, consists of rods, occasionally long, very thin, and rounded at the ends. They are both straight or curved, and frequently beaded; occur singly, in pairs or in bundles. They are found in the cells of tubercles, especially in the interior of giant cells. Propagate by spore formation.

A tubercle bacillus consists for the most part, of a very delicate sheath, with protoplasmic contents which have a great tendency to be broken up, or coagulated into little segments or roundish granules.

The best medium for cultivation is solid blood serum of cow or sheep, with or without the addition of gelatine. The most favorable temperature for their development is 98° F. They grow slowly in cold latitudes.

The bacilli are found in all tubercular deposits of man, animals, and birds. The bacilli can be detected in the sputum and excretions.



Bacillus tuberculosis in the blood.

Strictly contagious and infectious; food, such as milk, flesh-eating, inhalation, close contact; the bacilli or their spores are inhaled from the air, or taken in with food, find ingress by the pulmonary or intestinal mucous membrane.

Morphologically identical bacilli are seen in lupus, tabes, etc.

The tubercular bacilli is pathogenic of all forms of tubercular disease, its inoculation into animals reproduces the diseases, and *vice versa* into man. Ptomaines excreted give rise to fever, diarrhea, and other symptoms.

Individuals having these microbes of tuberculæ in their blood and tissues, can communicate it to all with whom they come in contact, that is, it is contagious and infectious; this fact is indisputable.

When once this constitutional deterioration has been acquired, the peculiar type of deterioration can be transmitted to the offspring, and thus become hereditary, as well as acquired.

There can be little doubt from the peculiar characteristics of the tubercle bacilli in those affected with it, that not only the blood but the breath is germ-laden, and it is this breath which is the principal means of spreading the disease.

Nearly seventy-five per cent. of all cows and other domestic animals are also tubercular, man imparts his germs to them and they to him by their breath, exhalations, milk and flesh.

A human being may live along to a good old age, his blood and tissues loaded with the tubercular bacilli, with a very feeble vital force, and unless there be some local weakness, some partial death, the germ growth may not be apparent, but let some organ or gland be damaged or weakened, the germ will, by exosmosis, pass through the walls of the vessels, deposit itself in the devitalized part and grow with the greatest activity. In this manner, the bacilli of tubercle find their way in or on the membranes of the brain in infants, who have received falls, blows, shocks, giving us *tubercular meningitis*; lesions of joints; *white swelling*; *coxalgia*; an inherent weakness of bones due to starchy food and absence of phosphates, *rickets*; a feeble mesentery, due to diarrhea or cholera infantum, the bacilli tuberculæ will localize in the mesentery; giving rise to *tabes mesenterica*; if living structure is feeble or damaged, microbes will localize there, giving rise to *pulmonary consumption*.

Although this diathesis is extremely common, seventy-five out of every hundred being affected, there is no immunity or protection against it except to maintain the highest standard of health possible. Although it is essentially a most contagious malady, transmitted from parent to child, from husband to wife, blended and interwoven through society at large, still it is in-

capable of establishing a morbid race, which is an utter impossibility, the evil curing itself by non-procreation..

When tubercle escapes from the blood through the walls of vessels that have lost their contractility, it appears under the microscope to consist of small round cells or cysts, imbedded in a cellulose membrane, and it can be seen growing like other germs by a proliferation from the walls of the nuclei. If the mother cell or cyst be squeezed lightly between two pieces of glass, so as to rupture it, in its contents can be detected millions of minute tubercles, their mode of life, progress, death, or degeneration depending upon their number, character of tissue, or structure in which they are effused, and the amount of partial death present in the part; all influence or modify the progress and vitality of the germ. From the degraded cell or mother germ, the growth is by a budding or duplication, and when it dies, either from age, want of nutrition, or some adverse state, its albuminoid contents become first milky, then cheesy, then calcareous, and in any of these three stages it may break down and be thrown off or absorbed. Its color may be influenced by particles of coloring matter in the air or food. Its ultimate degeneration is phosphate of lime.

Symptoms.—As these germs eat up the pabulum, the liquor sanguinis of the blood, there is always great debility, indigestion, torpid liver, defective pancreatic secretion, paleness and whiteness of the skin, general feebleness. with rapidity of pulse. The debility and loss of flesh are progressive, correspond with germ evolution, for as vital force grows more and more feeble, tubercle bacilli make a rapid growth, temperature rises. The development and growth of the microbe is favored by all and every condition which is inimical to a high standard of vitality. The part in which the bacilli are exsposed from the blood, invariably suffers some depression. Generally there is a dryness of the hair, puffiness of the face; swelling of the lips and nostrils; purulent discharge from the ears; vesicular eruptions about the head and orifices; enlargement of tonsils, and glands of the neck, and throat; often fetid odors from the axillæ, groin, feet; engorgement of any gland with the bacilli will give rise to special symptoms of tubercular growth, fever, increased pulse, with some impediment of structure. If the blood is charged with those microbes, a migration into a weakened structure will take place at any period of life, although from three to fifteen, or from eighteen to thirty, are the critical periods, ages when the system can least resist depressing influences.

The state of nervous bankruptcy, the blood germ-laden with the tubercular bacilli, does not seem to be antagonistic to high

intellectual culture, or gigantic mental attainments, but those possessing this diathesis are incapable of long, persevering efforts.

To prevent the development and transmission of tuberculosis, no diseased person should be permitted to marry, and State enactments should be made forbidding opposite races, or persons identical in temperament, from marrying. Great care taken of mothers, no drain or strain on their physical and intellectual resources, especially during pregnancy or lactation. Strictest attention paid to the infant's food, quality of milk, clothing, and air it breathes. Avoidance of all insanitary states, as bad ventilation, ill-drained or damp houses. No tubercular mother should be permitted to nurse her child. An avoidance of all that tends to deteriorate, as sexual excesses, bad food, or imperfect digestion. The diet should be of the best and blood-manufacturing; dress, exercise, repose, and association, should be looked after; the function of skin and bowels to be aroused, the powers of digestion increased and everything done to increase brain vigor, correct faulty nutrition and promote the formation of healthy blood.

As to the cure of tuberculosis, we would merely state, that all cases are curable before it has taken up a local habitation, except those cases due to a mixture of races; for these there is no hope, as no sanitary arrangement, no amount of bathing, no kind or quality of food, no climate either on sea or land, and no known drug or method of treatment that can stamp it out—it is indelible. To cure it, we must resort to every means of restoring or building up vital force, and the germ must be annihilated in the blood, as no living disease-germ can be eliminated.

Digestion, assimilation and secretion merit our first attention. Daily bathing, using iodine freely in the water, temperature regulated by vital force of patient, followed by inunction of a few ounces of olive oil into the body. Sleep should be prolonged to eight or nine hours, in harmony with the earth's magnetic law; head of bed to north, foot to south, insulated by glass castors; clothing woolen, a good non-conductor and vitalizer. Diet varied, abundance of fresh, wholesome animal and vegetable food, embracing oatmeal, milk, cream, egg, boiled fish, beef, mutton, poultry, game, with abundance of bread and butter. As to location, one where there is an abundance of fresh air, pure water, and no insanitary surroundings; free ventilation. Change is essential to a high grade of physical and mental vigor. The patient should be surrounded with a vitalizing, religious, and high moral atmosphere, and his reading, history or science.

Medical agents to be used embrace two classes—one to strengthen, construct nerve power, restore lost vigor; the other to destroy a living disease-producing germ in the blood. The two classes of drugs should be administered alternately two or three hours apart, and changed weekly, as man becomes habituated to any one drug long continued, it becomes in a great measure inoperative.

**Tubercular Bacilli in
Lung Structure.**

(Pulmonary Consumption.)

Phthisis pulmonalis is due to the tubercle bacilli depositing itself either on the laryngeal mucus, mucous membrane, or in the substance of the lung—the germ being a denizen in the blood prior to the lung damage which permitted its exudation.

The tubercular diathesis must exist in the individual, either inherited or acquired. The typical form of depression of the nervous system which gives rise to tuberculosis, to the degradation of normal living matter or bioplasm into other living matter, a disease germ is not yet fully elucidated; suffice it to say that it is essentially a germ disease, and consequently is both contagious and infectious in the true sense of the term.

Destructive changes in the lung may take place from other causes, other microbes, but their irritation there invariably modifies the nervous system reflexly, that the tubercular diathesis is created.

In the glucose diathesis, and chronic alcoholism, states or conditions in which the blood and tissues are loaded with the sugar-fungus, the grape sugar so devitalizes or weakens the whole nervous system, besides irritating the large aerating surface of the lower lobe of the right lung, in the imperfect combustion of sugar, that an intense tubercular diathesis is created, and the bacilli of tubercle effused into the irritated lung, pulmonary tuberculosis is the result. Patient does not die from diabetes proper, but from the microbe-smitten lung.

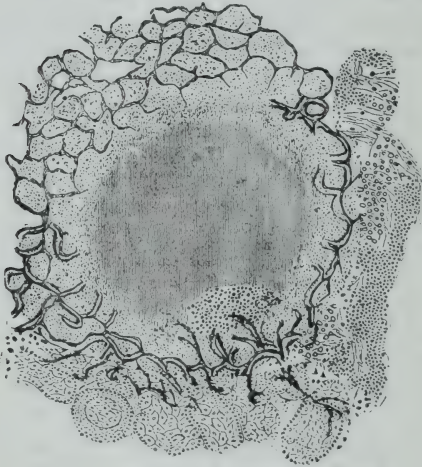
Again, in pneumonia, the pathogenetic micrococcus of that inflammation, not being annihilated between the microbe in the blood, its irritating action in the crypts of the lung tissue, the imperfect aeration of blood due to the germ-smitten congested lung speedily creates a tubercular diathesis, and tubercle are thrown out alongside the pneumococcus, and a destructive microbe eating process is set up.

Perhaps from a lift or strain, or from the inhalation of irritating noxious gases, or other causes, a small blood vessel might rup-

ture in a healthy individual, the blood congealing in the air cells will irritate, depress, the nerve centres, normal living matter will be degraded into other living matter—tubercle; this will become deposited around the clot, and a germ-eating process established, and so with foreign bodies, solid particles in various occupations of life, as miners, grinders, factory operatives. Besides, the disease germs of cancer and syphilis often set up an irritation.

These, of course, are accidental cases, to which we simply refer.

One thing is necessary; there must be a typical state of nervous depression, which gives rise, under adverse conditions to vitality, a degradation of normal bioplasm, into a disease germ, or that state must be inherited or acquired in some way. Once the bacilli tubercle are in the blood, then all that is necessary is some irritation either in the larynx, or bronchi, or in the substance of the lung; when this state of irritation or debility is produced,



Acute tuberculosis, as seen around an air-cell.



Acute tuberculosis. A small portion of the most external part of a yellow tubercle from the lung.

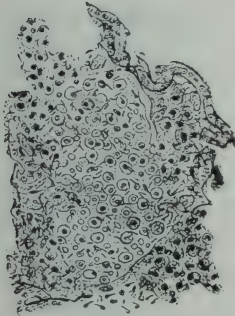
a process very similar to inflammation is set up—congestion, effusion in the weakened part; in the effusion there is the blood serum, lymph, and the bacilli.

For the sake of convenience, it is well to divide pulmonary tuberculosis into acute and chronic—the former when the bacilli are effused on the larynx or bronchi; the latter when they are effused into the substance of the lung.

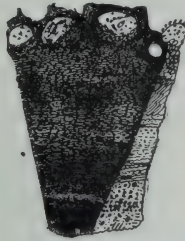
Acute phthisis pulmonalis commences suddenly, with slight rigors, fever, rapid pulse, difficulty of breathing, cough, bleeding from the lungs, hoarseness, loss of voice, profuse sweating, diar-

rhea, rapid emaciation, tubercle being only effused on the bronchial mucous membrane, called mucous or laryngeal phthisis. There is another rare acute form—lungs pretty clear, but mottled all over with tubercle, like grains of barley, chiefly in middle and lower lobe; patient dies early in both forms from apparent exhaustion.

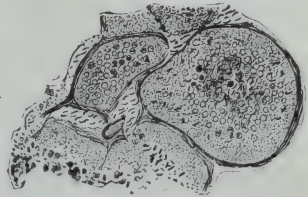
Chronic pulmonary phthisis.—This is a common form generally met with in the germ tubercle finding its way into the weak structure of the apex of the upper lobe of the left lung, spreading downwards on the apices of both lungs, and growing and effusing from above downwards. There is first effusion of tubercle in weakened structure, then growth, prodigious multiplication of germs, which soon interfere with passage of air into air-cells. Then nature desires to protect herself from the presence of those bodies; she excites less or more inflammation around them;



Tubercle-bacilli interspersed through the lung structure.



Chronic tubercular fibrosis.



Several alveoli are seen filled with debris; in the centre of this are numerous nuclei, and amongst them the tubercle-bacilli.

lymph is effused around the germ tubercle, and encloses or encysts it; and between the disease-germ and inflammatory products, the lung becomes solidified in its substance, and does not permit ingress of air. After an indefinite period the germ dies, yields to the influence of adverse conditions, and is expectorated or absorbed either in its albuminoid, milky, or cheesy state, leaving a cavity in the lung. In more rare cases there may be deposit of tubercle in the middle of a lobe; it may grow by aggregating other germs, or of its own innate property, and form a mass albuminoid, milky, cheesy, and finally calcareous, and break down and be expectorated, leaving a vacuum, cavity or cavern in the lung; the formation of such a cavity is called a vomica. The germs of tubercle may be deposited in the nerve centres, submucous coat of stomach and bowels, in mesenteric glands, liver, and kidneys.

The predisposing cause of pulmonary consumption is the presence of tubercle in the blood; the exciting cause is some irritation, as cold, damp, dust, foreign bodies, mechanical strains, lifts—any thing we can imagine that would weaken the vital capacity of the bronchial mucous membrane or lung substance.

Symptoms.—Languor, lassitude, debility, with increased heat; respirations and pulse ninety to one hundred; emaciation, protuberant eye balls, clubbed nails, loss of hair; cough at first dry, subsequently expectoration, difficulty of breathing, hæmoptysis or spitting of blood, night sweats, hectic flush on cheeks, burning sensation in hands and feet, indigestion, loss of appetite, loathing of fatty articles, weakness of voice, hoarseness or loss of voice; a festooned appearance at reflected edge of gums, often diarrhœa; often a dull, aching pain in shoulder blades. The increase of heat and wasting bear a direct ratio to the germ growth and deposit. When tubercle is deposited in the sub-mucous tissue of the bronchi, or on its free surface, symptoms are greatly aggravated, and bleeding from the lungs more common; often slight congestion of liver and kidneys, so that urine often contains sugar or albumen. In women, cessation of the uterine function is common. As the case progresses, the debility, wasting, sweats, and other symptoms become worse and daily more marked. Diarrhœa, at first due to altered or acid secretions, is now dependent on the germs in the coats of bowels, and to ulceration about ilium and colon; aphthæ about mouth and the fauces; tenderness and œdema of extremities; mental faculties usually remain clear until death.

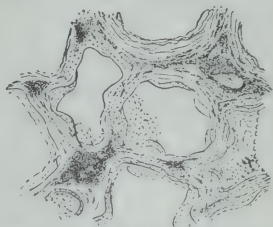
Now all the above symptoms are easily explained by the presence of a disease-germ in that fluid. This germ may have lain quiescent for many years in the blood, ready to spring into activity the moment conditions favorable for its growth should take place, and the pabulum adapted for its nutrition should be at hand. It is also true that if a high standard of health could be maintained by the affected individual, the germs would undoubtedly die out. The tubercular germ in a state of activity uses up in its own nutrition, growth, and development the vital elements of the blood and tissues.

The microbe wedged into a nook or corner, as seen in this illustration, after a time dies or else goes through various forms of transition, caseous, calcareous and then expectorated, leaves a cavity or vomica, as seen in this diagram.

In some cases, where the vital forces are greatly shattered and the bacillus is making extremely rapid growth, the work or energy of the germ is so efficient as to make nests for the spores.

The occupation of a patient, especially if there be dust inhaled, gives a coloring to the lung, the microbe and sputum are colored. This illustration shows the coal dust of the miner.

The *predisposing causes* of pulmonary tuberculosis are the presence of the bacilli, and there must exist in all cases a local weakness, which forms a predisposition, or germ bed; this predisposition is an impairment of the vital force of the part; a state which favors germ growth. The soil in which the germs are implanted exert some influence on their growth. In all cases of pulmonary



Miners' phthisis, with melanotic matter interspersed throughout the lung.

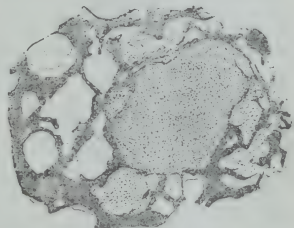
phthisis the quantity of germs on which the disease starts with is never very large, the vital tonicity of lung retards their growth, whereas if the lungs are weak they grow prodigiously fast. Every human being must have either inhaled the *microbe tubercle* from his fellow-man or swallowed it in milk or other food, and the reason we are not all affected is simply the fact that our vital force is good, we



Diagram of infarction of lung tissue with tubercular bacilli.



Cavities, or vomica in the lung, made by the tubercular bacilli; showing lung structure eaten out.



Nests of tubercle bacilli in the lung; acute form of phthisis pulmonalis.

have not a suitable patch of weakness for their settlement and growth; a lack of resisting power, with a local weakness, enables the microbe to thrive.

The *exciting causes* are irritation of all kinds, cold, wet, inhalation of noxious gases, dust, mechanical violence.

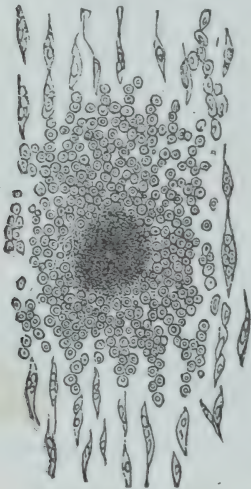
The *effects of the presence of this microbe in the blood and in the respiratory tract* are to eat up for its own nutrition all the vital elements of being; the germ is pathogenetic, its tendency is to destructive metamorphosis in lung tissue, and like all other disease germs the bacillus itself secretes a special ferment, which by certain changes gives rise to morbid action; a cadaveric alkaloid whose very presence gives rise to volcanic disturbance, fever, diarrhea, sweats, etc.

It is this alkaloid which is excreted by the tubercular bacilli,

which gives rise to very many of the symptoms of fever, hectic, diarrhea, sweats.

The ptomaine of the tubercular bacilli is peculiar in its toxic effects.

Morbid Anatomy.—Human beings and domestic animals in a state of normal existence placed in or under states adverse to the maintenance of a high standard of health have the primary elements of their blood altered, changed, degraded into the disease germ *tubercle*, which floats in the circulation and passes by exosmosis through the walls of the blood vessels in weakened parts of the body. From this germ-laden blood it is thrown out or passes through in an albuminoid form, as seen in the annexed cut, aggregated together in round masses by the law of affinity, and goes through a process of fecundation, growth and death—being first albuminous, then cheesy, latterly calcareous. When those degraded elements are in the blood they are capable of passing out of the body by the breath, saliva, sweat, urine and alvine evacuations and propagate the disease tuberculosis, by contagion and infection; besides fathers and mothers having this diathesis can transmit it to their offspring.



The bacilli of tubercle.

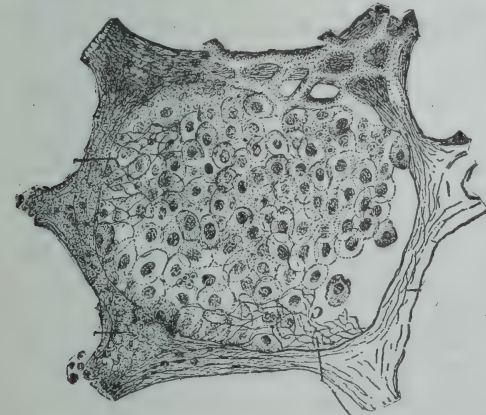
Whether the evolution of this microbe in the human blood of 80 per cent. of our people in large cities be due to incompatibility of temperament, or to meagre, adulterated or deleterious food, or insanitary states or surroundings, to the absence of sunlight, or hygiene, to isolation, monotony, deleterious trades or debasing habits, use of alcohol, drugs, disease, poverty of nerve force, we are not going to discuss. Sufficient it is, an adverse state being brought about wears out the vital force and evolves the germs and soon becomes a palpable reality in a depreciation of the human stock.

Feeble vital force, degraded elementary molecules into the bacilli of the tubercle, a disease germ floating in that life-giving fluid, sooner or later gives a manifestation of special disease in a loss of strength and flesh, in a protuberant eyeball, clubbed nails, night sweats, which are exhausting; as the exudation is the serum of the blood, rich in phosphates and chlorides, there is a failure in the lymph canals and pink marrow to raise the standard of the blood, and the organism becomes still further impoverished.

Persons who lose flesh or lose tone should not procrastinate an hour, should not wait for night sweats and cough to appear, or until lung consolidation takes place. Neither should those who suffer from insomnia delay, for a sleepless brain demonstrates a want of nutrition and imperfect nourishment.

The appearance of a section of the substance of the lung in which the bacilli tubercle has been effused is one of slight congestion, or hepatization, with the germ interspersed in grayish spots. The external surface of the lung may appear normal, or show dots of gray consolidation scattered throughout. In the incipient state it is albuminoid,

later on, milky; later still, caseous. After the preliminary exosmosis, the tubercle consolidates itself, and if the defective nutrition of the lung is not too great the bacilli becomes encysted in a fibrillated net work and microscopically has the appearance as in the annexed diagram.



Another specimen of the microbe encysted, showing the remarkable growth of the germ in weakened lungs.



Section of the lung showing the ravages of the germ, with the bacilli encysted.

These again, are the especial seat of the tubercle bacilli. May not the bacilli have something to do with the degeneration? How do the bacilli act in producing a tubercle? It cannot be merely a mechanical action; I consider it most probably a chemical one. You see in the above diagram a dark central mass; a mass of micrococci; a clear ring around, and then, beyond, an inflammatory ring. The course of events is

clear; the micrococci, growing in mass, have produced a poison which has killed the tissue around, but further away has been more dilute, and has there set up inflammation. I need not enter into the details. Now, I conceive the state of matters in phthisis to be the following; and, of course, the view as to caseation applies to tubercles anywhere. Bacilli are inhaled into the air-cells of a lung which is in a fit state, whether by predisposition or otherwise, for their growth. They at once attack the epithelial cells, and in the first instance, cause their hypertrophy and multiplication. The bacilli growing in these cells produce poisonous chemical substances, and the cell, which, in the first instance, was stimulated to increased growth by a small quantity of the poison, soon succumbs to the increasing amount, and undergoes caseation. Some cells, or groups of cells, are, however, stronger than the others, and go on growing, so as to form giant-cells. These, generally, also ultimately succumb, though in some instances they may get the upper hand, and the bacilli may disappear. While this is going on, inflammation occurs around, and the process creeps from air-cell to air-cell. I believe, also, that this view of the production of a poisonous substance by the bacilli may explain the fever and wasting of phthisis.

The pathology of pulmonary tuberculosis.—The tubercle bacilli consists of several round cells or cysts, in a cellular membrane floating in the blood, ready the moment any weakness takes place in an organ or tissue of being effused, with other products. Once a local lesion is established, a state of vital depression produced, the germ thrown out from the blood, countless millions of the microscopical progeny of the bacilli in the mother cyst or cell, penetrate its walls, hatch out, grow, multiply, and undergo a process of degeneration and death. Tubercle differs from all other germinal matter in its process of death; when effused by exosmosis through the walls of the blood vessels, it is an albuminoid body, no effort at repair, they become milky, then cheesy, and latterly an inorganic body, phosphate of lime.

It is a well attested fact that the living germs of tubercle, though weighty, leave the body of the infected by the breath, sweat, urine, stool, and are carried from individual to individual. This living contagion is to be more dreaded in our country than in any other, because we live among mixed races of men, distinct in certain great characteristics of being, and the passage of a disease germ from race to race increases its virulence or activity.

All domestic animals who are the victims of adverse states, inimical to their vitality, as overcrowding, insanitary conditions, meagre or poor food, exposure, have their normal bioplasm degraded into the microbe "tubercle," which passes to the human

race by close contact, and gives rise to a virulent form of tuberculosis.

The bacillary origin of phthisis is now very generally acknowledged. A proof of such origin is furnished by inoculation, but it has been recently still further established, especially by the experiments of Cornet, that the disease—at all events in certain animals, as guinea pigs—may be produced simply by the inhalation of the dried dust of the sputa. Now the fact that the disease may be communicated in this manner is of immense practical importance, for while, on the one hand, it proves the extreme danger of such a mode of introduction, on the other it indicates the measures and precautions which should be adopted to reduce that danger to a minimum. It is, of course, where the expectoration most abounds, and where it is most liable to become dried, that the danger is greatest—as in the rooms, hotels, and hospitals occupied by consumptives. Again, it has been experimentally shown that but little if any danger is to be apprehended from the inhalation of the breath of the phthisical, or of the air of streets, towns and promenades frequented by them. In the first place, the expired air has been found to be free from bacilli; and, in the second, although the sputa may be expectorated on the ground, etc., the dried particles or dust of these quickly become dispersed and scattered through the air to such an extent as to be rendered practically harmless. Moist and freshly expectorated sputa consist in great part of water, and when dried become not only very light but very friable, so as to be easily broken up into dust and so scattered about by slight currents of air. The rate of drying depends not only on the temperature and state of humidity of the air, but also on the nature of the material on which the sputa fall. Thus, if they come into contact with any absorbent material, such as carpets and pocket-handkerchiefs, they quickly dry in consequence of the withdrawal of the water by capillary attraction. Hence, the great danger which arises from expectorating into handkerchiefs.

Etiology.—When tuberculosis is either created or acquired, that is when some adverse condition exists; the peculiar de-

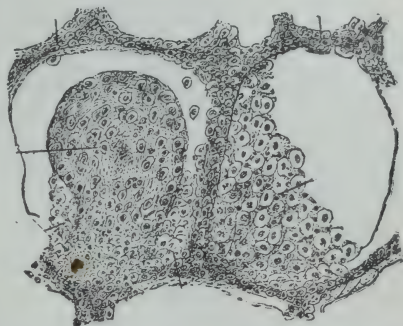
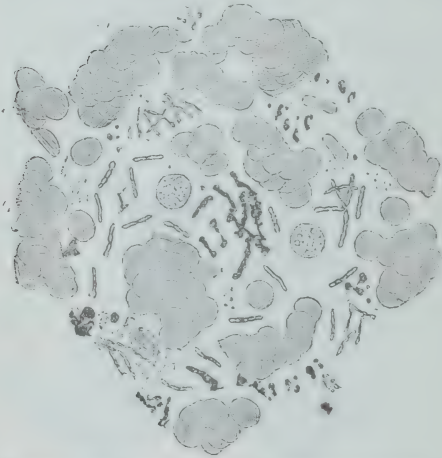


Diagram of the dead germ undergoing calcareous degeneration; the cheesy, cretaceous, chalky material into which the dead germs merge are very generally encapsulated.

pression of vital force, under which the germ tubercle is evolved, and is freely elaborated in the body, or vital force being somewhat feeble, the germs from another infected body find ingress into the body and blood, and there breed in the lymph spaces, every structure in the entire body becomes changed, weakened, deficient in vital force.

The tubercular bacillus eats up for its own nutrition, the vital elements of being, the blood, brain, all the important accessories of life are poverty-struck. The hair is dry, like tow, the skin thin, muscles soft and flabby; bones deficient in phosphates; secretions sluggish, acidity and dyspepsia; general impairment



The microbe of syphilis as seen in the inter-corporal spaces, from the blood of an affected individual, 1200 diameters.



Tubercle bacilli from phthisical sputum; *A*, isolated bacilli; *B*, groups of the same; the unstained granular debris of pus corpuscles and mucus are seen faintly at *C*, *D*. x 500.

of the nervous system. Even the marrow of the bones is eaten up by the microbe.

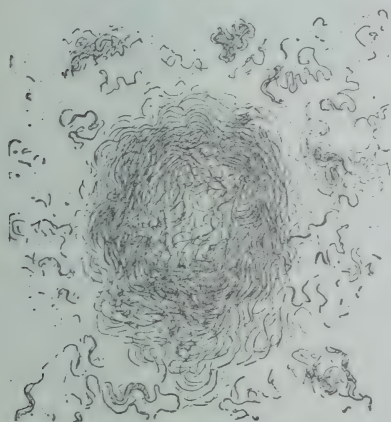
The diagnosis or recognition of this micro-organism in the blood tissues, and lung:

The recognition or diagnosis of tuberculosis is not altogether dependent on the symptoms we have enumerated; we have the remarkable appearance of the skin, loss of hair, hectic fever, cough, hemorrhage, consolidation of lung; or, if upon the bronchi, loss of voice, general nervous bankruptcy, with the presence of an excessive amount of phosphates and chlorides in the urine. The microscopical examination of the sputum and blood is never failing in a diagnostic point. The fæces are valuable in the latter stages, when the rectum becomes germ-eaten.

Sputum.—Human tubercular sputum is infallible in diagnosis,

as the germ retains all its virulent characteristics, even when dried. The germs in the sputum will bear cultivation well, will even isolate and clear themselves of all extraneous matter. Pure bacilli, from their original breeding ground, introduced into some nutrient medium, will produce their characteristic offspring.

Physical Signs.—If the tubercular bacilli be deposited on the larynx and bronchi, the lungs on percussion may be clear from apex to base, but shortness of breath, loss of voice, and hæmoptysis, will be predominant. If the bacilli have been effused in the substance of the lung, probably the apex of the left, or both left and right, beginning at the top and proceeding downwards; if consolidation is not perfect, feeble or harsh respiratory murmurs may be detected, audible and prolonged; perhaps a faint crepitus, or dry crackling; if the germ deposit is heavy, flatten-



Tubercular bacilli as seen in the sputum, magnified 750 diameters.



The bacillus of tubercle in the sputum of phthisical patients.

ing of the ribs and lack of intercostal movement. The dulness on percussion is decided, and as germ deposit progresses, chest movement becomes more deficient. As tubercles die and are being expectorated, large and small crepitation; if tubercle has eaten away lung substance, there will be a sinking in, a retraction of the intercostal spaces, and there will be an unusual clearness on percussion. The respiration will be cavernous, as coming from an empty cavity.

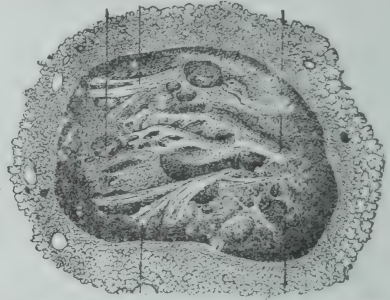
It must always be born in mind that there exists in nearly all cases of hepatic disease, dulness of the apex of the right, passive congestion without tubercle. As a general rule, tubercle deposits itself in the apex, and proceeds downwards; whereas, inflammation begins at the base and proceeds up; tubercle may

be deposited at the base, in conjunction with the germs of pneumonia, or the sugar fungus of chronic alcoholism or diabetes.

* Tubercle may be deposited in a weakened patch in the centre of a lobe; germ growth may be active or slow, it spreads in every direction forming a round mass, breaks down, is expectorated, leaving a cavern or vomica in the lung, as seen in the



Illustrating the advent of the tubercular bacilli in the apex of the lung in the first stage of pulmonary tuberculosis.



The tubercle bacilli, having finished its career, has left a cavity or vomica in the substance of the lung.

annexed diagram which illustrates a cavity in the centre of the middle lobe of the right lung. Germ is effused from a weak point in its centre, they multiply rapidly and form a large patch; often increase in size by peripheral disintegration, or there might be several small colonies in the lobe, they might coalesce and form one large, irregular mass, which proceeds through the usual metamorphosis, albuminoid, milky, caseous, and phosphate of lime; this latter breaks down, is expectorated, forming an excavation, a cavern or vomica. When a cavity forms, the tissues around become indurated, resisting, the cavity itself contains air, and a grumous purulent fluid of a yellow or greenish color. As a rule, cavities are quiescent, and frequently contract by an approximation of their walls.

Often before there is any appreciable lesion in the lungs, the following signs give a warning note and tell of the threatened mischief, and before there has been any deposit of tubercles that can be detected: stoop; anemia; arthritis; micrococci; hoarseness; hectic flush; sore throat; bad breath; rapid pulse; hæmoptysis; amenorrhœa; family history; red line on gums; rheumatoid pains; pityriasis versicolor; weak, tired feeling; shortness of breath; acromial depression; prolonged expiration; hacking night-cough; cog-wheeled breathing; thin ear, nostril, and lip; harsh vesicular murmur; congestion of vocal chords; brilliancy of eyes; general feeling of apprehension; curved nails;

clubbed finger-ends; emaciation, while appetite is good; constant high evening temperature; insufficient expansion of the side to be affected.

It is customary to divide the presence of tubercle in the substance of the lung, into stages: (1.) effusion of tubercle; (2.) perfect consolidation of lung substance from tubercular deposit or growth, or both; (3.) death, or breaking-down of the microbic mass.

Often numerous complications exist, as asthma, bronchitis, pleurisy.

It is impossible to speak correctly of its duration, the laryngeal or bronchial form is rapidly fatal, unless extremely well managed; when the microbe is in the substance of the lung, it is essentially chronic, admits of retardation, and very frequently a cure by germicidal remedies.

Prophylactic measures.—In a state of perfect health, man is proof against all micro-organisms; he is proof against the degradation of his own living matter into microbes; proof against their ingress in any form; if it were not so we would rapidly fall victims to this bacilli, which we are inhaling at all hours with impunity. If we are susceptible to the ingress of a germ, we can also be rendered proof against it by maintaining the highest standard of health possible.

To increase vital force, we must ward off all agents within and without which lower it; change, avoidance of monotony or sameness, is essential to a high grade of vitality; insanitary conditions avoided; and all things which are calculated to weaken the human mind.

Treatment.—This embraces three essential points; (1.) every possible means to maintain and restore vital force; (2.) the use of remedies to palliate the prominent symptoms, and (3.) the use of germicides to destroy the microbe, the factor of disease. (1.) Every possible means should be resorted to acquire increased vital force; to improve the general well-being of the affected; every comfort within reach should be supplied, his or her surroundings should be looked after, the body should be sponged off morning and night, well dried; massage from a highly vitalized nurse, the clothing should be flannel next the skin, otherwise woolen. A climate in which ozone abounds is the most beneficial, as the sea shore, high, dry altitudes in summer, while the city probably in the winter is the best; gentle open-air exercise, never to fatigue. The sleeping apartments well ventilated.

The diet should be very varied, nutritious, and consist as much as possible of articles rich in blood elements; the most

nutritious, animal and vegetable, with abundance of ripe fruits ; if stomach fails to digest, follow with pepsine ; warm milk from the cow drank before the vital elements escape, cream, raw eggs.

Tonics are indicated, as phosphated tincture of oats, quinine wine, comp. matricaria, to build up and promote an appetite.

Remedies to palliate prominent symptoms.

If wasting be a prevailing and persistent symptom, germs active, metamorphosis great, try inunction of warm olive oil into the body at bedtime ; extract of malt, brandy and cream to arrest excessive waste by sterilizing germs ; sterilized malted milk.

If there be fever, increased heat, respirations, pulse, try either antipyrine, or tincture of aconite, strophanthus ; comp. syrup of tolu and resorcin.

If there be great acidity, indigestion, try comp. tincture cinchona and mineral acids ; aromatic sulphuric acid, and quinine ; American columbo ; comp. tinc. matricaria, papoid, triturated with bicarbonate of soda.

If there be diarrhea, and this most exhausting, it must be arrested at once by administering a pill of equal parts of tannin and pulverized opium, one grain of each after every motion of the bowels, when they exceed one per day.

As this diarrhea usually depends upon a migration of the microbes to the mucous coat of the bowels, and as the rectum is literally microbe-eaten, completely riddled, it will be essential to place the patient upon the great intestinal vitalizer, the Virginia stone-crop, and alternate that with fifteen-grain doses of resorcin. In nearly every case this will kill the tubercular bacilli in the bowels and the stone-crop restores and heals the ulcers, naphthaline, creolin, salol, should have a trial.

If there be hæmoptysis, or bleeding from the lungs, try first either strophanthus or digitalis, erigeron, gallic acid ; spirits of turpentine, sulphuric acid and alcohol.

The patient is usually seen after the first burst of hemorrhage ; and if the bleeding continue after quiet is secured, astringents may be found useful. Gallic acid is believed to be one of the best of them, but it must be given in large doses of twenty grains. The most effective remedy, however, we believe, is the hypodermic injection of ergotin. This will often arrest the bleeding at once, when other means fail. Inhalation by the atomizer of a solution of sub-sulphate of iron will often act almost magically. Unless, however, active bleeding is going on, we may be content to give nitro-muriatic acid and ipecacuanha, the acid serving, we fancy, to give tone to the relaxed vessels which have yielded the blood.

The subsequent treatment of these cases requires the greatest care, and may be rewarded with brilliant results; for they are cases in which the disease is often in the smallest sense constitutional, and therefore in which recovery is always to be hoped for, while in no kind of condition is neglect attended with more unfortunate results than in hæmoptysis.

If there be night sweats, try either aromatic sulphuric acid and quinine, or atropia, agaric.

To relieve cough, render expectoration easy, try first ozonized tar syrup; if that fails then use either prunia, or mixtures of syrup of senega, squills, ipecac, tolu, lobelia, marshmallow, slippery elm, flaxseed tea and lemon juice, raw eggs and salt, syrup of poppies, with chloride of ammonia.

A mixture of aconite, belladonna and camomile; compound oxygen.

If expectoration be excessive, inhalations of either carbolic acid or turpentine, or terebene; or beech creosote combined with compound syrup of tolu, which is so very effectual in destroying laryngeal and lung microbes.

To rid the system of dead germs, compound saxifraga; small doses of iodol.

To relieve hectic, phosphated tincture of oats, glycerite of kephaline, aromatic sulphuric acid, chlorine water, salol, naphthaline.

As the hectic is due to ptomaine poisoning the remedy to get rid of hectic must be a powerful bactericide.

To procure long-continued refreshing sleep, try first sulphonal; that failing, then either of the following remedies; chloralamid in thirty to forty-grain doses.

3. *The most important class of remedies* in the treatment of pulmonary tuberculosis are germicides, locally over the germ-smitten lung; by inhalation; by the stomach and rectum.

(a) Local germicidal applications to the chest are of great efficacy, the remedy acting as a local vitalizer; by endosmosis; as a stimulant. They should be applied over the germ-laden or eaten part. The common tar plaster, made of lobelia, bloodroot, capsicum, Indian turnip, mandrake, stimulates, raises the standard of vitality, promotes absorption, sterilizes germs. Ozone ointment, iodol, resorcin, added, make a splendid germicidal application; chloroform, in which benzoic acid, thymol, and other antiseptics are incorporated, is of great efficacy in the annihilation of microbes. Painting over the seat of consolidation nightly with con. ozone, and when the skin assumes an erythematous blush, sprinkle over it iodol, and keep re-applying.

(b) Tuberculosis being infectious and contagious, many

germs emanate from the body by the breath, and the propriety of disinfecting the bronchial tract and killing those microbes cannot be doubted. The fever of pulmonary tuberculosis is due to the germ, to its protoplasmic changes, and the respiring volatile antiseptics, as the nascent chloride of ammonia, is attended with most salutary results; or such formulas as iodol, resorcin, naphthaline, distillation of the pine, comp. oxygen, ozonized iodine.

The inhalation of these agents either sterilizes or destroys the germ, and an appreciable improvement is at once visible. An ordinary steam atomizer is the most available mode of using any of the above remedies.

(c) *Germicides introduced* into the *stomach* pass into the circulation, and coming in contact with the bacilli in the blood, destroy it. We will enumerate a few of the most efficient. When used, one might be administered one week, then another, and two or three selected from which the best results are obtained.

Glycerite of ozone, in doses of from twenty to thirty drops, added to a little water, three times daily, is one of the best, most active, of all germicides—it is the best because it has a chemical affinity to the bacilli tubercle; it seeks it out and kills it. While doing this it imparts oxygen to the blood and tissues. Besides, it is nature's great scavenger to diseased blood, destructive to all micro-organisms, while at the same time it is highly vitalizing to the blood.

It is a good plan while administering this remedy for the annihilation of the microbe, to administer very small doses of the ozonized tar syrup, to cause the dead germs to be freely expectorated.

Comp. oxygen is another remedy which might be tried with advantage, especially in cases of laryngeal or bronchial cases; can be given internally, used as a mouth and throat gargle, and in the inhaler.

Chloride of lime, in doses of three or four grains, triturated in sugar of milk, and added to a teaspoonful of glycerine, taken after meals, has great efficacy in destroying the germs, arresting the night sweats, healing pulmonary lesions.

Hypophosphite of potassa, in five grain doses, thrice daily, administered in meat juice, often operates well in killing the germs.

Carbolic acid, in this form, is of utility; say, carbolic acid, tincture of iodine, muriatic acid, of each, two drachms, rubbed up in sugar of milk; then add to one ounce of alcohol. Mix well, and add to fifteen ounces of water. Dose, one teaspoonful every two hours.

Creosote is, in some cases, invaluable.

A few years back creosote was a widely advertised remedy in consumption, used by inhalation. After a season the use of it fell into the shade. Perhaps too much was expected of it, as is so often the case when new or novel remedial agents are first brought into notice. Of the value of creosote in the treatment of consumption by inhalation I have some experience, though limited, yet it is of fairly decisive kind. Two cases of confirmed phthisis, I am pretty sure, have been cured by using the steam atomizer with creosote. For one sitting of half hour, twenty drops of creosote, dissolved in a tablespoonful of alcohol, this was added to two fluid ounces of water and atomized. The patient breathed a dense fog of atomized creosote water during the time. A small apartment six and one-half feet square and seven feet high was extemporized by placing four screens in form of a square, and covered over at top by another; the screens were made of slats, like a sash frame, and thick cloth of cotton was tacked over each; the outside of this cloth was given several coatings of boiled starch, in which a little glue was dissolved. This served to make it somewhat light. In this little apartment was placed a small table and a chair. Air entered, of course, throughout all the cracks and crevices. The treatment was repeated twice, sometimes thrice a day. The time extended over six months.

The effect of the treatment was first a speedy betterment of the bronchitis and purulency of the expectorations. After two weeks the fever was much milder, and in a month the night sweats, hectic, and cough were both under certain and positive control, so much so that they hardly troubled the patient. After six weeks they were gone. The appetite soon became better, digestion gradually improved.

Among the troublesome symptoms that worried the patient grievously before commencing treatment, were fermentation of the food in the stomach, caused, no doubt, by gastric catarrh, a trouble I find quite constant among consumptives in this climate. Another symptom was dumb chills that seemed to come on every day or two, accompanied by lowness of spirits; these chills were followed by a slow fever that lasted the entire day, and terminated at night in an exhaustive sweat. All these symptoms disappear under creosote inhalations. The internal use of creosote is efficacious, best given thus: creosote, one drachm; tinctures of elecampane and spikenard, of each, four ounces; tincture of capsicum, one ounce. Mix. One teaspoonful every three hours, and increase it to one every two hours. It makes an excellent change for a week at a time, from the glycerite of ozone.

We enumerate a few bactericides used by some physicians.

The only successful remedies are of the germicide class, as glycerite of ozone, creosote, guaicol, and oil of black mustard.

The bacteriologists have made numerous celebrated experiments with this agent, and found it to rank next to dioxide of hydrogen. The oil of black mustard prevents the development of bacteria, and destroys them. The initial dose must be small, as it is somewhat irritating. Its administration destroys the bacilli of tubercle, lowers temperature, slows the pulse, and retards perspiration.

It must be highly diluted, and administered at regular intervals, keeping up a feeling of warmth over chest and abdomen. If properly given, there is an improvement all the time, without an exception; reduces cough and expectoration; arrests night sweats; and exhibits a marked diminution of the bacilli in the sputum.

Ozonized iodine, in very small doses, added to a little water, has been most successfully used in both lung and laryngeal tuberculosis, with most beneficial results. Same remedy by inhalation. Its use causes the tubercular bacilli to disappear from the sputum.

Iodol alone is an excellent local remedy.

Ulcerations in the inter-arytenoid region have cleansed and healed up completely, and the characteristic arytenoid œdema diminished under its influence. Tuberculous ulcerations of the epiglottis and pharynx have benefited by it and been arrested, and the distressing pains on deglutition, which accompany this condition, are much relieved by iodol. In some patients, in whom solid food was entirely interdicted by reason of the pain on swallowing, deglutition has become comparatively easy, under daily laryngeal insufflations of iodol. If the iodol is carefully and accurately applied over the ulcerations it will completely heal them. I have cases now under treatment in which there was originally extensive laryngeal ulceration, but in which now all active mischief is arrested. Iodol remarkably diminishes the cough of this condition. It is not to be supposed, of course, that insufflations of iodol, or of any other substance, will cure extensive phthisical disease of the larynx, but they will certainly arrest ulceration, relieve pain and cough, and allow the patient comparative comfort. The iodol remains for a long time in contact with an ulcerated surface.

Sprays of glucozone are most effectual and salutary combined with any form of iodine treatment.

Terebene, five to ten drops on sugar every two or three hours; or terpin hydrate in two-grain doses, often works marvellous results in pulmonary tuberculosis.

Sulphurous acid, fumes or in water, is an excellent bactericide

Tubercular Bacilli in the Nasal Fossa. The bacillus tubercule localizing itself in the nasal fossa, which may breed and run through its different stages of growth and death.

Etiology.—This affection is extremely rare, and is correlated with the presence of tubercles in the lungs or other organs. The *symptoms* are chiefly those of coryza; but recognition of the affection depends on rhinoscopic examination. Tubercles varying in size from a grain of millet to one of wheat, and yellow in color, may be seen as isolated masses, chiefly on the septum, and turbinated bones. As elsewhere, the tubercles may soften and leave an obstinate form of ulcer. The surrounding mucous membrane will be more or less tumefied, and covered with purulent secretion.

The *prognosis* is necessarily bad, and similar to that of tubercles elsewhere.

The *diagnosis* is founded on the appearance of the ulcers and the presence of other phthisical symptoms, the history and progress of the case being taken into account. The microscope will also give valuable aid, not only by showing the formation of the growth, but also by demonstrating the existence or otherwise of the special bacillus of tubercle.

The treatment must necessarily be palliative, and will consist of detergent irrigations, ozone et chlorine, chloride of gold and hydrastis canadensis, followed, if necessary, by excision, scraping, or burning of the nodes with the galvanic cautery, the use of nitrate of silver and insufflations of iodoform with or without morphia. All operative interference will be aided by a preliminary application of cocaine.

General treatment for tuberculosis pushed with energy.

Tubercular Bacilli on the Larynx.

(*Laryngeal Phthisis.*)

Weakened throat and larynx, affords a suitable nidus for the deposit, growth and settlement for the bacillus.

The bacilli may be deposited at a portion of the lung; *e. g.*, the apex; ill supplied with blood and air, or in altered pulmonary tissue, the result of acute inflammation, as at the base.

Larynx.—Bacilli may be carried into the general circulation by the lymphatic system, or, in the case of cavities, may be conveyed to the larynx by means of the sputa. The former, since it does not involve a previous breach of surface, is the most probable route in the commoner forms of laryngeal tuberculosis.

The tuberculous process is manifested in the larynx, as in the

lungs, in two ways : first, as the result of anæmia, in which case the marginal and apical regions are primarily attacked ; secondly, as the result of an inflammation frequently induced by functional abuse, in which case the vocal chords and ventricular bands are situations in which the disease is not infrequently first manifested.

Erosions, non-tuberculous in character, may appear in the larynx of a tuberculous patient ; doubtless some of those that heal are of this nature.

Clinical evidence has long warranted the supposition that a laryngeal may precede a pulmonary tuberculosis. Recent facts have proved the truth of this hypothesis.

Fauces and Pharynx.—A nidus may be formed in this region by absorption of the contaminated fluids of pulmonary, laryngeal, and oral secretion, and the bacilli be conveyed through the general system.

In the case of a primary faucial tuberculosis there is probably a previous breach of continuity.

Clinical evidence would show that there is a possibility of a primary faucial tuberculosis, but the fact has not yet been verified by post-mortem evidence.

Tonsils.—While faucial and pharyngeal tuberculosis are acutely painful, the tonsils may be attacked without symptoms, provided the other portions are free from ulceration.

Treatment.—Considerations under this heading are limited to cases in which the disease, though well established, is not advanced.

1. The first indication is, by *climate, hygiene* and *general measures*, to place the patient in the most favorable position for resisting the baneful influence of the bacilli and rendering their life impossible ; preference is given in early cases to sea voyages and mountain air over hot or moist climates.

2. *Inhalations* containing oxygenating elements, peroxide of hydrogen and administered by oro-nasal inhalers are preferable to those of steam.

3. *Medicines* include, first, atropine as a probable alkaloidal antidote to symptoms of the septicæmic process indicating a ptomaine toxæmia ; secondly, kaphaline, of which that of calcium is preferred as most favorable to rapid (calcareous) degeneration of the tubercle ; thirdly, glycerite of ozone, which it is suggested may act as a specific in the tuberculous disease, though not to the same extent as other drugs.

4. *Germicides* are of two classes : (a) those which may powerfully affect the general system ; (b) those of a more purely local character. Of the first may be mentioned peroxide of hydrogen. The use of sulphuretted hydrogen and carbonic-acid gas *per*

rectum is a method of treatment which is still on its trial, and so far as can be judged, it is more favorable in cases of chronic bronchitis than in tuberculosis. The microbicidal effect of the gas is very feeble.

Conclusion.—That, while throat symptoms may be greatly relieved even in cases of advanced pulmonary disease, there is seldom any true cure, but that each year there is a greater hope of such a happy result.

There can be no doubt that ulcers in the regions under consideration can be healed, and success in this direction is in proportion to the accessibility of their site.

Treatment.—In its early stages the treatment of phthisis laryngea ought not to be of an active and meddling character; and general advice as to avoiding changes of temperature, damp and cold atmosphere, hot and irritating food and drink, and tobacco smoking, combined with tonics and drugs by inhalation, etc., to relieve the cough, is of more importance than any local throat treatment. When, however, ulceration of tubercular deposits has taken place, and there is much pain on taking food, along with hoarseness and irritating cough, then we must adopt systematic local treatment in the shape of spraying or brushing the affected parts with solutions of cocaine in glycerine in borax, 5 to 10 per cent.; cocaine pastiles; insufflations of iodoform or iodol; lactic acid carefully applied with the brush, and varying in strength from 20 to 60 or even 80 per cent.; gradually increasing the concentration as the parts become tolerant of it. Solutions of menthol in olive oil to allay pain, and insufflations of morphia and bismuth for the same purpose, are good. All these measures must be combined with the usual cough mixtures, tonics, tar syrup, glycerite of ozone, which are used in cases of pulmonary phthisis.

The question of climate is most important if the patient can afford it. Mountainous locations in Pennsylvania are excellent.

**The Tubercular Bacillus
in the
Stomach and Bowels.**

When the system is heavily loaded with the microbe tuberculæ, if some irritation exists in the stomach, it will infiltrate its walls, and in some cases, if not arrested by building up the constitutional powers and killing the germ with bactericides, the germ-tubercular colony often assumes an immense size. At first an active germ mass, by-and-by caseous, and latterly calcareous. There may be simply one nodule, or several.

In any stage, it may either slowly or suddenly break down and pass by the bowels, leaving an ulcer behind, or it may cause perforation of the stomach and death.

In the walls of the intestines the same course is pursued, an irritation, an exudation of plasma from the germ-laden blood, in which the microbe is present, its deposit in or on the walls of the bowel, either in one or several colonies.

The very same degenerative changes are liable to occur in the bowels, as in the stomach, congestion, caseous consolidation, calcareous degeneration, either ulceration or perforation of the bowels.

Throughout the ileum, but especially, as in typhoid fever, in the solitary and Peyer's glands and those structures at the lower part of the small intestine and in the cæcum, there are large patches of ulceration at variable intervals, commencing as small, round, discrete ulcers at the upper part of the canal, and becoming confluent below into irregular patches, which extend throughout the entire circumference of the canal.

Each ulcer is of an irregularly circular form, and bounded by a thick, raised, round, and inflammatory border. Internally, the margin is irregular and continuous, with coarse granulations, between which are scattered little yellow masses of tuberculous matter, firmly adherent to the base of the ulcer. Some of the ulcers may extend to the peritoneal coat, and their existence may be known, before the intestines are opened, by an irregular thickening and a corresponding irregularity of the peritonæum.

The points of difference between the tubercular ulcer and the typhoid ulcer are the following: The ulceration in the tubercular ulcer extends transversely round the whole surface of the intestine; the edges and base of the ulcer are thickened and indurated. This form of ulcer very rarely heals, and perforation is also very rare. Some contraction and narrowing of the gut frequently occur.

The presence of the tubercular microbe in either the stomach or bowels, is usually recognized by the gastritis or enteritis present, diarrhea, or constipation; the presence of the tubercular bacilli in stools, some, but very little pain; in the later stages, the caseous and calcareous masses can be readily felt through the abdominal walls, the emaciation is usually immense.

The same constitutional, hygienic, and medicinal treatment as for tuberculosis, build up the vital force by every possible means; destroy the bacillus with the most powerful bactericides.

Special treatment for the germ in stomach, administer dioxide of hydrogen; fl. ext. stone crop; kephaline and quinine; hydrastis and avena sativa.

Diarrhea occurring during the progress of the tubercular bacilla in any part of the body, would be strongly presumptive that the bacillus would emerge on or in the coats of the bowel, and if the microbe could be detected in the stools, the diagnosis would be perfect.

In this event, bactericides must at once be applied to the entire abdomen, as concentrated ozone, with chloroform; ozonized iodine with chloroform; or aromatic pinol, over and above all, a flannel roller.

Internally, glycerite of ozone, alternated with ozonized stone crop.

But if there are any evidence of ulceration by the presence of the streptococcus pyogenes in the stools, then in addition to those remedies, intestinal disinfectants, as naphthaline, salol, salicylate soda, creolin.

With regard to intestinal disinfectants, we must carefully consider the effects those will produce on the organism.

When the contents of the stomach and bowels are undergoing decomposition, either from yeast, sarcinæ, bacteria, or tubercle, we may get good results by the use of creosote, or salol, or naphthaline, because these substances come directly into contact with the microbes in the stomach, and a quantity of them which is too small to be injurious to the patient, will be sufficient to act as a disinfectant. If the intestine is to be disinfected, these drugs will not produce this effect so readily, because they will be partly absorbed in the stomach, and one has to look either for some remedy, which, on account of its sparing solubility, will pass through the stomach into the intestine without being absorbed, or else one which will not have much poisonous action.

Such we have in the stone crop; an invaluable drug in all states of ulceration, it tends to promote a renewal of life in that structure.

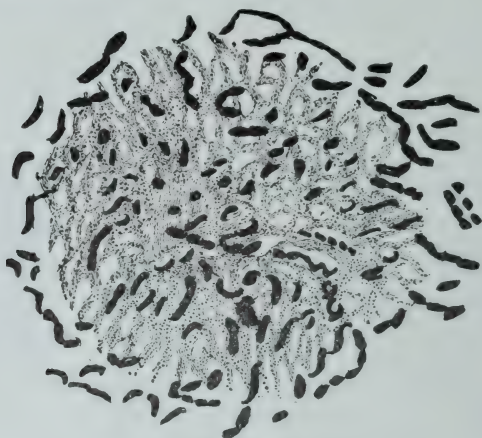
Of all parts of the intestinal tract, the microbe seems to have a special affinity to the posterior part of the rectum; here the tubercular bacilli deposits itself in nodules upon the surface of the bowel, hard to the feel, smooth and round. If the germ is permitted to establish itself, and undergo caseous, calcareous degeneration, it gives rise to ulceration, and a germ-eaten rectum; often with fistulous openings, or crescentic thickening.

If such a state of things exist, germicide treatment must be pushed, and locally to the rectum, microbicides, as rectal bougies of either resorcin, or thallin, or papoid, or creolin, or naphthaline, or iodol.



Tubercular ulcers of the ileum.

Enemata of boroglyceride, ozonized pine tree, witch hazel, etc., will do much to effect a cure.



Tubercle bacilli in liver.

The tubercular bacillus sometimes migrates into the liver, creates considerable irritation, and often jaundice.

In such cases, small doses of the peroxide of hydrogen, alternated with the phosphate of soda, speedily remove the symptoms.

The Tubercular Bacilli in the Peritoneal Membrane. (*Tubercular Peritonitis*).

Depression of the peritoneal membrane offers a favorable location for the localizing of the bacilli; it may exist alone, or be complicated with the microbe in the lung.

Tubercular deposit on the peritonæum is accompanied with some fever, acute pain in the abdomen, increased by pressure, loss of flesh and strength, thirst, loss of appetite, and continuous diarrhea, or diarrhea alternating with constipation.

The diseases with which we are most apt to confound acute tubercular peritonitis are typhoid fever and acute non-tubercular peritonitis, and in some instances the resemblance is so close that it is only by great care and watchfulness that we can avoid falling into error. As a general rule tubercular peritonitis of this kind begins suddenly, whilst typhoid is usually preceded by a period in which the patient has been weak, feeble, and feverish, In the former, pain in the abdomen is more marked, and there is

tenderness over different parts ; whilst pain in the latter is rarely severe, and any tenderness that may be present is confined to the iliac region. In tubercular peritonitis the temperature rises at once, and not regularly, as in enteric fever, and the pulse is usually more rapid. As the case proceeds the temperature varies more in peritonitis, spots are rarely observed, and the stools have not generally the typical appearance of those passed in typhoid ; whilst at a later period the persistence or frequent returns of abdominal pain and tenderness, and of vomiting, the variations of the temperature, the alterations of constipation with diarrhea, and the increasing prostration, will in most instances, enable you to distinguish between these diseases. In addition to these differences, you will in many cases be able to render your diagnosis more certain by the discovery of fluid in the peritonæum, or by the detection of a tumor in the abdomen ; or you may find the signs of effusion in the pleura, or of a consolidation in the apex of one or both lungs. Still more difficult is it to distinguish between acute tubercular peritonitis and ordinary peritonitis when the former does not assume from the first the typhoid form. In many cases I believe it is impossible to arrive at a certain conclusion in the early stage, for both may attack persons previously healthy, both may be ushered in by similar abdominal symptoms, and it is only by watching the progress of the disease that you can form an accurate opinion. As a general rule the pain, tenderness, and vomiting are less distressing in the tubercular form, the temperature is lower, and there is more usually diarrhea than constipation. As the disease progresses the abdominal symptoms recur from time to time, instead of slowly subsiding the temperature remains high, emaciation becomes more marked, the effusion into the peritonæum is very slowly absorbed, and you may discover signs indicating effusion into the pleuræ or pulmonary consolidation.

**Tubercular Bacilli in
Mesentery.**

(*Tabes Mesenterica*, or
Marasmus.)

A child under two years of age with either an hereditary or acquired tubercular constitution, may be subjected to some irritation of the bowels, either from worms, diarrhea, cholera infantum,

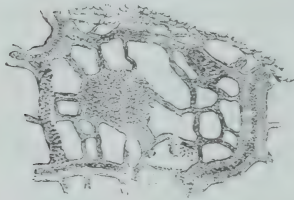
which necessarily weakens the mesentery, into which the bacillus of tubercle enters, and lodges in its meshes or net-work, breeds, grows with great rapidity, destroys its proper function as a blood-raising gland ; obstructs the passage of chyle through the convoluted lacteals, which traverse the mesentery in all direc-

tions, and give rise to anæmia and leucocythemia, and as a result all the tissues of the body starve and waste away.

The spongy net-work of the mesentery becomes enormously engorged with the bacilli.

Prior to, or more generally associated with it, there is either diarrhea or cholera infantum. About the earliest premonitory is, the abdomen becomes hot and tender, bloats, more or less constant pain in the bowels, sometimes so severe as to cause the little sufferer to instinctively draw up its knees towards the abdomen; deep red color of lips; angles of mouth covered with small ulcers, or lips fissured; passages from the bowels resemble chopped spinach, and very acid.

Later on, they are very fetid, more frequent, and distressing; abdomen rapidly grows large, child more pale and anæmic, the emaciation greater, until he gets down to skin and bone; even the marrow in bones wastes; skin white and wrinkled; intense debility, with rapid, increasing weakness. The abdomen, although intensely swollen, soon becomes irregular to the feel, lumpy in masses like large eggs at first; when tubercle is active and growing, soft; then a cheesy feel, and latterly, calcareous; there may be a tubercular condition of lungs, bronchi, or membranes of brain. Its duration is uncertain, depending on the condition of vital force and season of the year.



The tubercle bacilli in the omentum
in *tabes mesenterica*.

If it appear early in June, the little sufferer, unless taken to the seashore or country, stands a poor chance of recovery before September; whereas, if it appears in August, there is usually little difficulty in tiding the patient into the cool weather. It may occur at any season, but much more common when the vital forces of the child are depressed by solar heat and city life—a season when cholera infantum is prevalent.

In the treatment of these cases, the first thing to do is to disinfect the intestinal tract and kill the microbes of cholera infantum, and those of the green diarrhea; this can be effected either by the administration of naphthaline, or resorcin, or calomel.

The diet should either consist of mother's milk, or sterilized malted milk, or beef juice; the entire body should be bathed morning and night with castile soap and cold water, followed by a salt water bath; kept in a quiet, cool place, with abundance of fresh air.

To the entire abdomen, some bactericide, such as con. ozone

to erythema, followed with ozone ointment; or if con. ozone is not procurable, apply spices; say a mixture of pulverized cloves, allspice, cinnamon, and cinchona, equal parts of each, saturated with vinegar or acetic acid; spread between folds of book muslin, and apply all over, then above a roller; when it cures it can be crumbled up, moistened, and re-applied; or, the peroxide itself could be applied. The germicide principle of either penetrates by endosmosis to the tubercular bacilli in the mesentery, either kills or sterilizes them; it also decapitates the comma-bacillus in the bowels. At all events, the nausea, the vomiting, diarrhea, cease; microbes disappear from the stools.

Whatever germicide remedy is used, it must be powerful enough to kill, or at least sterilize the various microbes present; general principles must guide.

But in all cases the general treatment for the destruction of the tubercular bacilli must be enforced.

**The Tubercular Bacilli
on the
Walls of the Bladder.**
(*Tubercular Cystitis.*)

Individuals with a strong tubercular cachexia, are liable, if any part of the body be weakened, to have the bacillus deposited on the devitalized part.

When the bladder becomes affected, deposits of tubercle occur in its mucous lining, especially about the trigone; these, after a time, softening and breaking down, are succeeded by distinct ulcerations with punched-out edges, which, when they remain separate from one another, are usually of small size and often very numerous; in other cases they run together, and, becoming confluent, form ulcers of considerable dimensions, *e. g.*, as large as the palm of the hand. The muscular coat subsequently becomes thickened from inflammation, and at the same time contracts, so that the capacity of the bladder is often considerably diminished; occasionally perforation of its walls ensues, and under these circumstances, secondary abscesses may form in its vicinity.

Tubercular cystitis may manifest itself in three different ways. In the most common form, the testicle is the part primarily attacked by tubercle; this is frequently followed by suppuration, and after a while the prostate and vesiculæ seminales become similarly affected; eventually the disease spreads further onward, involving next the bladder, and then the kidneys. Under these circumstances, the affection is very slow in its course, often continuing for as long as ten or fifteen years. In the second form, the bladder is first involved; the prostate and kidneys may after-

ward become affected, but the testicles usually escape. In the third form, the implication of the genito-urinary organs is secondary to the development of tubercle in the lungs.

One of the earliest evidences of tubercular cystitis is slight hæmaturia, the blood coming from the mucous lining of the bladder, and in many cases this continues for a considerable period, sometimes for several years, before the more severe symptoms manifest themselves. Sooner or later, severe pain is usually felt, but it differs from that met with in cases of cystitis due to calculus, inasmuch as it is almost constantly present, not being relieved by rest or sleep.

Micturition is increased in frequency, and accompanied by tenesmus and a burning sensation, owing to the fact that the trigone is the part of the bladder which is usually the chief seat of ulceration; the urine contains pus, and the deposit is more flocculent and less of a gelatinous character than is usually met with in cases of chronic cystitis due to other causes.

The position of the patient is often characteristic. He frequently lies crouched up in bed, so as to relax the abdominal muscles, for in this way, by taking all pressure off the bladder, slight relief is often obtained.

The prognosis is always very unfavorable, most cases eventually terminating fatally, either from the local affection, or occasionally, if the kidneys become affected, from the supervention of uræmia. Unfortunately, very little can be done in the way of treatment. Washing out the bladder with some germicide anodyne solution, suppositories, fomentations, etc., sometimes afford slight relief; but in most instances the severe pain, which is doubtless due to the constant irritation of the urine as it flows over the ulcerated surfaces, continues unabated, and it is the very intractable nature of this symptom which in many cases of painful cystitis is of assistance in helping us to recognize the tubercular origin of the affection.

General treatment for tuberculosis, including glycerite of ozone, ozonized stone crop, uric acid solvent, often retards the disease and prolongs life.

The tubercular bacilli in the kidneys. In all diseases due to the presence of a microbe in the blood, we almost invariably find the germs blocking up and breeding in the organs of excretion. This is specially so in the rectum and kidneys of young persons, who are the host of the germ. Males are more prone to this affection than females. The right kidney more seriously implicated than the left.

When the germ is thus deposited, they are usually most abundant in the cortex, in the arterioles, and other parts. The

tubercle undergoes its various stages of growth and degeneration.

The symptoms are those of tuberculosis, pulmonary or intestinal hectic, night sweats, etc., pain in the loins, irritable bladder, scalding urine, with casts of the bacilli; invariably tubercle in lungs, prostate, lymphatics.

General treatment for the diathesis.

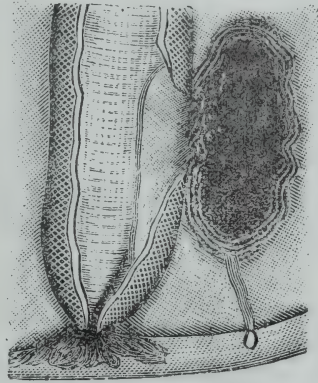
The Tubercular Bacilli in the Rectum. (*Tubercular Ulceration.*)

We have seen that simple inflammation and ulceration of the rectal mucous membrane and deeper tissues are more frequently present than what is

generally supposed, and is often treated for disease of the liver and dyspepsia.

Tubercular ulceration is generally in the posterior portion of the bowel, a weakened patch in which the tubercular bacilli have localized and where they are in an active state of growth, the walls of the rectum presenting a worm-eaten appearance.

The annexed cut is a form of rectal ulcer, almost invariably present in the last stages of pulmonary tuberculosis; the posterior portion of the rectum is germ eaten; in that riddled structure the tubercular bacilli are seen in their albuminoid, cheesy and calcareous stages.



Rectal ulcer.

This ulcer, with its perforating fistula is always amenable to a cure by the local application of resorcin or naphthaline; with glycerite of ozone internally.

The symptoms are nearly identical with the simple form: diarrhea, followed by constipation; severe pain in the coccyx, radiating through the hip and down the thighs, passing of mucous and bloody matter during stool; burning, itching, great uneasiness in the bowel from the presence of the microbes; inclination to strain at stool, and after movement a burning sensation after stool, but usually pain is slight, neither is there much local disturbance, but the reflex symptoms are vertigo or giddiness; loss of memory,

pain in the back of the head, indigestion, bloating of the abdomen, with order of the bladder and kidneys.

The great prevalence of tubercular ulceration of the rectum may be gathered from the fact that 90 per cent. of all cases of pulmonary tuberculosis have a worm-eaten rectum.

A species of ulceration of the rectum, very nearly analogous to the above, is met with among the insane.

In our large, over-crowded cities, among prostitutes, with broken-down constitutions, aggravated by poor or insufficient food, alcoholic drinks, insanitary surroundings, we meet with gangrenous, or phagedenic ulceration of the rectum; skin adjacent to the sphincter, often extending to the nates, the germ present being the *oidium albicans*, the evidence of squalor and rot. For the destruction of this we require our most powerful antiseptics and germicides, with the best of internal nourishment and tonics, to reconstruct the shattered vital force.

Gonorrhœa of the rectum, venereal warts, condylomata or mucous patches near the verge of the anus must be treated on general principles.

Tubercular Bacilli in the Prostate.

This frequently follows gonorrhœa. In the early stages the symptoms, being those of catarrh, escape notice, and the tubercle in the prostate cannot be detected by the finger until it has become considerably developed. The catarrhal condition of the prostate, with slight irritation of the bladder, lasts an indefinite time; eventually attention is directed to the prostate by the occurrence of other symptoms, such as frequent seminal emissions, or by weight in the perineum and pain in the sacrum. In other cases the patient notices increased frequency of call to micturate, but a slowness in starting the stream of urine; then he feels a burning or cutting pain during the flow. As soon as the shape and consistence of the prostate are altered, the finger in the rectum finds the prostate irregular, perhaps larger than natural, tender, particularly at the posterior part near the trigone. The disposition of these irregular thickenings is variable. When cystitis is developed, copious viscid pus, mixed with shreds and blood-clot, form the urinary sediment, and the urine contains albumen in considerable quantity. The further progress of the case is accompanied by gradual participation of the ureters and kidneys in the septic inflammation, and the patient is gradually exhausted. Acute general tuberculosis may terminate his sufferings. The ages of the patients usually range between nineteen and forty years. Numerous

and highly instructive cases of advanced disease have been detected by the cystoscope, in which the surface was irregular, with pits at the uvula vesicæ or neighboring part of the floor of the bladder, partly filled with shreds of tissue, muco-pus, and blood-clot, though in those cases cystitis, ulceration, burrowing abscess in the floor and walls of the bladder are usually superadded before death.

The differential diagnosis of tubercle in the prostate. In early cases the presence of tubercle elsewhere may be wanting, as the prostate is often affected before other organs. The disease most commonly suspected when tubercle is irritating the prostate is stone in the bladder. The urine is at first only moderately turbid in both. In prostatic tubercle there is often a gleet or history of such having continued since an attack of gonorrhœa; a little shreddy mucus may be washed out with the first portion of urine voided, the remainder being only slightly turbid. In stone, on the other hand, a drop of blood often comes at the end of the stream, instead of pus at the beginning. When blood comes from the prostate, it is usually washed out first as coagula mixed with curdy pus. If the patient be sounded, and stone be there, it can be generally detected. Sounding does not always discover any alteration in the shape of the prostate or trigone, unless the tuberculous disease be far advanced. The distinction of vesicle tumor from prostatic tubercle is so great that confusion is not likely to occur. Tuberculous pyelo-nephritis creates symptoms which often suggest disease of the neck of the bladder. In these cases the absence of change in the condition of the prostate and the presence of tenderness in the renal regions indicate the real seat of the disease.

The treatment of tuberculous prostatitis.—In the early stages the catarrh must be cured, and the general treatment for tubercle applied. In the later stages, the ragged cavities must be carefully washed out. A good antiseptic solution is two grains to the ounce of sulphate of quinine, two ounces being injected and left in the bladder after the pus and urine are well cleared out by repeated small injections of boric-acid solution. Still more antiseptic is an emulsion of iodoform. In cases of chronic cystitis, if the bladder is well washed out, and a couple of drachms of this emulsion injected, the most fetid ammoniacal urine is replaced by acid urine; fœtor disappears, and the pus rapidly diminishes. Again, in cases of cystitis caused by neglect of prostatic retention, the urine in ten days becomes quite free from deposit, and even when calculus, or tumor, or malignant ulceration coexists, the improvement is enormous.

Tubercular deposits, nodules, ulcers, on the floor of the bladder are readily made out by the use of the cystoscope.

Cases might be cited, in which the various coats were literally eaten with the bacilli. These were cured by washing out the bladder, and then injecting iodoform emulsion, so that in a fortnight the patient—a man with advancing pulmonary tubercle—was cured of his bladder trouble. When the pain of washing the bladder is severe, cocaine previously injected often renders the operation bearable. When things are too far gone for this, ether should be given while the bladder is thoroughly washed with a large silver catheter, and Clover's extracting bottle, then a drachm of iodoform emulsion is injected and left in. The subsequent washings may then be carried out with very little suffering. The formula for the emulsion is—iodoform, two parts; mucilage, four parts; glycerine, two parts; water, twenty parts.

**The Bacillus Tubercle
in the Testes.**

The microbe of tubercle when in the blood has a great affinity to deposit itself in weakened parts and there breed, but of all structures in the body the parotid gland and testes are decidedly favorable locations.

Masturbation, sexual excesses, gonorrhoea, stricture, sexual incompatibility, are common causes, which damage the testes, and afford a location for the germ to run in; once there, the tendency is to cause a general infection before suppuration takes place.

A resection of the tubercular deposit in the epididymitis at the earliest possible moment is advised, but this is really unnecessary in the face of such valuable remedies as we now possess for the destruction of tubercle.

**The Tubercular Bacillus
in the Eye and Ear.**

The tubercular microbe, when the blood is over-crowded with the germ, often appears in the eye, in and upon the conjunctiva and cornea. (See *Tubercular Ophthalmia*.)

The microbe can be isolated from the serous discharge from the eye.

The ear is still more obnoxious to inflammation of a tubercular kind than the eye. It is very doubtful if we can isolate any one case of otitis media or otorrhea without the germ of pus and tubercle. In otitis, from the micrococci of scarlatina, running up the eustachian tube to the inner ear, this germ is present; in perforation of the membrana tympani, and in all forms of discharges from the outer ear, this microbe is present.

Such cases even existing for years, should be placed upon the usual bactericide treatment of tuberculosis.

The Tubercular Bacilli in the Skin and Mucous Membrane. The microbe of tubercle in terribly broken-down cases, often appears upon the skin as well as the mucous membrane of the mouth.

Almost every variety of cutaneous disease appears with the germ, but the pathogenic bacillus in some mysterious manner has the ascendancy and runs them into round or crescentic forms, even erythema, roseola, lichen, lepra; psoriasis all appear in circles, and may be called any name corresponding to the nomenclature of skin disease.

The bacilli can be isolated by scraping off the surface of the ulcer. The bacilli are short, straight, or curved rods, with irregular, undulating and slightly notched contours, of a deep blue color, and contain from two to four spores. They are never free, but are invariably included in wandering cells, in groups of from two to nine. The cells themselves are rarely found at the centre of the infiltration, but exist in pretty large numbers at its edges, and in the adjacent apparently healthy tissues. Lustgarten has also demonstrated the presence of these bacilli in the spinous cells of the rete Malpighi in papular eruptions, through which he explains the clinical fact that moist papules become contagious when they are deprived of their epithelial investment.

The Bacilli of Tubercle in the Skin. — Individuals possessing the tubercular diathesis are liable at all times, if any weakness be induced (either by a mechanical or chemical irritant) in any part of the skin, to have the bacilli effused from the blood in the devitalized part. A damaged part is a vulnerable one for germ deposit, spore breeding.

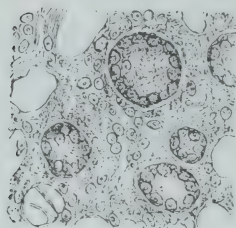
The annexed diagram is a photograph of a tubercular infiltration following a burn on the elbow, which healed kindly under ordinary remedies, but a few months later became a tubercular colony of great growth. The germs are seen in indolent, circular or oval superficial patches, having caused some loss of substance, which is covered by crusts of tubercle.

Here and there throughout its centre could be seen disseminated miliary nodules, transparent or of a light yellow color.



The tubercular bacilli actively breeding on the cutaneous surface above and below the elbow.

Such an incrustation is not common, but when met with can only be cured by the destruction of the bacilli of tubercle. So far the glycerite of ozone is the only remedy that will kill the germ and prevent its reproduction by a fresh degradation of



The bacillus of tubercle magnified 950 diameters, from the above arm.

living matter. It is our best germicide in tuberculosis, and superior to all known remedies, except the glycerite of kephaline or tincture of oats in constructing a dilapidated brain. The very fact that it contains a very large percentage of compound hypophosphite of lime, soda, iron in a fine state of subdivision, ready for assimilation, renders it invaluable as a constructor of shattered nerve force.

Ozone tablets might also be administered so as to cause the dead germs to

exfoliate rapidly.

Locally to the germ colony on the arm, a lotion of the peroxide of hydrogen should be applied over night, and the oil of boroglyceride during the day.

Other remedies, as thymol, ichthyol, ozone ointment, ozonized sulphur water are of utility. The general management of a case of tuberculosis should be enforced.

The nails also may suffer *onychia maligna*, the matrix of a single nail may be infiltrated by the bacillus, or several, or all, and the severity of the case will depend upon the amount of germs present; in every case there is inflammation, which begins under the free edge of the nail; the pain increases so that sleep is disturbed; the part is red and the nail-bed swollen; an ulcer develops that creeps along the side of the nail till it reaches the lunula or root, and at last the nail falls off. The ulcer is usually covered with bloody pus, and resembles a diphtheritic ulcer without its phagedenic character. The ulcer remains stationary for an indefinite time in spite of internal and external treatment; it may be for three or more years; without attacking the periosteum and bone, or spreading beyond the ungual phalanx.

The treatment should be active, glycerite of ozone and saxifraga; locally bactericides, solutions of boroglyceride, creolin, sozoidol; build up the constitution of the patient by every possible means.

In the mouth, the bacillus tubercular appears in round, scooped out ulcers (*tubercular aphthæ*), in deep ragged, eating ulcers (*tubercular stomatitis*).

Such cases are pre-eminently contagious and infectious, each

ulcer, however small, contains millions of cocci, *oidium albicans* and the bacillus tubercular. These are readily seen by microscopes of low power, indeed the bacillus can be seen in the centre, in the form of cheesy flakes.

In the treatment of such cases every possible means must be taken to improve the general health of the patient, the most liberal diet, fresh air of the country, salt-water bathing and mouth bactericides. The gums, cheek, tongue, throat must be washed out or gargled with lotions of boroglyceride three times a day, and also before eating, and then pickled down in either resorcin or thymol, or naphthaline, or creolin jelly.

The microbe of tuberculosis lodges frequently in the bones and produces great havoc, ulceration (necrosis or caries). In these circumstances, the medulla contained in the cancellous tissue of the bone undergoes fatty degeneration, and, as in other parts of the body, this degenerated tissue disintegrates, and so cavities are formed in the head of the femur, containing a quantity of oily matter and bone-earth. It is this bone-earth or grit that sets up, not only a rarefying osteitis, but also the formation of the florid granulations characteristic of caries. The same changes occur as a consequence of tuberculosis of the medulla.

On making a microscopic examination of a bone affected with tuberculosis in its early stages, we find nodules composed of an aggregation of round cells (among which are usually one or more giant-cells), which compress and so occlude the vessels in the affected area; but the blood-channels surrounding the nodule and the spaces through which the round cells escape are choked with corpuscles. With the exception of increased cell-growth from the brood-cells, the surrounding tissues appear healthy. I have already referred to the changes which occur in the tubercles, the caseous degeneration of which, in the greater number of cases, ends in destruction, not only of the osseous tissue, but also of the joints, and the soft parts in their proximity.

Symptoms.—There can be no question as to the fact that tuberculosis of bone is in its early stages easy of cure, but most difficult to recognize; in the course of time, however, there is no difficulty as to our diagnosis; but the cure of the disease is almost impossible without extensive damage to the affected tissues. It requires no stretch of imagination to understand that the production of cell growth in a structure like the medulla, only sparingly supplied with nerves, may progress to a considerable

extent without causing pain. There is one symptom, however, referable to nerve-irritation, almost always present in cases of this kind; and that is a certain amount of stiffness in the muscles surrounding the diseased bone. This is especially the case in tuberculosis of the bodies of the vertebræ and of the hip-joint. The stiff back or neck, and the occasional days of stumbling in the early stages of morbus coxarius are well known, but too often disregarded symptoms of diseased bone. From the commencement of tubercular disease of the medulla, however, immediate and forcible pressure on the bone generally causes marked pain; otherwise, the pain is often felt at the distribution of one of the nerves connected with the diseased bone or joint. Subsequently, the pain becomes more marked, and is greatly increased if the diseased part be moved or jarred; suppuration occurs, and sinuses form leading to dead bone, with all the long-continued and well-known consequences.

Treatment.—We must bear in mind the fact that, supposing the exciting cause of tubercle be a bacillus, it is certain that an hereditary predisposition, and other recognized circumstances, prepare the soil in which any such influence can take root and grow. Pure air, sunlight, and plenty of wholesome food, are essential to the building up, or fortifying tissues against the action of any causes which provoke the growth of tubercles. If tubercles have formed in the bone, means tending to invigorate the patient's health must be enforced, and at the same time the diseased tissue should be protected from concussion or injury. Rest to the diseased bone is useful, and it should be employed so as to relieve pain caused by the pressure of the extremities of tender parts against one another. But, in my opinion, it is a mistake to suppose that rest or confinement to a couch or bed for weeks and months, particularly in young children, is a judicious method of treating cases of this kind, especially in the early stages of the disease. I am convinced that the actual cautery, applied judiciously, near the seat of the disease, and repeated if necessary, is of great service in many of these cases. In more advanced instances, good hygienic conditions, great patience on the part of the patient, his friends, and the medical attendant, and the removal of diseased bone, together with free drainage, will bring about results more favorable than could otherwise be attained. Superiosteal excision of the diseased extremities of the bones is sometimes attended with most favorable results.

Internally, comp. saxifraga and phytolacca should be administered alternately; the small but active quantity of iodide of potass, which they contain, rouses up the vital energies which throw off the microbe, while at the same time, kephaline, avena sativa, aid in the reconstruction of osseous tissue.

Tubercular Bacilli in Bone.
(*Rickets.*)

Tubercular bacilli in the various bones of the body, or, as it is termed, rickets, is one of the most common diseases of children, and it is an affection, with regard to its etiology, nature, and treatment, of which we know too little. The manifestations which attract attention are the intense tubercular habit, the malformation of bones, due to the bacillus eating up their osteogenetic tissue, and deposition of lime salts—the presence of the bacillus in the blood being the cause of the osseous lesion.

Rickets may be defined as a chronic tubercular disease in children, which deprives growing bones of their nutrition, accompanied by functional disturbances of various organs, more especially the nervous, respiratory, and digestive organs.

The age at which rickets commences during the first three years of life varies considerably, but almost all statistics place the age when the greatest number of cases come under notice as from twelve to eighteen months, and the next most frequent as from six to twelve months; or taken in years about forty-seven per cent. come under observation during the first year of life, and forty-two per cent. during the second year, after which the numbers rapidly decrease. There seems also good reason to believe that rickets may run its course during foetal life, the disease having ceased when the children are born (foetal rickets), while the existence of congenital rickets, *i. e.*, of children born suffering from the disease, is generally admitted.

In all large cities, with adulterated food and insanitary conditions, it is generally admitted that about ten per cent. of all the children are affected.

The bacillus of tubercle strikes at the nutrition of bone; it may affect different organs, although not always to the same extent. There is invariably an increase in the number of the white corpuscles of the blood.

Excessive sweating of the head is a typical symptom of tuberculosis, due to an irritation of the nerves by the ptomaines of the bacillus; the febrile exacerbations, the general irritability, the restlessness at night, together with the skin eruptions, all indicate an irritation of the central nervous system by either the microbe or its ptomaine. It is this same irritation which gives rise to the occurrence of laryngismus stridulus, which is generally associated with rickets, and more especially with cranio-tabes. Other causes will produce this laryngeal spasm. (1) Pressure on the brain through the soft cranial bones; (2) reflex from the digestive tract; (3) anæmia of the brain in rickety children;

(4) the presence of noxious substances in the circulating blood, irritating the vagus centre.

All tubercular children suffer from disturbances of the digestive apparatus. These vary in severity from slight dyspepsia to severe gastro-intestinal catarrh, anomalies of dentition.

The frequency with which the various parts of the skeleton are affected varies with the age of the patient, in children below six months the bones of the skull being most frequently attacked, while in the following six months the thorax is the chief seat of the disease, the rule apparently being that the bones in which growth is most rapid (these varying with the age of the patient) are most readily and markedly affected. As regards the anomalies in dentition, dentition is delayed, the teeth erupt irregularly, and not in groups, as is normally the case, and they are not so good as in healthy children.

The presence of the tubercular bacilli in the blood is the primary cause of rickets, derangements of the digestive organs; erroneous feeding, excess of farinaceous food, and other lowering conditions tend to increase it. No doubt, imperfect aeration of the blood, due to living in badly ventilated apartments, has much to do with it.

In support of this view we would remark that this disease is extremely rare in warm climates, and chiefly occurs where, owing to the cold climate, there is much in-door life, or in crowded cities where the general hygienic conditions are bad. That it is not merely a question of bad feeding or poverty is also shown by the fact that it is very rare in gypsy children. Further, the number of cases of rickets is much greater in spring, after a winter spent in-doors, than in autumn, after a summer spent out of doors. Result of imperfect aeration of the blood—carbonic acid and water accumulate in it and in the juices of the body generally. Further, as the result of the imperfect oxidation, numerous by-products accumulate in the blood, and it is these products and the excess of carbonic acid that lead to the irritation of the central nervous system, with the consequent symptoms. A similar irritation is also exerted on the ossifying bone, leading to increase in the amount of new material, while by these products the alkalinity of the blood is diminished, and thus the lime in it enters into combination, and its deposit in the bone is prevented.

Rickets is a bone disease, dependent upon the presence of the tubercular bacillus in the blood. Either the microbe or its ptomaine, or some unknown irritant acting on the bone, leads to incomplete deposit of lime salts in place of true ossification; to the formation of an incomplete form of bone, devoid of lime, and to increased absorption of already existing bone.

The real essence of rickets consists in a tubercular diathesis, the germ giving rise to inflammatory hyperæmia, and increased new formation of vessels in the osteogenitic tissue, the ptomaine of the germ, a chemical irritant ending in the softening.

Rickets, then, is a name applied to the presence of the tubercle bacilli in bone.

The disease may appear at birth; most generally the impairment begins between the fourth and twelfth month.

Most commonly the rickety condition is not noticed until the child begins to walk, or is affected by his first teething.

Of 343 collected cases	98	appeared in the first year.
"	" 176	" second year.
"	" 35	" third year.
"	" 19	" fourth year.
"	" 10	" fifth year.
"	" 5	" sixth year.

Of these 147 were males and 196 were females. At first the most ordinary symptoms are those which indicate irritation of the intestinal canal; there may be diarrhea alternately with constipation, enlargement of the abdomen and more or less emaciation. The child is dull and languid, peevish and fretful; the appetite is bad, and the sleep disturbed at night. If it tries to walk it is "taken off its legs;" it is thirsty and will drink plenty of water; it has pain in the bones; a pale face and flabby skin; the hair on the head is thin, and blue veins marble the surface by their prominence; the fontanelle remains open. In the next stage there are three symptoms to be chiefly noticed. (1) A profuse perspiration of the head, neck, and upper part of chest. This sweating is worse at night, beads of sweat may be noticed on the head, while the lower part of the body is dry and hot. (2) There is a desire to kick the clothes off on the part of the child, as if with a wish to be cool; so that the little patient lies with its naked legs on the counterpane. (3) There is general tenderness, so that the child cries when it is moved about. The urine is thick, and deposits a pale sediment of phosphates on cooling. The next set of phenomena are those connected with the deformity of the skeleton. With the increasing paleness and flabbiness of the skin, the wrists and ankles enlarge, and the ends of the ribs are knuckled. The long bones of the extremities, and chiefly those of the legs, begin to yield, not being strong enough to bear the weight of the child. The deformity is very great in some cases, and such children are called knock-kneed or bow-legged. The spine is curved forwards; the head falls backwards, and the face looks upwards; lateral curvature of the spine is not so common, and with this curvature there is generally the deformity known as pigeon-breast.

The back is flattened, there is a hollow under the arm-pit, the ribs are pressed in and the breast-bone or sternum is more prominent than usual. At each inspiration the softened ribs are sucked in, and the space for the lungs and heart is much encroached upon. In this way also the bones of the arms become distorted, and the more so if the child tries to support itself by its arms and hands. The forehead is square and projecting. The head is generally unusually large and the top flattened. The process of teething is generally delayed, and those that are through, decay and soon fall out. The bones forming the pelvis are sometimes distorted, and add to the general mischief. Such children are generally of an inferior intellect, although sometimes thought by their mothers to be very precocious; this seems due to the fact that such patients are more in the society of their elders, and have an old-fashioned way about them, because they cannot play with other children. After this the child may gradually get worse; the emaciation goes on, the abdomen is more tumid, the softening of the bones, and the deformity increases, and generally disease of the liver, kidneys, or spleen comes on. Death may occur from bronchitis or congestion of the lungs, or from diarrhea, or from waxy degeneration of different internal organs, or from general dropsy. Children affected with rickets are liable to attacks of spasmodic croup, convulsions, and chronic hydrocephalus. So death may end a life, which to the unfortunate child has been one of unabated misery. Yet many cases do recover and grow up to adult life, but the deformity remains, and they are never so healthy as other people. The favorable symptoms will be, an increase in weight, an animated expression, and less pain in the limb; the pulse is less frequent, and the stools not so pale; the urine will return to its natural color, and the appetite is more natural. The growth of the limbs then goes on with great rapidity, and the muscles acquire a powerful development. Many of the dwarfs are examples of recovery from rickets; they may possess plenty of strength in spite of their deformity; they are generally irritable and sulky, keeping aloof from their fellow-creatures, in consequence of their misfortune, being the subject of derision and mockery by their more fortunate brethren. The sooner the disease comes on after birth, the more likely is it to be fatal; as a rule, if the disease be not far advanced, and if the deformity have not much affected the spine and chest, a favorable result may be looked for.

Treatment.—Improvement of the general health is the first thing to be sought after. The child should be placed in a warm and dry atmosphere, with due ventilation and pure air. The greatest possible attention paid to bathing. These twice a day

baths should consist of bactericides; iodine, glucozone, pine, etc.; clothing flannel. The very best of diet, including malted milk sterilized.

General treatment for the annihilation, and preventing the evolution of the bacillus.

The conclusions arrived at by the most profound bacteriologists in the United States, are that in the glycerite of kephaline and ozone; in the tincture of oats, and glucozone, in the treatment of rachitis, we find remedies giving the most brilliant results. Not only afford amelioration, but are curative and preventive.

Tubercle Bacilli in the Vertebral Column.

Whenever the tubercular bacilli exists in the blood of children, all the tissues, glands, bones of the body are weak, deficient in their natural elements. This is especially true of the vertebræ which possess this inherent weakness in a high degree, rendering it soft and flexible.

A child possessing this tubercular organization, placed in some avocation which causes the muscles on one side to become unduly developed and powerful, such as the habitual use of the right arm in a dressmaker or blacksmith; constant assumption of an unnatural attitude, or in hitching one shoulder in wearing a low-necked dress; nurses or mothers carrying children always on one arm; repeated standing on right leg, left knee bent; a tubercular diathesis, in which the the muscles are weak, relaxed, flabby, or where there is a predisposition to rickets, or a deficiency of earthy salts in the bones, so that there results a loss of equilibrium between the resistance of spinal column and weight of upper part of the body where the vertebræ are soft, spongy; rickety diathesis strong, even amounting to inflammation, ulceration, or caries of the vertebræ or their inter-vertebral spaces.

There are three varieties:

Lateral curvature, the convexity being to one side, usually the right.

Posterior curvature, or excurvation.

Anterior curvature, or incurvation.

1. *Lateral Curvature.*—This is the most common form. Appears chiefly in young girls from four to eighteen years of age, of a weak, tubercular habit, whose bones and muscles are deficient in vital elements; who have been nursed and pampered, not supplied with the proper kind of food, nor had abundance of

sunlight, or sufficient amount of exercise in open air; and where there has been an inattention to a natural position in standing or walking, or in wearing low-necked dresses, or high-heeled gaiters, corsets and tight-lacing. Its recurrence is much favored by myopia, which is so prolific in our large school-houses from over-crowding and forced strains of the eyes, which leads to a constrained position in writing, walking or in ordinary duties.

Symptoms.—One shoulder is observed to be higher than the other, with a growing-out of the scapula. While one shoulder is high, the other is unduly depressed. So one hip projects, while the opposite curves inwards. On an examination, the vertebral column is found to be curved; in double lateral curvature it is twisted like the letter S. As the thoracic and abdominal cavities are more or less depressed, the movement of the lungs and heart are interfered with, and the play or peristaltic action of bowels, liver, uterus are impeded. The general health suffers greatly; difficulty of breathing, dyspeptic and other indications of derangement; pain in side from pressure exerted on the nerves. If it is dependent directly on a rickety diathesis, there are the usual cachexia and distortion of the limbs.

In the treatment we must bear in mind that the bones which form it are made almost entirely of the spongy or cancellous tissue, and for that reason are specially liable to disease, which sometimes burrows a good distance into the bone before any one, not even the owner of the spine, guesses what is going on. Another trouble to which the spine is liable is curvature, which usually appears first between the ages of twelve and eighteen, just when delicate girls are growing very fast, and probably out-growing their strength. It is very unfortunate that in these cases the spine does not keep pace with the other parts of the body; the head and chest grow, the shoulders broaden, but the strength of the spine does not increase fast enough to bear this extra weight, and so it bends. It is as if you were to try and balance a heavy stone on the end of a thin stick; the stick would bend, and the spine does just the same and for the same reason. There is no real disease, simply the bacillus, which gives rise to weakness, and this trouble is usually laid upon girls; about nine cases of it in girls to one in boys. And another thing is, it is usually due to the occupations followed by girls, as distinct from that followed by boys, and besides, a boy will go and join some healthy game after his work is over.

That there need be little, if any, difference between most men and women, in the matter of muscular strength, is proved by what goes on amongst some barbarous tribes, where the men

lead idle lives, and the women do all the work and carry the heavy weights, and their muscles grow very strong; and you certainly will not find spinal curvature amongst them; that is a trouble of civilized life. You must clearly understand that curvature of the spine is due to tubercle, and is entirely the fault of a child's up-bringing, and her friends do her a grievous harm if they do not take measures in time to correct it, for in time it crushes the other organs in the body, and may shorten life. What ought to be attempted is: (1) to feed the child better; (2) to give her as much fresh air as you can possibly get for her; (3) not to let her sit up at a table or any work for many hours together without support to her back, but place her in a chair with a back, and prop her up well with pillows, so that the poor weak back does not get over-tired and yield; (4) if you can possibly avoid it, do not choose for a delicate over-grown girl work at which she must sit bolt upright, or in a stooping position; (5) whenever she can do so let her lie on a couch; (6) if she is short-sighted take her to the eye department and get her spectacles. A child with spinal mischief will have a sharp pain in the back if it jumps off ever so little a height, and if this happens once he will not be in a hurry to do it again but you will notice that he moves about carefully, and will not hurry himself, and have the sprightliness of a healthy child. The position which a child will choose as the most comfortable in spinal disease should also warn an experienced eye: he will lean forward, and often grasp the thighs very firmly—a position very much like that which boys assume when playing leap-frog. Of course the child finds this position the least painful because, to some extent, it takes the weight of the body off the diseased spinal bones and throws it on the upper part of the legs. Another point to remember is that a child will often, when the disease has attacked the upper part of the spinal bones, complain of pain at the back of the head. Of course this may be merely a headache, but if it is repeated often this warning must not be overlooked. Again, if the disease is in the upper part of the spine, the child's neck may be stiff, so that when he wants to turn his head he will turn all his body round, and to look upwards he will bend the lower part of his back, and also a child will often make a habit of resting his chin on the top of the breast-bone, or of supporting it on the hand. Children with disease of the spine will lose flesh.

The diet therefore should be generous, consisting of animal food, milk, eggs, boiled white-fish, oatmeal, corn cake.

The remedies used internally should consist of glycerite of ozone to annihilate the tubercular germ; glycerite of kephaline

and tincture of oats; comp. tincture matricaria to stimulate an appetite.

When not exercising for the benefit of her health, the recumbent posture, with head low. Once, twice, or even thrice daily, strengthen the muscles of the back with vitalized massage; follow with either a stimulating liniment or faradization.

Clothing should be light but warm, so that there be as little weight on vertebræ as possible.

Unless the case is bad, can be better treated more successfully without than with an apparatus.

Posterior curvature prevails among the same class of children, and chiefly affects the cervical and dorsal regions. It is caused in infancy by the frequent practice of mothers and nurses, in raising the child, by placing their hands under the arm pits, and so compressing the ribs, and forcing back the sternum and spine. Under this common custom, the muscles and ligaments, which keep the vertebræ erect, become weakened and relaxed. In other cases it may depend on rickets.

Anterior curvature, the tubercular bacilli are literally swarming in the blood, the nervous system is bankrupt, and the bacilli are being evolved in myriads; all the bones of the body are soft, spongy, devoid of vital stamina, tubercular deposit, evolution of spores, germs, inflammation, destructive ulceration, caries of the bodies of the vertebræ; the intervertebral spaces tumble in, owing to interstitial softening, and absorption of calcareous element of bony tissue. As the bodies are destroyed or absorbed, the spine projects backward, forming an angle. In bad cases, where the tuberculosis is very aggravated, as many as five or six vertebræ may be implicated, with their intervertebral spaces. It is most frequently met with at the middle of the dorsal vertebræ.

Symptoms.—Intense tubercular diathesis; weakness; coldness; numbness of legs, with twitching and spasm. Subsequently, paraplegia, with paralysis of bladder and rectum; tenderness, or dull, aching pain in back; tightness of chest, with more or less difficulty of breathing; rigors; formation of abscess in back, the pus of which finds its way along the course of the psoas muscle in the groin; exhaustion, sweats, hectic. Under favorable treatment, the disease gets arrested; bones collapse; ankylosis occurs; patient recovering with incurable deformity. Sometimes sudden death, owing to diseased bodies of the vertebræ giving way and crushing the spinal cord, or from discoloration, with ulceration and destruction of its ligaments.

In the treatment push the bactericide treatment of tuberculosis as far as practical. Perfect rest in the recumbent position is indispensably requisite; the use of a reclining couch, so shaped as

to keep the trunk perfectly quiet; a stiff bandage of paraffine, extending from the occiput to hips, to insure rest; no attempt to be made to rectify the deformity; pain to be relieved.

As soon as the streptococcus pyogenes appears, the abscess should be aspirated and a few drops of peroxide of hydrogen injected.

For mechanical support, the best application in all cases is a paraffine jacket, made after the manner of the plaster of Paris bandage. To make this jacket, take a large sheet of cotton-wool, long enough to reach from the nape of neck to beyond the buttocks. The thickness of the sheet is sufficient, but if the physician desires to have it thicker, he can double it or use two. It is then to be submerged in the liquid paraffine for five minutes. Have the patient in a nude condition, in the precise position in which it is desired to be retained; then turn out the cotton, saturated with the paraffine, on a piece of oil-cloth, or any smooth body, oiled to prevent it adhering; spread it out to its original size; and after it has cooled sufficient so that you can place the back of the hand on it without inconvenience, it is ready for applying to the back. This cooling process will occupy three or four minutes. The sheet of cotton, so saturated, is applied to the back, from neck to hips, and well round the body. Its adaptability is perfect, filling every curve or crease. Then apply a bandage over all, pressing the cotton firmly. This pressure causes a cohesion of the cotton and paraffine. Then have a piece of ice handy, which will cause the paraffine to become as hard as a block of marble. If it is desirable to prevent the hardening, refrain from applying the ice; the paraffine in that case will take at least twenty minutes to cool.

Spina bifida, or cleft spine, is also due to the presence of the tubercular bacilli in the vertebræ during foetal life, which gives rise to an arrest of development or growth of the posterior arches of one or more vertebral bones: the membranes which loosely envelop the spinal cord become distended with fluid, and are bulged out through the tissues in the walls of the canal, and form under the skin a soft and rounded tumor. When the malformation affects several of the vertebral bones the base of this tumor is broad, but when only one or two of the arches are deficient, or merely fissured, there is more or less of a pedicle or stalk. The size, conformation, and appearance of the tumor, and the symptoms caused by the malformation, differ very much in different cases. The state of things is usually as follows: in the lumbar region, just above the sacrum, and in the middle line of the back, is a large fluctuating and rounded tumor, evidently containing fluid, and the surface of which is covered by thin and

distended skin. At the base of this tumor a fissure, or large hole, can generally be felt in the posterior part of the spinal column. When the child is placed upon its belly the tumor shrinks to a slight extent, and the skin becomes flaccid; in the erect position of the child the tumor swells and the skin becomes stretched and smooth. As the child grows, serious nervous symptoms, such as convulsions and palsy of the lower extremities, make their appearance. In most cases spina bifida terminates fatally, and the patient dies in convulsions, which in some instances are immediately preceded by giving way of the walls of the tumor. The affection, however, does not always cause death; several cases have been recorded in which the patient attained an advanced age without suffering any ill effects from the tumor, which continued to grow, though not out of proportion to the rest of the body. A more favorable and occasional termination of cases of this kind is a closure, through adhesive inflammation, of the walls of the orifice between the spinal canal and the tumor. A closed and comparatively harmless cyst is thus formed, which is called a *false spina bifida*. The walls of the tumor formed in cases of spina bifida are composed of the skin and extended membranes of the cord, and sometimes a portion of the cord itself spreads out into a thin membrane. The contents of the tumor are a thin clear fluid, a portion of the cord and some of the spinal nerves.

In consequence of the close connection between the tumor in spina bifida and the contents of the spinal canal, all surgical attempts at a radical cure of this affection are extremely hazardous. The too frequent result of such interference is acute inflammation of the cord and its membranes, causing convulsions, palsy, and finally death.

Symptoms.—A tumor, varying in size from a walnut to a child's head. There is fluctuation, swelling, most tense when the child is in erect posture. The tumor may be transparent, or the skin may be unaffected, or it may be congested, purple, or blue. If only one or more lumbar vertebræ are affected, spinal cord does not deviate from its course, and only the posterior spinal nerves have any connection with the sac. If the tumor occupy part of the lumbar and part of the sacral region, the cord itself, and all its nerves will almost always be found in close contact with the sac. Not necessarily fatal, but likely to be if there is hydrocephalus, or paralysis of the bladder or rectum and lower extremities, or if the tumor bursts.

The general treatment for tuberculosis should be pushed with care and energy. The glycerite of kephaline, tincture of oats, salt water and iodine baths; most nutritious diet, avoiding

starch. Every means which the nature of the case will admit of for to overcome the tubercular condition.

To prevent further protrusion, a compress of some kind might be applied with great care.

The collection of cerebro-spinal fluid is first due to the want of the normal support of the vertebræ; its increase due to the irritation and unravelling of the serous fibres, causing exudation. The collection is termed hydrorachitis.

**Tubercular Bacilli
in the
Hip-Joint.
(Coxalgia.)**

Irritation, shocks to the cartilaginous extremities of the ends of bones, from falls, jumping, or other mechanical irritation, depreciate the nerve centres, liable, if the tubercular condition does not exist, to create it.

The knee, hip, and wrist, are most obnoxious to the ingress of that bacillus. The greater tendency for the germ to appear in those three joints, is accounted for by the presence of pink marrow in the cancellous structure, which discharges the function of ordinary lymphatic gland, namely the elevation of the blood discs; so that when weakened in any way, they become invaded with myriads of the bacilli.

Most common among children between the ages of seven and fourteen; met with up to thirty years age; boys, from their stirring habits, are its victims.

The first symptom which is observed in the child, is the dragging of the affected limb after the sound one, a flattening of the nates; pain at first confined to the knee, and in standing, the patient advances the foot a little, slightly everting the toes, and does not rest his weight upon it. After a while pain comes on in the hip-joint itself, and generally continues chronic for several months. At length the symptoms may disappear, and become far more serious; thus the affected limb becomes shorter than the sound one, the motion in the joint being impaired or destroyed, and permanent dislocation taking place.

To assist in making an early diagnosis, a careful study should be made in a difficult and doubtful case of those limitations in the motions of the joint which become apparent only when the extremes of normal motion are approached. This may be done in various ways. I have found two methods easy in practice and certain in revelations. The first method applies to rotation, which is a direction in which limitation of motion first takes place. Let the patient lie supine with the feet slightly apart. With the hand placed lightly on the knee of the unsuspected

limb, a rocking or oscillating motion is given to the whole limb, outward and inward rotation following each other, while the toe sweeps through an arc of nearly 180° , the inner border of the foot striking the table, and the outer border nearly reaching that level. This occurs in the sound limb. A similar manipulation of the suspected limb may reveal a slight limitation of rotation, the result of hip disease. The other simple procedure relates to flexion. Let the patient, still on the table, sit up and kiss the knee. By flexing the neck and back, and drawing the limb up with the hands, this can be easily done with the unaffected limb, while an attempt to do it with the suspected limb may reveal a slight limitation of flexion indicative of incipient hip disease. Another diagnostic sign, too little thought of, perhaps, but of importance in the very early stage, a brawny thickening about the joint in front of the capsule or behind the trochanter. There will in some cases be found a condensation of the soft tissues, due apparently to the vicinity of osteitis, not visible perhaps, but recognizable by palpation or pinching with the thumb and finger, and then often not detected except by comparing the two sides. It will be found that a smaller pinch of the skin and underlying tissues can be made on the sound than on the affected side. These tests are to be used, of course, in connection with other diagnostic helps, and with due regard to other conditions which have the power to produce similar phenomena. Properly used they may betray the presence of hip disease in a patient entirely free from pain and lameness at the time of the examination.

Later on, the bacillus destroys the cartilage lining, the acetabulum, and covering the head of the femur; the microbe of pus puts in appearance, and forms large masses in the cavity of the joint, ptomaines are excreted by both germs, hectic appears, and if nature or art does not effect an opening into the joint, the patient may die or recover with ankylosed joint and a wasted useless limb.

The treatment in the earliest stage consists in maintaining the limb at perfect rest (the patient in the recumbent posture), in a straight position, which is best effected by putting on the limb a counter extension apparatus, and placing two sand bags, one on each side of the limb, the external one reaching as high as the arm-pit. Local stimulation over the germ-infiltrated tissues, with powerful bactericides, the irritating plaster; if sinuses form, run them in one, and use injections of peroxide of hydrogen, somewhat diluted, into and around the joint cavity; otherwise general treatment for tuberculosis. Aspiration of the joint, and injecting eight vol. peroxide has been tried with success.

Tubercular Bacilli in the Knee-Joint.

(*White Swelling*.)

The knee-joint is the largest in the body, and is composed of three bones; the thigh-bone (femur); shin-bone (tibia), and knee-cap (patella). These bones are held together by a great number of strong ligaments, and the movements of the joint are controlled by numerous muscles. Like all movable joints, the *articular* surfaces are covered over with cartilage, and a large and complex synovial membrane is insinuated between the structures forming the joint. A remarkable feature about the articulation, it has in common with one or two more in the body, viz., the inter-articular fibro-cartilages, or as they are here called semilunar; their office is to defend the joint from severe and sudden concussions, and their mechanism is so adjusted, they are always between the ends of the bones when, and at the point at which the greatest pressure is experienced. From the complex nature of this joint, their size, and exposed situation, it is obvious that it must come in for a large share of injury, and it is peculiarly subject to disease. The natural movements of which this joint is capable are flexion, extension, and partial rotation outwards and inwards.

The tubercular diathesis is intense, the joint and all its structures badly damaged, before the bacillus can enter.

More common among children than adults.

It commences with slight lameness, swelling of the joint, and from the pain or stiffness of the articulation, the muscles are not brought into play, and so waste and atrophy.

The general train of symptoms is as follows: Tubercular habit, some exciting irritation; occasional pains in the joint, becoming gradually worse; swelling so slight at first that it is scarcely recognizable, gradually becomes a globular enlargement, owing to infiltration of the synovia with the bacilli, and latterly in and around the joint. If the disease proceeds unchecked the bacillus dies, and undergoes cheesy and calcareous degeneration, ankylosis, disorganization of the joint ensues.

The same rule holds good with reference to the knee, as the hip; the same pathology and germicide treatment. This illustration is a microscopical appearance from a lymphatic in the groin of a patient, aged seventeen years, who



The bacilli of tubercle infiltrating one of the lymphatics of the groin.

had suffered for eight months with tubercular synovitis of the knee joint. The patient was much emaciated, terribly anæmic and broken up in all the essentials of life. He was placed upon the glycerite of ozone in alternation with the concentrated tincture of kurchicine in half teaspoonful doses, thrice daily.

Improvement was perceptible the second day of treatment, which continued on for three months, when he was perfectly cured.

The tubercular effusion in and around the joint was somewhat troublesome; ozonized clay effected most excellent results, but after using it about ten days lost its effect altogether; liquid ozone operated well; this was followed by iodol, which also did good work; hot fomentation of wormwood, one ounce resorcin to the pint were efficient, iodized oil was most effective.

The effusion of tubercle into the synovial fluid of the knee joint must not be confounded with enlargement of the bursa mucosa, situated in front of the patella, and of the tendon immediately below it. It is frequently noticed in those who have much kneeling, as household servants, carpenters, plumbers, carpet-layers, etc. Enlarged bursæ of the patella are frequently attacked by inflammation and suppuration, and usually there is extensive inflammation of the surrounding cellular tissue. Sometimes troublesome burrowing ulcers remain after these abscesses, which are singularly obstinate, attended with fungus growths, the surrounding skin being dark and unhealthy, with deep burrowings under the integuments of the knee, and a foul offensive discharge. In severe instances the bone (patella) may become necrosed. The treatment consists in the first place of complete rest, and a well-fitting splint must be applied, and all motion of the joint prevented. If a recent enlargement, a stimulating lotion of acetic acid and hydrochlorate of ammonia, or a small blister, will often cause it to subside. If there is considerable thickening, as there always is if the tumor has been of long duration, evacuation of the sac and subsequent counter-irritants will often effect a cure. Some surgeons use a seton, which is composed of a few threads of silk passed through the cyst, and by setting up suppuration and the consequent contraction and granulation the cavity becomes obliterated. When the tumor has become a solid, gristly mass, there is no other treatment than dissecting it completely out. In the cases most commonly brought under observation, rest, leeching, hot fomentations, and purgatives, and failing these a free incision, usually effect a cure.

Efforts have been made, by various remedies, to cause a disintegration of the calcareous mass in and around the joint, either by the ozonized clay or dioxide of hydrogen, with electricity, but with no satisfactory results.

Tubercular Bacilli in the Wrist-Joint. Next in order to the knee and hip-joint comes the wrist, here the same microbes often lurk, and here the amount of lymph glands are numerous, pink marrow abundant, consequently the anæmia is great.

Treatment same as in the other joints; locally, try the ozonized clay, if suppuration has not taken place; or better still the galvanic cautery, followed with concentrated ozone; if suppuration has taken place remove matter by aspiration, and inject eight-*vol.* solution of peroxide to destroy the microbe.

Curative treatment has chiefly been attempted by stomach medication, and by the local application of bactericides.

Local destruction of the bacillus tubercle by inspiring bactericides, has been effectual and is worthy of a trial, breathing the germicide it often strikes the germ.

There are various forms in which remedies employed for inhalation can be administered, and several methods by which their direct application can be accomplished. All inhalations may be divided into two principal groups—the *moist* and the *dry*.

In the first group, or moist inhalations, we have—

1. Warm vapors arising from water heated to various degrees of temperature, and charged with medicinal substances properly prepared for vaporization.

2. Medicated spray, produced by mechanical force. In the second group, or dry inhalations, we have—

(a.) Gases or vapors produced by heat or chemical action, and mingled with the air.

(b.) Minutely divided solid substances, or impalpable powders.

Each of these forms requires special apparatus for their production and administration, such as the inhaler, the atomizer, the evaporating dish, properly contrived syringes. For inhalation, important gases, as oxygen, chlorine, and nitrous oxide are of great utility.

The use of oxygen is of utility—a valuable remedy in those cases of lung diseases which arise from imperfect decarbonization of the blood. In some forms of asthma it is also exceedingly beneficial, relieving the difficulty of breathing and restoring the patient to a healthy condition. It must, of course, be used with caution and only under proper professional advice.

Chlorine also has been highly spoken of by many writers on consumption, and has been even supposed by some to cure every stage of this affection. Numerous physicians have mentioned several severe cases of consumption that were perfectly cured by

this gas, and I am fully convinced that there are certain advanced stages of this disease in which its inhalation is extremely beneficial. In chronic catarrh, and those affections of the lungs and air-passages in which direct stimulation of the mucous membrane is advisable, this gas, properly diluted with atmospheric air, may be applied with the greatest advantage. Like all other forms of remedial agents it must be used with caution and judgment, and when it is so administered it is perfectly free from danger, unpleasant sensation or inconvenience.

This gas may be easily obtained by placing a teaspoonful of peroxide of manganese in an earthenware saucer, floating in a basin of boiling water, and pouring upon it about fifty drops of hydrochloric acid. This will disengage a sufficient quantity of the gas to medicate a room of moderate size. The fumes which arise will rapidly diffuse themselves through the atmosphere, and be inhaled in the natural act of respiration. It will be necessary to keep the doors and windows of the apartment closed during its use, and indeed, if possible, it is better to appropriate a small room for the purpose, into which the patient may go for a few minutes several times a day, otherwise it will be necessary to prepare the vapor freshly as required.

Nitrous gas has also been found very effective in many forms of lung disease, its action upon the system doubtless depending in a great measure upon the amount of oxygen which it contains.

This gas may be obtained by pouring about half an ounce of sulphuric acid into a saucer, and adding to it, at short intervals, small quantities of pure nitrate of potash. By this means the air of an apartment will be quickly charged with the gas.

When judiciously applied it speedily relieves violent paroxysms of coughing, soothes the irritation of the mucous membrane, and promotes expectoration. In asthma and chronic bronchitis also it is very efficacious in overcoming the sense of oppression of the chest and difficulty of breathing which always accompany these distressing complaints.

The vapor of creosote may be obtained by mixing ten drops of this substance with half an ounce of water, and allowing it to evaporate in the fumigator and slowly diffuse itself through the atmosphere of the apartment. This quantity will be sufficient to medicate the air of an ordinary-sized room.

This vapor has been found very useful in the advanced or ulcerative stages of consumptive disease. It should not be administered whilst any inflammatory action is present, but when used with due caution it is attended with the best results.

In the early stage of tuberculosis, before the bacillus has made much of an inroad, the microbe can often be sterilized, and a complete restoration of general health effected by inhalations.

When the germ has effected an entrance and become localized in the lung, softening of the tubercle and its expulsion by expectoration is much aided by inhaled vapors.

When the greater portion of the lung is microbe-eaten, an ulcerous cavity formed, the possibility of a cure depends a great deal on the energy of the treatment.

If the microbe, on the contrary, involves the whole of one lung, the prospects of recovery are greatly diminished; but still cure is possible so long as the other lung retains its integrity and is unobstructed in its functions. Life may be preserved even after the destruction of one lung. A person in this condition cannot have the same power of endurance in pursuit of his ordinary occupations, but he may still live and enjoy comparative freedom from suffering for many years. In such cases, which have hitherto been considered hopeless, a properly conducted course of inhalation has produced the following marked effects: the cough and expectoration have been controlled, and the constitutional disturbances greatly modified. In this condition the patient may remain stationary as regards flesh, although this will be, of course, below the former standard.

When both lungs are involved in extensive disease, cure is impossible, and it is folly ever to hope for so great an improvement in the healing art as to embrace these cases among the list of curable. The most that can be accomplished is to afford relief by cleansing the lungs from mucus and pus which obstruct the bronchial tubes; to soothe the cough and allay the irritation of the lung, so as to promote sleep, and make the patient comparatively comfortable. But, in defiance of any skill within the power of man, the duration of life is a question of weeks or months. This, however, is no reason why some well-directed effort should not be made to procure the greatest amount of relief possible, and this can be more confidently looked for from the aid of inhalation than from any other mode of treatment.

From the above remarks it will be seen how necessary it is for those who are predisposed to pulmonary disease to keep a close watch over the earliest perceptible signs of its approach. All authorities agree that in its first stage consumption is as amenable to treatment and as curable as any other form of disease. It cannot be known too soon who are the subjects of it, and it is impossible to ascertain this but by a most thorough, careful and frequent examination into the constitutional and local symptoms of the disease. Every one ought to be examined regularly at stated periods during the year, and there are no seasons better suited for this than the autumn and spring. If the lungs are healthy, an examination cannot produce the complaint, and if

any evidence of the malady be detected, the sooner the patient comes under treatment the better chance there will be of his deriving benefit, and the greater probability of an ultimate cure being effected. The treatment should in any case be persevered in so long as the least vestige of the disease remains.

To kill bacteria is one thing, to kill germs is quite another. It has been proved that they can stand a short boiling, that they can be floated in air-bubbles through strong vitriol, that they can be washed with a carbolic solution of any strength short of five-per-cent. without being killed, or losing their power of self-multiplication. Is it likely, then, that any vapor which could possibly be inhaled would be capable of destroying organisms which are so retentive of their vitality? I think it is quite obvious that all evidence shows that it is impossible, either to keep germs out of the body, or by antiseptics to kill them. What else, then, can inhalations do? Simply ameliorate.

While Prof. McFall was performing experiments on the living matter in the atmosphere, it became necessary very frequently to prepare sterile solutions, and he was much troubled by the prolonged boiling which was necessary to destroy with any certainty their contained vitality. But he found that if, instead of giving his solutions one long boil, he heated them several times for quite a short period, leaving them at the ordinary temperature in the intervals, he could quite readily devitalize them. This method he described as sterilization by discontinuous heating. He discovered, in fact, that however hard and resisting the germ may be, there is, in the life-history of every bacterium, a period when it is very soft, tender and easily destroyed; and that, although he could not touch the germs themselves, he could let them hatch, and, by repeated slight heatings, kill their offspring as they came out, while they were too young to produce a fresh generation; and thus he was able, without ever reaching the point of ebullition, completely to devitalize the fluids which he had found most resisting, even to very prolonged boiling. The recognition of this difference between germs and bacteria, as regards the action of destructive agents, explains many things otherwise difficult of comprehension, and enables one to understand how organic substances can often be protected from decomposition by the addition of very minute quantities of antiseptics, in proportions quite too small to be in any way considered germicidal.

The *modus operandi* is probably in all cases the same: the germ is allowed to hatch, the young is killed by an antiseptic far too weak to touch its parent, and thus the race dies out. Now, it seems to me that this is the explanation of antiseptic inhalations. The materials which have been found most useful are not

mere gases which intermingle with the inspired air and then pass out again with it, but are vapors, gaseous forms of soluble bodies which are deposited wherever their penetrating vapor comes in contact with water. On every moist bronchial tube, on the walls of every cavity, and even in every congested spot in the lung, the inhaled carbolic vapor condenses and carbolizes the tissues; and we are, I think, forced to believe that the benefits derived from the use of antiseptic inhalations are due to this infiltration of the lungs with this antiseptic material rather than to any action upon the floating germs. It must, however, be granted at once that this imprègnation of the tissues never goes to any great extent, and the question arises whether so mild a dose can have any effect in preventing bacterial growth. There is plenty of evidence to show that antiseptic inhalations diminish the irritating qualities of the expectoration, and lessen the number of bacteria in it; but there is no proof at all that it can be rendered entirely free from bacteria by any amount of antiseptic vapor; in fact, all evidence goes the other way.

Now, it has often been assumed that, if we cannot stop the growth of micro-organism in fluids lying in the tubes and cavities, we certainly must not expect to check the development when embedded in the substance of the lung. But the cases are different; the one is a question of dead matter, the other of living tissue. Decomposition of expectoration obeys the same laws as experiments in test tubes; but the growth of bacilli in the living substance of the lung is resisted by the vitality of the tissues themselves. Life is the great antiseptic. There are few points in which the difference between things living and things dead is more markedly shown than in the power live bodies possess of resisting, by virtue of their own vitality, the growth within themselves of those lower organic forms which, in dead tissue, readily take root and grow, and by their development, rapidly reduce the lifeless elements to their lowest chemical affinities. For scores of years man's body resists decay, and then, when life departs, he rapidly swarms with myriads of bacteria; not that there is any chemical change making his body more suitable food for them, but because they are able at last to take possession, now that the resisting power of vitality has departed.

As it is with the germs of decomposition, so it is with those of tuberculosis. When they attack the lung, they do not usually at first affect those parts which are most actively performing their functions; the very parts into which they are most freely carried by the air are least susceptible to their attacks; their active vitality is their protection; but, in the apices and parts injured by previous inflammations, they settle and breed disease. And, even

when phthisis is well established, and when the air in the chest must be crowded with its germs, large portions of the lung remain for long untouched; showing on the one hand, how great is the resistance to the disease inherent in the tissues themselves, and, on the other, giving a rough measure of the amount of help required from treatment. For, if the difference between a soil fit and one unfit for bacterial growth is to be measured, for example, by the difference between the functional activity and resulting vital resistance of an upper and lower lobe of the lung, surely it is not unreasonable to hope that, by impregnating the pulmonary tissues with antiseptic material, which, we know, renders them less fitted for the cultivation of bacilli, we may be able to make up the lacking resistance, and so prevent the access of disease.

The inhalation of bactericides certainly has a tendency to sterilize the bacillus, and thus aid in at least arresting the disease.

First, the material used ought to be capable of absorption by moist surfaces; it should be a vapor, not a gas; and a dry vapor, not an atomized solution. Second, as no attempt to filter or sterilize the air is required, all complex forms of respirator may be discarded. The freest possible access of air should be allowed, the vapor being breathed with it as constantly as possible; so that the simplest and most open respirator is always the best, the mere diffusion of the vapor in the room sometimes being sufficient. Thirdly, we must combine with the treatment by inhalation, all medicinal, dietetic, and hygienic measures which tend to improve the general condition of the patient, and thus increase his vital resistance.

It is worth bearing in mind that the view of the matter, which I have so imperfectly brought before your notice, shows the harmony and unity of purpose which exist among the various means which we make use of in the treatment of consumption. If we accept the germ-theory of the origin of tuberculosis, all treatment, both local and general alike, must aim at preventing the growth of certain bacteria in the body; the struggle is between one great life and myriads of small ones; and while all general treatment tries, by providing healthy work, good food, and pure air, and by attention to all the details of a bactericide treatment, the treatment by inhalants should consist in a selection of a few of our best germicides, as eucalyptus, menthol, creosote, iodine, ozonized sulphur water, comp. oxygen.

There is really no cessation of attempts to attack the microbe by inhaling or through the stomach.

The baneful parasite brood of bacilli are hard to kill, and it requires tact, and good remedies to drench the germs, and cause their departure from the pulmonary cells.

Ozonized sulphur water or ozonized iodine, are most obnoxious to the tubercular bacilli; their anti-parasite and disinfectant properties are great, and their use is of real benefit in pulmonary phthisis, in thoroughly rooting out the germ. More recently, inhalation of hydrofluoric has met with success.

Where a special inhaling chamber can be contrived, the vapor may be driven into it by means of atmospheric air forced through a mixture of the acid and water in various degrees of dilution. Simpler portable contrivances have been employed, consisting of a bottle containing the mixture of acid and water, through which the air may be drawn by means of an india-rubber tube, and inhaled direct; or of a bag containing a definite quantity of air, which is connected by tubing with the acid bottle, two wash-bottles being interposed between the acid bottle and the inhaler. A definite volume of air is thus drawn through the whole apparatus until the air-bag is exhausted. The strength of the acid solution varies from fifteen to twenty or thirty per cent. An eminent physician contributes a note on the action of hydrofluoric acid in the treatment of phthisis, in which after a full recognition of preceding work, he advocates the careful trial of the remedy as one which is, at any rate, simple and innocuous, and may greatly contribute to the recovery of early cases. He points out, that in this, as in every other form of inhalant, the strength must be so graduated, that long-continued inhalations can be practiced without discomfort. Inhalations that are painful, or in any way distressing to the patient, are of very little value in practice, as they can never be long continued. Hence no positive standard can be laid down for the strength of the acid to be used in each case. The first sensations on inhaling the vapor are always somewhat irritating to the nose and fauces, but toleration is quickly established, and patients are soon able to inhale the vapor continuously. The remedy has been most successful in the early cases, and the first notable improvement is always in the appetite. He also notes that night-sweating is diminished, but that the fever is not always reduced in proportion to the improvement in other directions, nor do the number of bacilli diminish to any material extent. The same may be said of the local physical signs. Cough is not very much affected, but the sputa, as a rule, becomes less profuse. Diarrhea and laryngitis are not much affected, being generally met with in the case of advanced disease. The inhalation, after the first few moments, is attended with pleasant sensations, and patients always express themselves as being better for it at the time.

The hygienic management of all cases of tuberculosis is important, it includes proper directions as to ventilation, diet, clothing, exercise, bathing, etc.

Ventilation is most important, as a very large proportion of microbial diseases are due to germ-laden atmospheric areas; thus it is bad in quality, often charged with noxious vapors, or irritating impurities, variable in temperature, liable to transitions in electrical conditions; all these sources affect health. In some the effect is a direct, and in others an indirect, cause of disease. The changes in the temperature of the air are less serious than those in its purity. The former produces active inflammation; the latter is the parent of low fevers and consumption. The former is the most speedy in its influence on the health, the latter the most fatal in its effects.

The influence of pure air is seen in those who live active lives in the open air; riding, walking, or working. The effects of impure air, on the contrary, are seen in the pallid visage of the indoor mechanic, in the fragile form and hectic-tinted cheek of the seamstress, everywhere, in fact, when great numbers of human beings are crowded together without the means of sufficient ventilation.

Germ-laden air is most depressing to the one affected. Air must be considered in the light of food, the amount of supply, the mode or manner in which it is introduced, as well as the equality of its distribution, are essential considerations in every well ventilated-apartment.

With respect to the purity of the air as a preventive or curative agent, there are some curious facts which appeal to our judgments in rather a circuitous, but yet cogent way, and which would seem to militate against many of our preconceived notions, and make us reverse much of what we have hitherto enforced in practice. Some physicians have held the view that an excess of fibrine (hyperinosis) in the system predisposed to, if not favored, the development of tubercle. In pregnant women, the disease, if already present, is held in abeyance during the period of gestation, owing to the fact that the arterial blood assumes, in a large measure, the venous character, from the excess of carbonic acid in the system in general, but in the circulating fluid in particular; and as venous blood contains a less proportion of fibrin (hypinosis) than does the arterial, the arrest, or prevention, of the development of phthisis in the gravid state is thus rationally and physiologically explained. The bright carnation or vermilion hue of the skin of consumptive patients furnishes additional proof of the excess of oxygen over carbonic acid in such cases, and would seem to indicate the most rational remedy for the prophylaxis or cure of the disease, which, under the circumstances, would necessarily be the very opposite of that recommended by so many writers and authorities on consumption.

The solvent action of venous blood on fibrin prevents materially the deposition and development of tubercle, and goes far to strengthen the significance of the foregoing views, so that we are forced to infer that air contaminated to a certain extent by carbonic acid is not after all, so deleterious to phthisical patients as we have been led to suppose. The well-known anesthetic action of carbonic acid upon the terminal branches of the sensory nerves in general may not only allay "formative irritability," which, according to Virchow, plays such an important part in the genesis of tubercle and other morbid growths of tubercle, but also effectually calm the incessant, hacking cough which accompanies phthisis in all its stages, and thus become a potent preventive, as well as a curative agent, in the disease.

The effect of climate upon the tubercular bacilli is remarkable, some climates rich in ozone will often completely sterilize the germ, whereas others bring it into amazing activity.

It is difficult to suggest a climate adapted to all constitutions, and in recommending special localities a fearful risk is incurred, as the whole matter is involved in uncertainty.

To parties who have ample means there are to be found localities suitable everywhere for their special case. Within the limits of our native land there are differences of climate which can be made available according to season. In winter there are sheltered nooks on our southern and Pacific coasts; in the heat of summer there are the cool and bracing places of the north. Even in our homes it is practicable to secure a temperate yet invigorating air, with all the personal comforts to which we have been habituated, in which we can enjoy the charms of a congenial and social intercourse with friends, and in which the domestic ties are preserved intact to the latest moment of existence.

The diet of those suffering from the tubercular bacilli in their bodies should be of the best, and liberal to the utmost degree, as the condition of the patient will permit.

Clothing, summer and winter, should be woolen, light as consistent with sufficient warmth.

Exercise, moderate, is invaluable. In our day too little attention is given to this subject, and the most erroneous notions prevail among the people; some of the evil results are forcibly illustrated in the case of the invalid. Do we not daily see those who are able to walk without any considerable fatigue shut up in close over-heated rooms, lest a breath of pure air should reach them; whilst others, reduced to the last extremity of emaciation by disorganization of the lungs, are made to undergo long and tedious journeys on their way to a warm climate?

Proper exercise is that physical exertion which calls into use the greatest number of muscles, and should be carried to that amount which the patient can bear without fatigue. A walk of a quarter of a mile in disease may be equal to thirty miles in health. Every invalid should take regular exercise daily, which must be apportioned in quantity and in kind to the nature of the disease and the strength of the patient, and should always be determined by the physician, in accordance with the condition of the invalid. This particularly applies to cases of consumption, and also to other diseases affecting the breath, as asthma and those of the heart.

In addition to these outdoor exercises there are many kinds of passive exercise, such as swinging, rocking, inflating the chest, and the use of dumb-bells, which may be resorted to indoors when the state of the weather prevents the patient from going out.

Much misapprehension exists in regard to the influence of the weather, and, as a consequence, few invalids take half the exertion they should and can take with perfect safety in the open air. Rain is an insuperable objection; and a raw, damp, windy day should never be braved under any circumstances. Snow, on the contrary, when unaccompanied by wind or sleet, offers no obstacle to exercise in a covered carriage. The influence of a dull, cloudy day is felt almost as much in the house as in the open air, and the necessity for exercise is quite as imperative as on a fine clear day. With a clear sky overhead—though there may have been recent rain—the invalid may drive out with entire safety. During the autumn and winter, dry cold days are the best for outdoor exercise, and with the protection of a respirator, invalids may go out in the coldest weather, not only with safety, but with comfort to their feelings and benefit to their health.

Bathing is an essential element in the treatment of all suffering from the presence of the microbe in any part; its temperature, period of use become a matter of regulation by the attending physician.

There are, however, certain general maxims which ought to be clearly understood:

1. The use of cold water should be particularly avoided by those suffering from the bacillus tuberculosis. The quantity of blood circulating in the superficial blood-vessels at the surface of the body is very considerable, and the action of cold water applied to the skin is certain to disturb the equilibrium of the circulation, and to drive back a large proportion of the blood on the internal organs, especially when these are already the seat of disease, thus producing a liability to congestion.

2. The use of hot water should be avoided, as being very depressing in its effects upon the system, and, from the increased circulation which it causes on the surface of the body, rendering the patient more susceptible to change of temperature and consequent risk of "taking cold."

3. Plunge-baths and shower-baths are also to be avoided by consumptives, as necessarily exposing the whole surface at once to the action of the atmosphere, and the sudden shock to the nervous system is equally prejudicial, being a frequent cause of disturbance to the proper action of the heart.

In all cases where the bacillus of tubercle is present I recommend, as most beneficial, the use of water as nearly as possible the temperature of the blood (98° Fahr.). I also give the preference to sponging over every other form of bathing, recommending as a precautionary measure to uncover only a portion of the body at a time, and to regulate the temperature of the room by preventing draughts of air, and by having it sufficiently heated. As the perspiration is apt to be acid, and charged with oily secretion, the use of a small quantity of an alkaline substance in the water, such as carbonate of soda, will assist the cleansing of the skin more thoroughly and removal of dead microbes. In the more acute forms of disease gentle frictions of the skin after the bath will be beneficial, but in chronic complaints this will not be so essential. Great care should be taken not to expose the person to the open air immediately after bathing, but to allow the equilibrium of the circulation to be fully re-established before venturing forth, for it will be found that with every precaution an amount of constitutional excitement will always be produced.

It will readily be seen that I attach great importance to the act of bathing; not that I regard it as a specific or directly curative agency, but simply as forming a portion of the general hygienic management which cannot be too rigidly enforced by the physician, or too faithfully put in practice by all who seek relief from pulmonary tuberculosis.

As our readers would naturally like to hear what the most illustrious, leading and learned members of the medical profession in the United States think and say regarding the "*tubercular bacilli*," we hereby append extracts from their published essays on the subject. A very prominent, highly scientific, and most successful practitioner, *H. S. Lane, M. D., Philadelphia, Jefferson Co., New York*, says:

"Tubercle, the degraded bioplasm or living matter of our own bodies, caused by conditions adverse to vitality, and when once present the bacilli being always abundant, whether there be formations or not, renders this diathesis pre-eminently conta-

gious and infectious. If vital force be low, germs very active in the deposits in the periphery of the nodules, isolated or grouped, and the bacilli or young swarms are found in the sputum, sweat, saliva, stool. Spores producing bacilli are found in every tissue, but breeding is carried on actively in parts that are weak and feeble. Indeed their mode of evolution is the same as other germs—a weakened part, a station suited to the growth of germs; incubation follows, the seed undergoes changes, same as a grain of oats in the soil. That particular germ may die, but in dying multiplies itself indefinitely; new germs are let loose into the circulation and another colony is formed in another part or soil, during the incubation of which there is a pause, a febrile excitement, a growth.

The disease germ in the blood may multiply, but the chances are that if the individual has high vital force and normal physiological activity that growth will be retarded until there is a weak, vulnerable point, a locality, a zone where germs can grow.

The transmissibility of the micrococci of tubercle may take place from man to man in apparent health; from husband to wife, or vice versa; or from tubercular disease or from domestic animals, especially from the milk of tubercular cows, but there is, properly speaking, no fructification unless vital force is shattered.

The diversity of disease-germs, aside from tuberculæ, is easily explained, and harmonizes with physiological laws; the germ is originally an elementary element of nutrition of some special tissue, and in that condition it is degraded by mechanical violence, ill health, depressing causes, as poor food, insanitary states, which accounts for their difference when the condition of depressed vital force exists; still there must be a receptivity of soil as an essential requisite to reproduction—a vulnerable point for their deposit or reception and fructification. These facts teach us that consumptives should in all cases be placed in an invigorating residence, with ozone-generating atmosphere, where no disease-germ can live, for where ozone is, tuberculæ cannot exist; a diet rich in blood elements, surroundings free from all insanitary states, body properly protected with flannel, and daily invigorated with bathing and massage.

It must be born in mind that the lung at some point has suffered a partial death; it is devitalized, passive, there is a stagnation, a lowness, a want of contractile power; the nerve power, the tone of the blood vessels is lowered, circulation is feeble, all is delicate, and the working capacity of the lymphatics and pink marrow is greatly impaired."

E. S. Pixley, M. D., Pittsfield, Massachusetts, a most experienced and highly scientific practitioner, who has added much to the dissemination of the germ theory of disease, in a recent printed essay on chronic disease, says:

“Tuberculosis originates in one or other of two ways, the microbe is either the changed, altered, degraded bioplasm of our own bodies, by living under conditions inimical to vitality; or it is the product of others. Whether it is acquired, or the product of an invasion, the recovery or destruction of the patient depends upon the relative vital power of the microbe and the integrity or strength of his own vital force. In the struggle it is the object of remedies to weaken the one and strengthen the other. This can only be effected by selecting and administering such germicides as are innocuous to the human body, whilst they are as inimical as possible to the microbe. If the microbe is not annihilated in the blood and tissues it will excrete ptomaines, a chemical substance disastrous to living matter.

Numerous attempts have been made to destroy the bacillus in the lung, blood and other tissues by means of germicides, either inhaled through the bronchial mucous membrane; or by the stomach, or by endosmosis through the skin or rectum; to destroy the bacillus without interfering with the delicate structure of an organ. The principle is a good one; the glycerite of ozone is the remedy, which, when taken into the stomach eliminates ozone; this, the great scavenger of nature, enters the blood, in which it either sterilizes or annihilates all microbial life. By the persistent administration of half a teaspoonful thrice daily, well diluted in water, the tubercular bacilli is constantly exposed to its action. The remedy is volatile; permeates all the areas of living matter, circulates in the blood; vitalizes that fluid; has a specific power to destroy tubercle without injuring any tissue, even delicate lung structure. From its first dose, the microbes are paralyzed, they fail to excrete ptomaines; hence hectic, diarrhea, fever, states in which ptomaines play an important part, are wiped out orally or otherwise.

Over the germ colony, or desposit or infiltration, an active bactericide should be applied either constantly or at suitable intervals. Such a germicide as ozonized turpentine, if the tubercle is localized on the peritoneal coat; if in the lung, the concentrated ozone with chloroform; if in the knee-joint, glucozone; such local applications are found to destroy tubercle when kept in close contact. Indeed the tubercle bacillus speedily disappears.”

The observations of *Prof. W. V. Rutledge, M. D.*, of St. Louis, Mo., who is one of the foremost workers in the field of bacteriology, has developed the significant fact that the bacillus of tuber-

cle may co-exist with numerous other microbes, as those of lepra, syphilis, rheumatism; that the evolution of the microbe can be prevented by a high standard of health.

“The tubercular germ is undoubtedly the most common, one to which the human race owes more mortality during the working period of life, between fifteen and fifty-five, than any other, and it is the duty of the individual, as well as the government, that a systematic attempt should be made to diminish, and when possible, remove the preventable cause of this scourge.

The evolution of the microbe can be prevented by a rigid observance of sanitary science, by abundance of the best of food, good clothing, a high moral atmosphere, and everything which tends to ennoble man.

The reception of the germ from other bodies is more difficult to control.

Amongst the various modes by which the infecting bacillus has been shown to enter the body, there are two which are of special importance in connection with the subject of this paper. Communication by means of the mucous membrane of the alimentary canal is of interest because of the prevalence of tuberculosis in cattle, and from the experimental proof of the infectiveness of the milk of tuberculous cows. As animals which are crowded together in sheds with deficient ventilation, etc., are most liable to tuberculosis, an efficient inspection of cattle kept for dairy purposes is necessary. Although the injurious properties of the milk of diseased animals may be destroyed by boiling, precautions are required as to the selling of milk for food; and even though the bacilli are rarely found in the muscles, it has been suggested that tuberculosis should be included amongst the contagious and infectious diseases of animals. Infection through the respiratory system is, however, the most frequent starting point of phthisis; and as the risk is intensified by close contact and by the crowding together of sick and healthy, the necessity for ventilation and the prevention of overcrowding is apparent, and becomes more marked when the predisposing causes are considered.

Wherever tuberculous persons or animals are congregated, the air must contain large numbers of the tubercle bacilli, which must be taken in with the inspired air by many individuals, of whom only a proportion become phthisical. It is probable that even if the bacilli escape expulsion by the expiratory effort, the healthy tissues do not afford them a suitable habitat; but a lowered vitality of the tissues, whether local or general, places them in a more favorable condition for the development of the micro-organism, and thus constitutes in the individual a *predisposition* to tubercular disease. Speaking generally, a suscepti-

bility to tubercle may be produced by diseases of the respiratory system, or by constitutional enfeeblement.

Amongst the predisposing causes, some of the most important result from the aggregation of persons in a crowded population, or from the industries which mark an advancing civilization.

Indoor and sedentary occupations, as well as those in which dust is inhaled, influence largely the prevalence of phthisis; and much of this disease amongst those who follow these occupations is preventable. Here, again, the basis of all preventive measures is to be found in efficient ventilation of mines and work-places. Printers, tailors, and dressmakers afford sufficient example of the effect of employment in crowded and ill-ventilated rooms, and the prevalence of phthisis amongst these classes is shown to be very considerable. The home-workers are more difficult to deal with than those who are working in large establishments, but the provision of public work-rooms, in which conveniences for various occupations could be found, might lessen the evils of the present state of things.

With regard to climate, its influence in the causation of phthisis is probably infinitesimal as compared with the effects of density of population. The dampness of the soil has been shown to have some influence on the prevalence of the disease, and this can be remedied by drainage. Damp in houses may be prevented by concrete foundations and the insertion of a damp-proof course in the brickwork above the level of the ground.

Overcrowding is of two kinds—the aggregation of buildings on a confined area, with insufficient open space around and between houses; and the crowding together of the inmates within the house. Both are unfortunately too common, and are potent factors in the development and spread of tubercular disease. By-laws should be enforced regulating the width of streets, the amount of open space around houses, the minimum height of rooms and size of windows; and efficient inspection of new houses should be carried out before they are allowed to be occupied. Tenement houses should be licensed to hold a certain number of inmates, and be liable to inspection. In considering the number of inmates to be allowed to a house, attention should be paid to the means of ventilation as well as to the number and size of the rooms. As many diseases which produce a general debility thereby predispose to tuberculosis, sanitary and hygienic measures, framed for the control of these, tend to diminish the amount of phthisis in a community: and seeing that insufficiency of food, of fresh air, and of exercise, continued anxiety and mental depression, and dissipation must be reckoned amongst the predisposing causes, the philanthropist may assist

the sanitarian in the fight against this widespread disease. How many cases of consumption will result from the present epidemic of measles in this city, which might have been checked by the timely closing of schools!

The fundamental principles which must form the basis of any successful attempt to diminish the prevalence of phthisis are: (1) to provide a sufficiency of fresh air in and around dwellings, and work-places and (2) to endeavor to improve the resisting power of the individual by all possible means, as physical training during the period of growth and development, by exercise and recreation, and good food.

As the effects of the tubercular microbe in the individual are not confined to his generation, but handed down from parent to child, any causes that tend to increase tubercular disease among a people must be regarded as tending to produce progressive vital deterioration of race. We owe it, therefore, to humanity, to succeeding generations, to allow no time to be lost in commencing a systematic attack upon everything productive of this germ."

Tuberculosis is a most contagious and infectious disease. We copy the following which is part of a report made to the Health Board by the eminent *R. H. Randolph, M. D.*, Portland, on the prophylaxis of tuberculosis:

"That the terrible mortality due to tuberculosis must not be reckoned only from the cases of phthisis, but that a large number of examples of bronchitis, pleurisy, meningitis, peritonitis, enteritis, diseases of bones and their articulations, indolent abscess and others, are due to the same fatal and protean source.

Tuberculosis is an infectious, parasitic malady, caused by a microbe, but can only be conveyed to healthy individuals under special circumstances. Besides its transmission by descent, the microbes can gain entrance aerially by the organs of respiration, by the stomach mixed with food, by the mucous membranes, and by the skin through wounds, scratches, or punctures.

The most common and active source of contagion is to be found in the sputum of consumptives. In its liquid state, this has little activity, and can only very rarely do mischief; it is when dried and reduced to powder by attrition that it is most dangerous. When expectorated on the ground, the floor, or the surface of walls, on one's clothes, carpets, bed coverings and curtains, even in handkerchiefs or napkins, it may readily be reduced to this pulverulent form, and then be distributed by the air, to be absorbed by the lungs, settle on one's skin, on mucous surfaces, or become mixed with food. In the fæces, also, of the phthisical, the microbe exists, and may be disseminated by simi-

lar means. Therefore the utmost care should be taken in the reception and disposal of the sputa; the spittoon should always contain water or some antiseptic liquid; never sand, sawdust, or ashes. The contents should be thrown daily into the fire, and the vessel well washed with boiling water. It should never be emptied into drains, on dunghills, or on the soil of gardens.

Handkerchiefs should never be allowed to become dry before washing, but be put into water as soon as possible after use. But the best plan is to use some cheap material and burn it.

A healthy person should not sleep in the same bed as a consumptive, nor, if it can be avoided, in the same room.

In hotels and establishments devoted to the use of consumptives, the furniture should be of the simplest kind, and readily washed; and all textile fabrics should be disinfected before a change of occupancy by heating in steam under pressure.

Besides the chances of human contamination, there is the ever-present danger of infection by tuberculous animals. The fatal microbe may be found in the milk, the flesh, and the blood of those used for the food of man; in beef, in cows', goats', and asses' milk, the flesh of rabbits and fowls.

Cows' milk is most frequently infected, that of the goat and ass much more rarely. But it is safer to boil them all before used as infants' food. The carcasses of all animals slaughtered for food should be jealously examined before the meat is permitted to be sold. There is a horrible practice, common in France, of people frequenting the *abattoirs* for the sake of drinking the warm blood; one is glad to hear that it is exceedingly dangerous; and meat should not be cooked in large joints, since the bacillus can stand a high temperature with impunity. The children of tubercular parents are most inimical to the disease, and this is obviously true, apart from the possibility of congenital infection."

The presence of the tubercular bacilli in
Tubercle Bacilli the sputa, or in any other discharge of a
in Sputum. patient is a sure proof of the tubercular infection of the individual.

It might thus appear very easy to discover the tubercular taint in a person. Such really is the case, but the naked truth remains that it is occasionally exceedingly difficult to prove the presence of tubercle bacilli, especially because of their close resemblance to the bacilli of lupus and lepra.

Prof. McFall, M. D., of Dallas, Texas, however, seems to have discovered a procedure which promises the long-desired aid. This procedure is as follows:

“ After the sputum or the pus has been treated in the usual manner on the watch-glass, it is allowed to dry thoroughly in the atmosphere, and the glass then drawn in the well-known way through an alcohol flame. The glass is then taken hold of by brass pincers, or, still better, glass pincers, and dipped *quite slowly* into the strongest undiluted nitric acid, *i. e.*, the acidum nitricum fumens of 145 to 150 specific gravity; it is then taken out just as slowly, and at once dipped into a vessel containing pure water, and there rinsed. The thus prepared material is then dried and afterward placed into the coloring fluid, according to the usual method, and in this the floating glass is permitted to remain for twenty-four hours, when the color is removed with diluted nitric acid. For the first coloring process fuchsin, for the second a solution of malachit, is employed by him. The fuming nitric acid used must each time be a fresh preparation, as it at once attracts the water from the atmosphere, and by giving off nitrous vapor changes to common nitric acid, which no longer retains the property of the fuming acid.

Tubercle bacilli thus treated perfectly retain their form, shape and color; only their contents have undergone an alteration; their interior appears as little nodules attached to each other like a chain of pearls. The bacilli, therefore, seem to consist of a hyaline wall and coagulable contents.

Neither the bacilli of lupus nor those of lepra show the same changes. This “chain-of-pearls” appearance, being characteristic of tubercle bacilli alone, may well serve, therefore, for the differential diagnosis of the three kinds of micro-organisms mentioned, while the method will permit us, henceforth, at once to establish the presence of tubercle bacilli without having to await the results of inoculation or of pure culture.

The present methods of detection often fail, he says, on account of the frequent scarcity of the bacillus in any given specimen, and the tenacious character of the latter renders it difficult to get the film on the cover-glass sufficiently thin and uniform. We advise that the whole sputa for the twenty-four hours should be placed in a conical vessel, very like a urine deposit glass, and that it should be subjected for another twenty-four hours to a uniform heat of 36–39° C. (95–103° Fahr.). This temperature he considers to fairly represent the temperature existing in the lung—the habitat, for the time being, of the parasite.

At the end of the above time the thicker portions of the sputa will have settled to the bottom of the glass, and will have lost much of their tenacity. The supernatant fluid can be easily decanted, or a drop of the thickened portion can be spread upon the cover-glass with uniformity, and, of course, is much more

liable to show bacilli, if present, than a drop of sputum before concentration. They are often five times as abundant.

C. L. Souder, M. D., Burrows, Indiana, has made a specialty of the treatment and cure of tuberculosis. His high scientific attainments, together with his profound erudition, have made him a standard authority on the subject.

In a recent essay on the subject we read:

“The bacilli of tubercle, a degradation of the living matter of the patient’s own body, which takes place under unfavorable condition to existence, or is received by weakened bodies in the form of contagion or infection—whichever, it colonizes in devitalized parts, on or in the bronchial or pulmonary tissue, and is usually accompanied with great emaciation and debility, because the pink marrow and other lymph canals are germ-laden, blocked up; difficulty of breathing after exercise, and a cough, which is always troublesome, and annoying expectoration, hectic fever, diarrhea.

Under states or conditions prejudicial to a high state of life, the bacilli of tubercle may appear at any age, but poverty, hardships, colds, catarrh, pneumonia, and many other states of vital deterioration bring it on, as certain deleterious trades, confinement, monotony, insanitary states, alcohol, excesses.

Of all diseases, probably the presence of the malarial germ in our bodies has much to do with the greater prevalence of the disease in our country, but a very large per cent. of all cases are due to the sudden changes in our climate, to insanitary states incidental to modern sewage, and heating of dwelling; to deleterious food and perverted habits. Like all germ diseases, it is essentially contagious and infectious—a damaged part is its seat of deposit. It is there it breeds; if lung substance is weak from any cause, it imbeds itself there; if the lining membrane of the bronchi is impaired, there. It is always dangerous from the growth and development of tubercles. A vital organ smitten—a deposit on the bronchi is much more dangerous than when in the substance of the lung—the danger is in proportion to the amount of germs present, and their activity, which depends wholly on the amount of vital depression.

The only cure for tuberculosis is the destruction of the bacilli tuberculæ in the blood, and in the part where they have colonized, and the maintaining and building up of vital force.

If there is cough, emaciation, hæmoptysis, hectic fever, night sweats, etc., administer the glycerite of ozone, the only remedy so far discovered that will positively destroy the germ, the factor of disease. Under its persistent use, there will be strength, greatly diminished cough; he will gain flesh; every dose will

reduce pulse, respirations, and abolish hectic, it will arrest night sweats and bleeding from the lungs.

If there are great prostration, great and grave lesions in lung structure, or on bronchia; if the patient, and even physician, is hopeless of a cure, we say *give* it; administer it persistently when the bacilli are active in an albuminoid state, for it will annihilate the germs: *give* it when the germ is merging from a caseous to a calcareous mass; an inorganic body; *give*, for it will then cause a chemical dissolution."

I. F. Beckner, M. D., Kentland, Ind., may also be regarded as standard authority on the tubercle bacillus. In his recent scientific and brilliant essay on the subject, he says:

"The discovery of the tubercle-bacillus is a scientific fact; all, with the same facilities, may see what others have seen. It is the one thing tangible, describable, known by its peculiarities among entities as readily as one individual is known from another. To doubt its existence in tuberculosis is to doubt the utility of scientific medical research, and to abandon further progress to the unstable dreams of theorists. The sputa of the phthisical contain these germs; the air they exhale is loaded with them or their spores, and their introduction into the system of animals will always produce tuberculosis, *while nothing else will*. These are not speculations, but demonstrable facts! Furthermore, clinical observations go to prove conclusively that healthy individuals, living in an atmosphere contaminated by the phthisical, will contract this disease, and not any other which might be due to a lowered vitality, from being in close quarters and breathing a vitiated air.

On the general question, as to how far it is possible to contract tubercular disease by contagion, we certainly have at the present time no sufficient evidence to warrant us in arriving at any satisfactory conclusion. All that is certain, or even probable, is that when a large number of human beings are herded together in a small space one of the diseases which make themselves most commonly felt is tuberculosis, whilst in the presence of abundance of fresh air it can almost with certainty be banished. It is equally certain that under such favorable conditions that poison may be communicated from one individual to another, a fact which is abundantly demonstrated, both by general clinical evidence and likewise by experimentation of animals allied to man. We have before drawn attention to the disadvantages that arise from the intimate association of healthy and tubercular individuals, but it by no means follows from these facts that any real danger exists of contagion from one person to another, provided that the most ordinary precautions are taken. We have yet to

appreciate and to understand what it is that makes an individual more prone at one period of his existence than at another to become infected with the poison of disease, and until it can be shown that infection from one individual to another takes place on a far larger scale than anything that has hitherto been demonstrated, it is certainly premature to conjure up dangers in the mind of the public which are purely hypothetical. With a reasonable supply of fresh air, and with our meat and milk thoroughly cooked, there is but slight fear, if any at all, of tubercular infection, and certainly to attempt to lead people to believe that it is dangerous to inhabit any room which has been occupied by a consumptive person, unless it is furnished and upholstered in such a manner that disinfection can be easily and completely carried out after the departure of each patient, by means of washing and sulphuring the rooms, is to frighten people unnecessarily, and to conjure up ideas in their minds which have no real basis for their existence."

Oscar N. Snow, M. D., St. Albans, South Carolina, another eminent specialist on pulmonary phthisis, and who has achieved brilliant results with bactericides, in its treatment and cure. He says:

"The gaseous treatment of pulmonary tuberculosis is a total, nay, a glaring failure. Eminent savans are now pushing forward an old but valuable remedy, lime water and phosphate of lime, not with the view of killing the microbe, but in the hope, in the far future, of creating calcification and fibroid changes in the neoplasm—thus retrogressing or sterilizing the bacilli.

The action of the phosphate of lime and lime water, or infusion of burned oyster-shells, is too well-known to need recapitulation at this late day, of their value in dentition, in small-pox, and even carcinoma no one can doubt, but in tuberculosis their use is powerless to arrest germ evolution.

The glycerite of ozone is prepared chiefly from the hypophosphite of lime and soda added to C. P. glycerine, ozone being added until it is thoroughly charged.

This very fine chemical preparation of lime is easily and quickly assimilated, and has a much more rapid action in building up vital force—in aiding a renewal of life, than the crude phosphaté.

The only chance of ever checking, or arresting, or curing, pulmonary tuberculosis, is by germicides, by building up vital force, by the administration of a microbe destroyer, like the glycerite of ozone, a remedy that enters the blood—coming in contact with the germ annihilates it. The microbicidal effect of the glycerite of ozone is thoroughly established, as is illustrated by

over six thousand physicians, who prescribe it daily and in their remarkable success in the management of the most hopeless cases of the malady."

The leading scientific savan, and undoubtedly the most distinguished and successful physician in Tennessee, her only bacteriologist, *Prof. W. J. Heacker, M. D.*, Beon's Station, Tennessee, says:

"*Pulmonary tuberculosis* may be defined to be the deposit or presence of the tubercular bacilli, either in the substance of the lung or the mucous membrane of the bronchi; the localization of the germ, its growth, its multiplication, its tendency to degeneration, excavation of the parts in which it is situated, with wasting of the body, and other evidences of germ evolution. The bacilli must exist in the blood. The lung must be smitten, or damaged, or weakened, and the contractility of its blood vessels impaired so as to permit of the exosmosis of the bacilli from the germ-laden blood.

The onward progress of the microbe depends altogether on the state of vital force, and how great the state of partial death in a portion of the lung. Degeneration and destruction mark the different stages of growth. The progress of all cases varies according to the state of vital force and the nature of the lung lesion.

The more of neurasthenia, the greater the amount of germs in the blood; lung congestion; capillary infiltration; the progress of the germ is irresistibly rapid; uninterrupted, harassing cough; opaque, cheesy, clotty expectoration; increasing shortness of breath, profuse sweats, frequent chills, rapid loss of flesh and strength; germ-eaten rectum, aphthous alimentary canal.

If vital force is not so depressed the degradation is less marked and the germs in the lung less abundant; slower in its metamorphosis; fewer tubercles, little cough, less fever and wasting.

The bacilli of tubercle may deposit themselves either on the mucous membrane of the larynx and bronchi, or in the substance of the lung, the selection invariably being a weakened part or tissue for growth and reproduction. The localization of tubercle in the apex of the left lung is the most common; here it may remain latent for many years; the lower lobe of the right lung, if congested or damaged by repeated attacks of cold, offers another favorable location for the lodgment of these micro-organisms.

To effect a renewal of life in the germ-smitten lung and destroy the germ in the affected part, and in the blood, is the most efficacious method of treatment. The administration of

that positive therapeutic, glycerite of ozone, annihilates the germs, checks the tissue waste, while it increases the quality and number of the red corpuscles of the blood. It thus lowers temperature, decreases the heart's action, alleviates cough, checks night sweats, and aids in the maintenance of the appetite better than all the bitter tonics, and is a more effective arrester of metamorphosis than brandy.

Tumors, or new growths, are divided by patholo-

Tumors. gists into two main groups; one of innocent or benign growths, the other of malignant growths.

The latter are distinguished by the following common characters: rapidity of growth, tendency to infiltrate and to replace the tissues of the affected part, tendency to recur after removal by operation, tendency to multiply locally and to infect other and remote parts of the body; a tendency to destructive and progressive ulceration, inducing fatal exhaustion through pain, continuous discharges and occasional loss of blood. To any tumor presenting these so-called characters of malignancy, the term cancer was applied by pathologists of a past generation, but at the present time, in consequence of the extensive use of the microscope in pathological research, there is a tendency to classify tumors with regard more to minute structure than to clinical characters. The tumors constituting the maglignant differ much in consistency and in minute structure, but the great majority of them have been referred to one of the following two great divisions: that in which the growth is composed of some form of connective tissues, and that in which it is made up in great part of cells resembling in character those found in the epidermis, on mucous membranes, and in the ultimate lobules of secreting glands. To the former division belong tumors that are called sarcomata or fleshy growths, to the latter belong the true cancers or *carcinomata*. Structurally the two are distinct; with regard to clinical characters and malignancy, their resemblance is very close, the chief distinction in these respects being the facts that cancer almost invariably, and sarcoma seldom, affects secondarily the lymphatic glands, and that the latter usually appears at an earlier period of life.

Innocent or benign tumors may occur in almost any part of the body, and they may vary in character from so simple a growth as a wart up to formations which may endanger life or require some serious surgical operation for their removal. It would be useless to attempt in a work like this any useful classification of tumors, as any properly devised system would be unintelligible to

the ordinary reader. The question with most people who find a tumor is forming is as to its being of a cancerous nature or not, and this can only be answered by obtaining the advice of a medical man. Much harm is done by the reckless way in which patients, to get rid of their malady, fall into the hands of those who pretend to cure them, while too often they only hasten on the fatal termination. The great majority of small tumors are harmless in character, and often cause inconvenience rather than any other distress, but in all cases proper surgical advice must be taken before recourse is had to removal.

Tumors then are swellings, prominences of greater or less size, developed by irritation, from either normal or adventitious matter upon any part of the body.

The following division is a most excellent one, the best which can be devised under our present light of science :

They are classified as follows :

1. *Type of fully-developed Connective Tissues—*

Fibroma	Type of fibrous tissue.
Myxoma	“ mucous “
Lipoma	“ adipose “
Chondroma	“ cartilage “
Osteoma	“ bone “
Lymphoma }	“ lymphoid “
Lymphangioma }	

2. *Type of Embryonic Connective Tissue.*

Sarcoma	its different varieties.
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3. *Type of higher Tissues.*

Myoma	Type of muscle.
Neuroma	“ nerve.
Angioma	“ blood-vessels.

4. *Type of Epithelial Tissues.*

Papilloma	Papillæ of skin or mucous membrane.
Adenoma }	Glands.
Carcinoma }	

5. Mixed Tumors, or Teratomata.

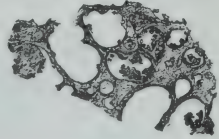
Tumors.
(*Fibroma—Fibrous Tissue.*)

Fibrous tumors are growths of mature connective tissue. Both the cell and intercellular substance are in a state of complete development, and they resemble normal connective tissue. There is usually a constitutional predisposition, an excess of over nutrition of these elements in the system; prolonged irritation operates as an exciting

cause, still a simple hyperæmia is often sufficient when lymph channels are gorged or blocked.

Three varieties are met with, the *solid*, *soft*, and *cavernous*.

These tumors may originate from connective tissue in any situation, at first consisting of embryonic tissue, cells being abundant and intercellular substances scanty. As they develop the number of cells decreases, and the intercellular substances increases enormously, fibrillated and hardened. The cells are small and spindle-shaped, and hidden amongst the fibres which run irregularly in all directions; the fibres form the greater portion of the growths, being closely interlaced and often concentrically arranged around the blood vessels. The growth of these tumors are slow, gradual, central, they are always encapsulated.



Connective tissue is of the most embryonic type—usually a vigorous grower.

They are liable to inflammation, hemorrhage, mucoid, fatty and calcareous degeneration. They vary in consistence from being very dense to that of succulent, areolar tissue, and vary in size from that of a pea to a massive growth. Innocuous, painless, usually single, unless originating from the skin, sheaths of nerves; and harmless, unless their size interferes with the functions of parts. Usually they are non-recurrent after removal. Found in all parts of the body. Some contain more blood vessels than others, and are pinkish in color, but the majority of them are destitute of vessels. This class of tumors is found in the womb, breast, bone. They are firm to the feel, free from tenderness, smooth, oval, or lobulated; of slow growth, lasting an indefinite number of years. It often degenerates into a stony mass, or earthy salts.

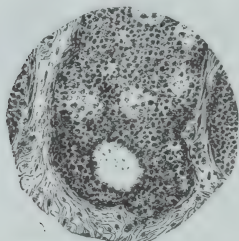
When no larger than an orange, the application of the ozonized clay should be tried, keeping it steadily applied if no erythema is produced, and administering comp. saxifraga and phytolacca internally. That failing, extirpation is the only remedy.

Besides the above, there are often found, (1) a subcutaneous tumor about the size of a pea, composed of fibrous tissue, which affects women, and gives rise to neuralgic pains; (2) a fibro-cellular tumor, made up of bands of firm, white, fibrous tissue, infiltrated with serum; (3) fibro-plastic tumor, made up of fibrous tissue and lymph; (4) fibrous tumor, composed of filaments of fibrous tissue, with naked nuclei.

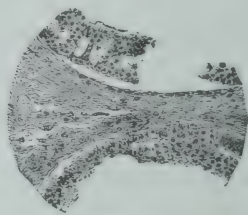
Fibrous tissue in the female breast is usually effused in a nodule, or mass, in the breast, constituting a tumor of irregular shape, hard, dense and fibrous; it may become large. No pain or lymphatic enlargement. General health good. In some cases

they assume a cartilaginous or bony consistency. They, as well as the fatty, depend, the one upon an excess of adipose tissue, and the other upon a superabundance of fibrous tissue in the blood, owing to some constitutional defect.

☞ *Treatment.*—If not very dense or hard, the same treatment as for the fatty; but here alteratives as compound phytolacca,



Fibroid tumor, where the tubules have undergone some proliferation into cysts.



Fibroid tumor of the breast.

iodide of potass, glycerite of ozone, play a most important part in procuring their absorption. So those remedies should be persevered with, and the clay kept on, alternately with belladonna, iodide of potass and muriate of ammonia. Even in cases



Fibroid in the female breast.



Fibroma of the cerebellum.

as dense as bone, they can often be absorbed with the above remedies. Never tamper with electricity, unless under the care of a scientific physician.

Fibrous tissue is often effused in the brain and cerebellum, more especially the latter. The annexed diagram is taken from the cerebellum of K. Jones, who died in Beverly, N. J., 1878, whose case puzzled the entire medical profession of the United States as no symptom existed during life upon which to base a diagnosis, but intense post-cervical pain, which by its agonizing vibrations literally caused the death of the patient.

Fibrous tissue is often found in nodules on the spinal cord, first lymph which becomes organized.

Irritation of all kinds, falls, blows, strains, lifts, anything we can imagine that would weaken any portion of the cord or its membranes, may permit of effusion of lymph which produces thickening, or if the blood of the patient is highly loaded with the germs of the tubercle, cancer, syphilis, rabies, they may form a nidus or seat of deposit, and grow and multiply, giving rise to a nodule of tubercle, an exostosis of syphilis, a cancerous infiltration, and may thus, by causing pressure or producing atrophy, cause paralysis.

Symptoms come on slowly but progressively. Paralysis of motion precedes that of sensation, often not very decided till growth or infiltration is some size. Apt to be pain over seat of induration, cramps and convulsive movements of the extremities. Nature of tumor or thickening is to be inferred from the history of case and diathesis of patient.

Treatment.—General health to be well cared for; nutritious brain diet; bathing with frictions and inunctions of oil into paralyzed limbs; attention to secretions. Persistent use of alteratives and tonics, iodide potassa, tincture iodine, iodide of starch and lime, with vegetable alteratives, as phytolacca compound, and such tonics, as quinine, mineral acids, occasionally ergot; bitter tonics, as kurchicine, gentian, and above all things the unremitting application of a two-inch-wide strip irritating plaster on both sides of the spine, changed every morning; keeping up a free, copious discharge of pus. Firm, determined perseverance will often get rid of the difficulty.

Tumors.

(*Myxoma—Mucous
Tissue.*)

These tumors consist of mucous tissue, the intercellular substance of which is homogeneous, translucent, and jelly-like, containing much fluid, and yielding mucia. Pathologically mucous tumors contain one or two distinct nuclei. The cells are oval, stillated, fusiform, or spherical, and distributed scantily, in which case the growth is translucent, but if the cells are very abundant, and packed closely, a whitish, brain-like opacity is imparted to the growths.

The growth as a whole is gelatinous, soft, trembling, of a grayish white or pinkish color. The cut surface yields a mucilaginous, tenacious liquid, in which the cellular elements may be seen.

These tumors are usually encapsulated, and are met with in

the later periods of life, being most common in sub-serous and sub-cutaneous fat, inter-muscular, and sub-serous tissue.



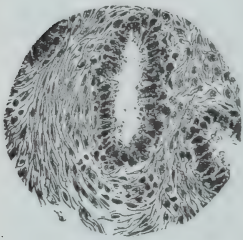
Hyaline Myxoma.
(Mucous tumor.)

A pure myxoma is rare, met with usually mixed or combined with lipoma.

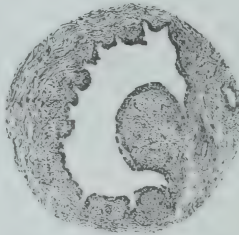
This class of tumors are liable, when they arrive at some size, to rupture of their capillaries and hemorrhages, or the growth may become inflamed, ulcerated or necrosed.

The myxomata are mostly benign tumors, but they often attain an enormous size. They never reproduce themselves after complete removal. Often associated with sarcoma in the female breast.

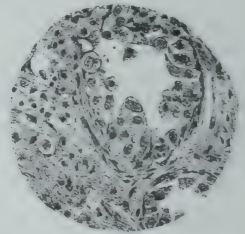
Mucous cysts consist of dilated and expanded gland ducts filled with mucus and epithelium. There may be one, or several cysts, in one or both breasts. They seldom grow larger than a



Inter-cystic growth, surrounded
with fatty molecules.



Cystic tumor of the breast.



Cystic tumors of the breast.

hazel-nut. Most common after change of life. They give rise to no pain or inconvenience, but when detected should be removed by a simple incision. If allowed to remain they simply become the seat of cancerous deposits.

Under the head are classed *cystic tumors*, which consist of a sac containing solid or liquid substances. They may arise by the formation of definite cavities in the meshes of the areolar tissue; by the dilatation and growth of obstructed gland-duct or follicles; by the erratic development of nucleated cells, which become exaggerated into cysts. Some contain serum; others a jelly-looking substance, some blood, others solid matter.



Cystic tumor on neck.

Wens, or encysted tumors, are most common on the head, face, and shoulders, and consist of obstructed sebaceous glands,

or else of erratically formed cutaneous cysts. In examining them with a small glass, the orifice, or mouth of the gland, can be seen in the centre in the form of a black spot or crust. They are all lined internally with a serous membrane, which secretes water, epidermis, scales, hairs, nails, oil-globules, and crystals of cholesterine, which cause the contents of the sac to resemble gruel or suet. The cyst is liable to accidents, which give rise to distension, suppuration, ulceration.

Treatment.—The cause that engenders them is irritation; so they never should be irritated or tampered with, and, as a rule, not interfered with if patient is out of health. In all cases they should be removed by the knife only by making an incision through their centre, and carefully dissecting out their sac, for if the smallest portion be permitted to remain, it will give rise to a sinus and weeping. Such tumors are common in the breast, prostate, parotid, and thyroid glands. As a rule, they are painless, not tender, moderately soft, elastic, and lobulated. Extirpation is the only cure.

The liver is often the seat of myxoma. Encysted, knotty tumors, containing a cheese-like substance are found in the glandular substance, varying in size from a pea to that of a hen's egg. They arise from irritation and inflammation of the hepatic ducts; steatomatous contents composed of irregular granules, free oil globules, and occasionally plates of cholesterine.

Simple serous cysts, with clear watery contents, are sometimes found scattered over the liver, usually about the size of a small bean.

Sacculated cysts, containing a glairy fluid, are also met with. In some cases they resemble a honey-comb. The liver in some cases is crowded with such cavities.

Ovarian tumors are very generally of this class.

Those are an invariable result of chronic inflammation of the ovary when that condition is not seen to promptly, and managed properly. Irritation is the cause of those growths. This irritation may spend itself upon the serous membrane and give rise to dropsy of the ovary, or on the fibrous tissue, or upon the sebaceous glands, or other tissues of the ovary, thus giving rise to different kinds of effusions or tumors. Ovarian dropsy is the most common of cystic disease of the ovary. There are three forms met with: the simple cyst or bladder, filled with a fluid; then there are the proliferous cysts, in which there are a number; and the dermoid cysts, the lining membrane of which is capable of secreting hair, nails, teeth, sebaceous matter, or any substance of the body.

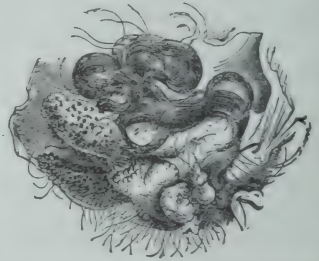
Causes.—It is unnecessary to recapitulate the causes, suffice it

to say that they are to be embraced under all those of chronic inflammation of the womb and ovaries, acute and chronic—which see—and placed under one term, *irritation*.

Symptoms.—Most cases, if carefully scrutinized, will exhibit well-marked symptoms of chronic inflammation of ovary; still the irritation seems to be even a little less, so the uneasiness or

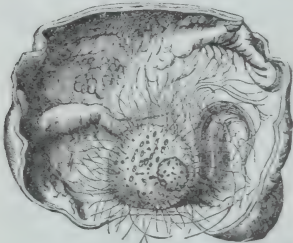


An ovarian dermoid nearly natural size, with two nipple-like projections.

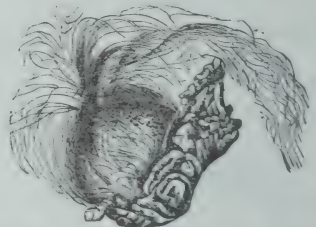


An ovarian dermoid, containing a fold of skin resembling a shrunken mamma.

pain of that condition is often not well marked, and may, if the patient is of a cheerful, sanguine temperament, escape detection until the abdomen begins to enlarge. In other cases, the pain in the ovary is well marked, and when the ovary fills up, it gives rise not only to an appreciable tumor in the affected side, but gives rise to some irritation of the bladder and rectum; a sense



An ovarian dermoid with a spurious mamma and a nipple growing from its wall.



Pedunculated dermoid tumors from the rectum—removed or rather exfoliated entire by the introduction of a jequirity capsule.

of weight and oppression in the abdomen; pain and numbness down the thigh of the affected side. Besides, there is the usual lassitude, weariness, backache, constipation, irritable bladder. Menstruation at first may be regular, but scanty or abundant.

After tumor has attained some considerable size, the symptoms become aggravated; there is greater pain and tenderness, as well as distension of the abdomen. Menstruation now is interfered with greatly, usually it is disordered, frequent or sup-

pressed. There is loss of appetite, indigestion, constipation, loss of flesh; frequent micturition; urine scanty, often suppressed. Strength diminishes; emaciation becomes greater; hectic spells; no sleep, sense of smothering, cannot go to bed, sits up. Meantime the abdomen increases in size, becomes enormously en-



A lock of hair, twenty inches long, from an Ovarian Dermoid.

larged. The swelling is one-sided, it may lay over to the other side in the recumbent posture; the pain is only in front, if it is simple, but if it contains cancer germs, the pain will radiate from the front to the back; if it contains a fluid, a sense of fluctuation can be detected even if the cysts are like a honey-comb, whereas, if it contains any solid constituent of the body, hair, nails, bone, teeth, or cheesy matter, it is solid, dull on percussion. As the tumor grows it fills up the abdomen, and may cause dropsy of the abdomen by unravelling its peritoneal fibres; œdema of the legs and thighs. As it progresses, patient's movements become impeded from the bulk of the tumor, suffering is augmented, all the symptoms grow worse, the nights are wretched, the difficulty of breathing is very great; the swelling or dropsy becomes considerable, often suppression of urine and fæces; uræmic poisoning or fatal prostration is very apt to take place.

Treatment.—When tumor is smaller than the two closed fists of the patient, an effort at absorption is to be tried, which, with our new remedies, is often successful; and if it fails, it will be no barrier to ovariectomy. Every point must be well guarded and seen to, as the best of food; regular evacuations; good, comfortable sleep; flannel clothing; a perfect alleviation of all pain, and the best of hopes encouraged for a cure. Then selecting a tonic and alterative from the list for a week, then change, and so on for another week.

Among our best alteratives are comp. saxifraga and phytolacca, alternated with wine of aletris farinosa, comp. syrup partridge berry, and elixir of apiol. In addition, pastiles of cocaine and boroglyceride, might with advantage be inserted far up the vagina several times a day.

Locally, the ozonized clay over the entire tumor, bound on with a firm roller and T bandage. If the clay causes no redness, it can be put on fresh every morning; but if there is the least redness, it can be taken off and broken up fine, and water added

to it and reapplied for four or five days. The action of this clay on this class of growths is most extraordinary; causes their thorough, positive dissolution and disintegration. As this process goes on, the bowels must be kept open with cascara, and kidneys stimulated with cream of tartar lemonade.

Cover entire tumor with the clay, and no more, and as this process goes on, push diet, alteratives, and tonics.

All other methods of treatment are simply a loss of valuable time, such as tapping, aspirating. If the absorption plan with the clay, and other drugs fail, then there is only one thing left, and that is ovariectomy. In larger tumors than those mentioned, the clay will reduce their bulk, and in some rare cases cause their disappearance; but in very large ones we cannot speak with the same precision as we do of those of a smaller class.

In ovariectomy, that is in making an abdominal section in the median line of the abdomen, ligating the pedicle of the tumor, then dividing it, removing tumor and returning the ligated stump into the abdomen, stitching up abdomen, etc., and treating for peritonitis, do not wait too long, until there is no recuperative power left in the patient.

Tumors.
(*Lipoma—Adipose
Tissue.*)

Fatty tumors are growths of adipose tissue; a general and diffused infiltration of fat is obesity; a fatty tumor or lipoma is a localized and circumscribed formation. Lipomata originate wherever fat exists normally, being produced by fatty infiltration of existing tissues. Their growth is central, encapsulated and lobulated, and at first it increases slowly.

The cells of a lipoma are larger, and the fat they contain is more fluid than normal adipose tissue.

Fatty tumors are liable to glide out from the deepest structures and show themselves under the skin. They are all sizes and forms. They generally grow in the cutaneous tissue, between the skin and the muscles. They are most frequently met with below the collar-bone, back, neck, inside of the thighs and sometimes in or among the muscles.

In number there is generally one; it grows slowly, may attain an immense bulk, seldom degenerates, is free from pain and is easily recognized by its soft, lobulated, doughy feel, which never can be mistaken for anything else.

If the tumor is not large, in some cases (not always), the application of the ozonized clay has a most marvellous effect in causing a dissolution. It is worthy of a trial. It may be kept

constantly applied, if it induces no redness of the skin; if it causes any redness, off and on at proper intervals.

Internally, fucus vesiculosus ozonized might be tried, that is the fluid extract combined with peroxide of hydrogen, alternated with ten or fifteen drops of liquor potassa, as they are the only remedies which disorganize the fatty cells.

Adipose tissue or masses of fat may be freely and evenly distributed throughout the entire connective tissue of the gland, or in nodules, or aggregation at different points. Its doughy, inelastic feel and perfect freedom from pain will be good points by which to recognize it. They grow slowly, give rise to immense bulk and considerable inconvenience.

Treatment.—Ozonized clay is the only known remedy that will cause a dissolution of those growths. Kept on the breast or tumor constantly, if no redness of skin is produced; if redness is caused, to be removed, and lotions of peroxide of hydrogen, and then the clay reapplied again and again. Internally, alteratives, as in lacteal tumor.

Tumors.

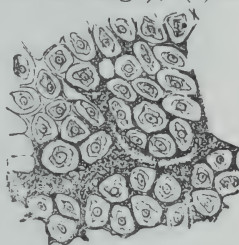
(*Chondroma—Cartilaginous Tissue.*)

cells embedded in fibrillated basic substance (fibro-cartilage); (c) as cells embedded in a mucoid basic substance (gelatinoid or mucoid cartilage).

To these may be added an osteoid form. The growth in nearly all cases leading to ossification. To be found most among near joints and on white fibrous tissue.

Cartilaginous tumors are common in the neighborhood of joints.

Cartilaginous growths or tumors are often met with and exist in three forms (a) as cells embedded in a hyaline basic substance (hyaline cartilage); (b) as



Calcified cartilage, showing the calcification of the intercellular substance. x 300.

Tumors.

(*Osteoma—Bony Tissue.*)

Bony tumors consist of connective tissue in which the bone corpuscle or cell predominates. Bone is originally from cartilaginous or fibrous membrane, and eventually from periosteum.

Osteomata are produced by mechanical or microbial irritation of the periosteum or medulla of bone. They are usually divided

into two classes, viz., an *exostosis* and *osteophytes*; the former, from proceeding from the bone or periosteum; the latter, more or less remote from the bone.

A compact *osteoma*, which grows from the surface of the bone or its periosteum, usually exhibits a line of demarcation, although covered by the ordinary periosteum.

Osteophytes, found in the common connective tissue, tendons, cartilage in the interstitial connective tissue of muscles, glands and organs, any part subject to chronic irritation; tumors formed by the irregular hypertrophy of bone. Such tumors are hard, painless and globular, and mostly situated on the long bones. Their structure is that of ordinary bone, but usually more dense and compact. In some cases they are porous, in others of an ivory consistence. They cause no pain unless they press on nerves. On the inside of the skull they press upon the brain, and give rise to epilepsy; in the orbit they cause the eye to protrude.

Their cause is irritation, and effusion of lymph, which becomes organized into bone.

Treatment.—If not too dense, they can often be got rid of by absorption, by alteratives and by iodide of potassa, with the local application of ozonized clay; when hard, of the consistence of ivory, they can be cut down upon and chiselled off.

Tumors.

(*Lymphoma—Lymphatic Tissue.*)

These tumors are growths of lymphatic or adenoid tissue, and are divided into soft *lymphomata*, in which there is a preponderance of lymph corpuscles and *indurated*,

lymphomata, with preponderance of stroma and microbes.

The causes of *lymphomata* are numerous and varied; irritation, the microbes of syphilis, tubercle, cancer and other disease germs.

These tumors are to the physician a sort of barometer or index of the state of the blood of the patient; enlarged lymphatics, soft or indurated, indicate feeble vital force, and excessive microbial growth.

Soft lymphomata begins with a proliferation of the lymph corpuscles, and a migration of the disease germ with the white corpuscles. The growth is pultaceous and soft, resembling brain substance in color and consistency. The growth of soft lymphoma is rapid; becomes very large, often breaks through structures in which it is infiltrated.

The *indurated lymphomata* are characterized by an entirely opposite condition of things—being marked by induration with a tendency to calcareous degeneration.

In what is termed *Hodgkin's Disease*, there is a progressive enlargement of all the lymphatic glands of the body—gradual, painless enlargement.

Glands of neck, axilla, groin symmetrically enlarged, not inflamed or fused together; thoracic and abdominal glands also affected. Patient has all the symptoms of anæmia and leucocythæmia; is very weak, loses flesh and suffers from great exhaustion on the slightest exertion. The white corpuscles in blood are greatly increased; tightness or constriction of chest and abdomen; progressive increasing debility.

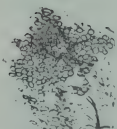
The spleen is enlarged, filled with spores of tubercular bacilli. The glands, when cut into, are uniform in structure, translucent and filled with various microbes, the contents appearing to the naked eye as albuminous or lardaceous matter, and precisely the same in the spleen, mesentery and pink marrow. It is this blocking up of those blood-raising glands that gives us the extreme anæmia, dropsy, exhaustion and death. In all cases, tubercle is present; whether the syphilitic or cancer germ is present or not.

Tumors.

(*Sarcoma—Fleshy or Embryonic Connective Tissue.*)

Sarcomatous, or fleshy tumors consist of embryonic connective tissue, and retain their embryonic type throughout the whole period of their growth.

They are classified, and thus named: *fibro-plastic*, *fibro-nucleated*, *recurrent-fibroid*, and *myeloid tumors*. Many growths, which



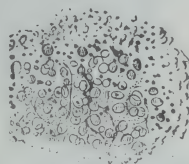
A thin section of lymphomata.



Another section of the same growth



Round-celled sarcoma in its incipient stage.



Round-celled sarcoma more advanced.

were formerly described as cancerous, are now to be classified under this head.

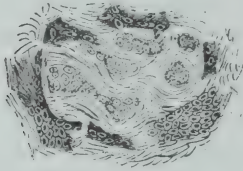
Cells constitute nearly the entire bulk of the growth, and present great variety of shape, form, and color. They are round, fusiform, myeloid, and pigmented.

All the sarcoma present an intercellular substance, small in amount, but their blood vessels are numerous.

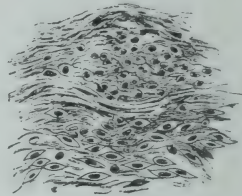
Sarcoma may be found in the brain, spinal cord, in or among

all the muscles of the body; in the orbit, parotid, lungs, liver, kidney, spleen, and in all parts of the body.

Sarcoma.—The term sarcoma, a fleshy tumor characterized by the appearance of one or several, usually at first isolated; pea to nut sized and even larger; smooth, spherical, irregular, as lobulated, cutaneous or subcutaneous neoplasms, as tumors, pig-



Sections of sarcoma.



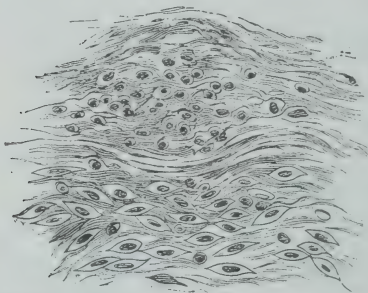
Sarcoma; spindle-cells visible in sections of a cutaneous nodule removed from one of the author's patients. About x 300.

mented and non-pigmented, having a marked inaptitude for ulceration, but malignant in character, recurring speedily after removal, and usually terminating fatally by involvement of the viscera. These tumors may be free, movable, but eventually they become adherent, both above and below.

Their characteristics are their white color, rapid growth and development, with systemic tainting of the entire blood.

Their predisposing cause, a hybrid microbe produced by the mingling of the protoplasmic elements of the cancer germ, and the bacilli of tubercle in the lymph spaces of the blood.

Once these hybrid germs are effused from the blood by some irritation in the skin, cellular tissue, or elsewhere, the weakened patch, the lesion



Section of a sarcomatous nodule with the spindle cancer germ interspersed throughout its substance, magnified 300 diameters.

becomes swollen, infiltrated, painful, germ proliferation active, enormous, skin reddens, ulcerates, often attains an enormous size. In a short time, weeks not years, if there are several nodules, they aggregate together, the nodules or neoplasms coalesce, degenerations by ulceration, and participates in the process of destructive metamorphosis going on.

Death speedily results, exhausting fever, with sarcomatous involvement of the viscera.

This germ deposit may take place in any weakened parts of the body.

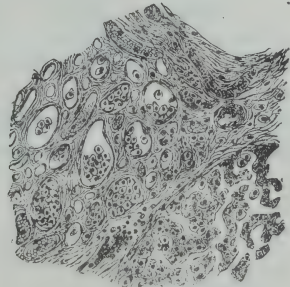
All tumors of this class are abundantly supplied with blood vessels, lymph canals, and the germ with mottled tubercles interspersed through it, exhibits a net-work of spindle-shaped, spheroidal, branched, with one or more nuclei, with connective tissue and basement membrane.

Its correct diagnosis rests upon the microscopical examination of the growth. Up until a very recent period, the treatment was very unsatisfactory, even its surgical ablation, is followed by a speedy return of the tumor, so far as germicide remedies are concerned.

The Chian turpentine mistura has effected most wonderful results in the cure of this form of growth. This preparation differs from all others in the molecules of the turpentine, being in a fine state of subdivision, being dissolved by the ethereal peroxide of hydrogen, resorcin, thallin, and other germicides being added. In some cases the glycerite of ozone, or the comp. saxifraga, or the glycerite of sulphur, were used in alternation.



Sarcoma found in the bladder.



Sarcoma in the liver.

The general symptoms of sarcoma of the bladder are very similar to those met with in other varieties of vesical growths, consisting of hæmaturia with signs of irritability of the bladder, viz., pain and increased frequency in micturition; in most cases evidences of obstruction to the escape of urine are sooner or later produced, micturition becoming difficult and attended by straining efforts. In addition, attacks of retention and incontinence of urine are sometimes present in the later stages, and in some instances distinct evidences of the existence of the growth can be detected upon a physical examination of the bladder.

Hæmaturia is usually a prominent and often an early symptom. It frequently precedes the signs of irritability of the bladder, so that in this respect sarcoma resembles papilloma—a pain-

less hemorrhage often continuing for a considerable period, sometimes for several years, without any other symptoms, is generally characteristic of the latter affection. As in papilloma, the bleeding at first occurs in attacks separated by intervals of varying duration, during which the urine is quite clear. As the disease progresses the attacks last longer and become more frequent, until, after a certain time, there are frequent, excessive attacks, which speedily undermine the vital forces of the sufferer.

Numerous cases of different forms of sarcoma have been diagnosed cystoscopically during the last year. Embryonic connective tissue, or sarcoma, is also met with in the liver.

The Chian turpentine mistura is really the only remedy of value in sarcoma of the bladder; it certainly, by its microbicide action, has a decided effect in arresting germ evolution.

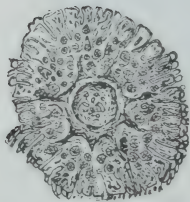
The pipsisewa is a drug of intrinsic value, has a specific influence upon the walls of the bladder; it not only checks the ravages of the microbe of sarcoma, but prevents the ingress of the cancer germ.

Tumors.

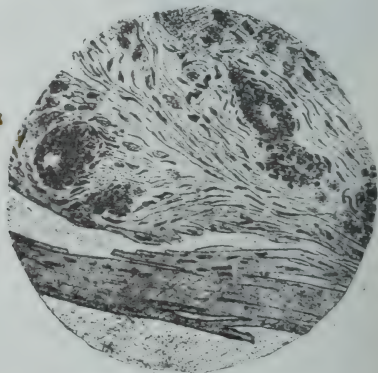
(*Myoma—Muscle Tissue.*)

Muscular tumors, consisting of non-striated muscular fibres, always arise from muscular tissue, especially from the walls of the uterus.

In this organ as they enlarge, they push aside the normal tissue and protrude into the cavity of the perinæum or uterus.



View of tumor, showing the adventitious tissue, muscular, glandular, from walls of the uterus.



Myoma of the walls of the uterus.

Becoming pedunculated in the latter organ form fibroid polypus of the uterus. They are often found in the prostate, œsophagus, stomach, intestines. Their growth is slow, central, often multiple or compound. The myoma form the great bulk of all uterine growths, very liable to become calcified, forming in the uterus a hard, stony lump, the so-called womb stone.

As a general rule, the myoma are elastic, pear-shaped and spheroidal. Their firmness depends upon the age and amount of connective tissue present. Their color varies from muscular redness to pinkish or grayish white.

Their presence gives rise to exhaustive hemorrhages. Mucoïd degeneration often takes place leading to a cyst-like formation in the growth. As a rule, these tumors are innocent.

General Treatment.—Improve general health by every possible means—tonics, alteratives, as comp. saxifraga and phytolacca, alternated with distillation of aleteris farinosa, and comp. syrup partridge berry. Where the myoma involve the walls of the uterus, the use of the ozonized clay is often of great utility.

The best local treatment is by electricity, mild uninterrupted currents, so as to stimulate absorption, *not growth*. This must be performed by one having the highest scientific attainments, and who thoroughly appreciates the subject.*

Tumors.

(*Neuroma.—Nerve Tissue.*)

These tumors are growths of nerve tissue, very rare outside of stumps. Their substance resembles the cerebro-spinal nerves.

With the nerve fibres there is usually associated a certain amount of connective tissue.

Their growth is slow, seldom become of large size, usually exist in single nodules, they are quite innocent, although very painful.

They always spring from a cut or lacerated nerve. Solid or cystic. The solid growths have a deal of fibrous tissue interspersed through them, making them dense and plastic, implicating the neurilemma of the nerve.

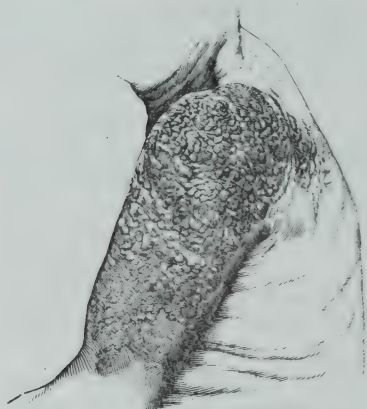
Occasionally nerve fibres merely spread over tumor without being involved in its texture. A nerve, when divided, if its two ends are placed in apposition, will unite like bone, and sensibility and motion be restored. If not placed in apposition, their extremities will become bulbous, or may aid in the formation of these growths: so they are common after lacerations, wounds,

* In 1870, Prof. John J. Siggins, M. D., of Philadelphia, Pa., introduced a chemico-electrical method of exciting absorption, and thus curing a large percentage of these tumors. Indeed it was a brilliant success. This same *modus operandi* in all its varied details and with numerous improvements, is carried out by the following scientific physicians: A Park, M. D., 517 W. Twenty-third street, N. Y.; F. L. Tuttle, M. D., 233 Main street, Springfield, Mass.; J. J. Jones, M. D., Philadelphia, Pa.; S. H. Platt, M. D., Waterbury, Conn., and numerous others. It consists essentially in keeping one electrode over the tumor moist with specially prepared peroxide of hydrogen.

injuries, amputations. There may be one or several, and vary in size from a grain of barley to a melon.

Symptoms.—These growths are found in the course of a nerve; grow slowly but steadily; of an oval or oblong form; long axis in the course of the nerve; darting, lancinating pains in paroxysms.

Treatment.—Excision is the only hope of cure; tumor to be carefully dissected out, and, if possible, the ends of the divided nerve to be brought into apposition, and an effort at least, made to keep up continuity, so that the function of the nerve be, if possible, restored.



Neuroma in the skin.

We meet with tumors of nerve tissue on both brain and cerebellum, also on the cord, which give rise to grave organic lesions.

This diagram represents a true neuroma of the skin, covering the shoulder and arm.

Cases similar to this, have been recently cured by the application of the ozonized jequirity powder made into a paste with butter of coca, and glycerine; a perfect exfoliation was effected.

Tumors.

Angioma—Made up of Blood Vessels.)

The angiomata are a class of tumors or growths, consisting of blood vessels held together by a small amount of connective tissue.

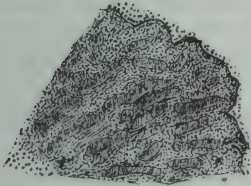
Under this heading are included nævi, aneurism by anastomosis. They are usually divided into two varieties. The *simple*, or capillary angiomata, and the *cavernous*, or venous.

All the angiomata originate from blood vessels, and occur chiefly on the skin and mucous membrane. Their growth is slow, rarely large, very liable to ulceration.

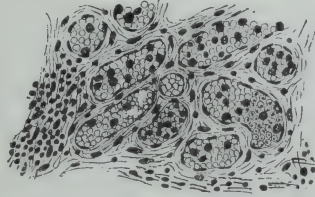
Usually they are of a bluish hue, pulsate. Occur in skin, subcutaneous tissue, and are found in the orbit, muscles, liver, spleen, kidneys, and are usually what is termed mother's mark.

Where abnormal conditions, such as nævi, or angiomata, exist, which are of large dimensions or lie in situations that are not

readily within reach of the knife, there can be little doubt that few plans afford us such an effective mode of treatment as a galvanic battery. To work such a plan successfully the operator must thoroughly understand the construction of his instrument, so as to be able in a minute to rectify any temporary stoppage of the current. Almost equally essential is the need for a galvanometer, without which it is difficult to detect the variations in intensity of the current, and sometimes quite impossible to ascertain whether the current is passing or not. A neglect of these two precautions is almost certain sooner or later to result in a disastrous failure, which is ascribed to a fault in the process, and not to its true source, *the neglect of proper precautions by the operator*. Without a galvanometer, it is perfectly true that an experienced operator will form a shrewd guess what is going on in his patient, by the visible signs of the procedure, viz., the bub-



Dilated capillaries filled with red corpuscles at umbilicus, known as capillary angioma of umbilicus.



Capillary angioma at the umbilicus, containing a few leucocytes.

bles of gas and fluid that emanate from the growth. In a similar manner an experienced physician will predict the course of a disease from the symptoms that he can observe without the aid of a thermometer, but with instruments of exactitude at hand, the treatment proceeds with greater ease and a readier precision. Most galvanometers which are to be employed in such operations are graduated in milliamperes, so as to determine exactly the strength of the current to be employed.

With some simple battery at hand, the patient is placed under an anesthetic, for the process is often a prolonged one, and by no means devoid of pain. If the nœvus is a large one, and placed in a situation where the presence of a scar is of no importance, as for example, in the middle of the back, half a dozen needles from each pole are introduced at various points of the growth, care being taken that they do not touch one another, and in determining that no contact arises during the procedure, a galvanometer is of the greatest value, for if they do touch the current at once chooses the easiest route through the needles, and no longer subjected to the resisting action of the tissues of the body,

causes a rapid deflection of the galvanometer needle. If the galvanometer is doing its work satisfactorily, the *nævus* soon commences to swell up, and gas exudes from the small punctures made by the needles, while no perceptible rise in temperature takes place in the part. The gas issuing from the negative pole is hydrogen, and that from the positive oxygen. By these manifestations of chemical decomposition it is rendered abundantly clear that the process in question is a true electrolysis, and not of the nature of burning as it has been often wrongly termed. If the process of destruction is carried far enough, the tissues are so far destroyed and undermined that death of the part ensues, and a true slough separates a few days later, quite as extensive in character as if the galvano-cautery had been employed, and quite indistinguishable from a slough so produced.

It is, however, quite possible, and by the aid of the galvanometer very easy, to modify and restrict the process of tissue-destruction with so much nicety and exactitude that no more tissue need be destroyed than is absolutely necessary to effect a cure; but if this result is to be obtained a weaker current and a shorter sitting must be employed, and the process of destruction can be still further minimized by using only negative needles in the nerves, and placing the positive pole on a distant portion of the body. The novice will very soon determine how far it is desirable to go on making his first attempt with diffidence, and by gradually increasing the length of his sitting, will at length succeed in removing the growth without leaving more than a slight discoloration of the skin, where before lay an unsightly and extending mass of veins and capillaries. There are other plans by which the scarring is reduced almost absolutely to a vanishing-point; the needles should be insulated to within an eighth of an inch of their point with gutta-percha, and they can be introduced, say, a quarter of an inch into the growth to be destroyed, so that the skin at the seat of puncture is protected from the action of the current, and the electrolytic process is limited to the subcutaneous tissues.

When the first operation is over due time must elapse before a second is attempted, in order to insure that full contraction of the cicatrix has taken place; five or six weeks, or two months, when it can be given, is not too long a time to allow. On a subsequent occasion, should it be advisable to produce a small slough in any portion of the growth, the positive pole, with a stronger current, can be employed, and all the needles concentrated in the one situation. Such methods as these are capable of almost indefinite application, whilst they can be employed in situations where no other plan of treatment is possible, and with results which cannot be equalled for precision by any other method.

Tumors.

(*Papilloma—made up of Papillæ of Skin and Mucous Membrane.*)

Papilloma, tumors resembling ordinary papillæ. Irritation may cause existing papillæ to sprout out, from either the mucous, serous, or cutaneous surface.

The simple papillæ are usually small and conical.

Papillary growths are not infrequent in the bladder, uterus, urethra and intestines. Under this head are to be classed all warts and horny growths.

A simple papilloma may become an epithelioma.

A large number of growths are developed from the walls of the bladder; warty, or polypoid fibrous bodies; villous, or vascular growths, and cancerous deposits.

Whatever the nature of the growths, they give rise to symptoms that resemble calculi—frequent micturition, a painful sense of inability to empty the bladder; urine may be bloody, or purulent, or ammoniacal, or loaded with mucus.

Cancerous deposits are the most numerous; medullary, epithelium, more common than scirrhus; suffering great; easily recognized by the pain anterior and posterior, the cachexia, and germs in urine.

Papilloma in the urethra is often mistaken for stricture. Tumors or growths resembling in their structure ordinary papilla, springing from the ordinary papilla of the mucous, serous, or cutaneous surface. They may also arise from the sub-epithelial connective tissue, as that of the stomach and larynx.

Even in its simplest form there is present the bacterium porri, a pathogenic microbe, in and around the vessels of the connective tissue—most numerous where the vessel turns, or ascends to the apices, or turns to form a plexus.

These papilloma owe their origin to irritation, and gradually, as the bacterium become active, give rise to ulceration and hemorrhage.

Papillary growths upon the skin include horny growths and warts.

Larger and more vascular papillary growths are formed

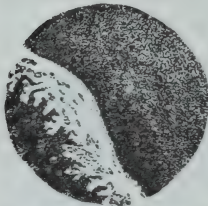


A bladder fungus; present in chronic catarrh of the bladder, and in conditions where the micrococci urinarii are found, also in papilloma of the bladder.

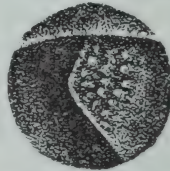
when the bacterium porri unite or mingle with other microbes, as the venereal, in the formation of venereal warts.

Clinically, the papillomata, accompanied with their pathogenic microbe bacterium porri, are innocent growths, but often prove fatal by ulceration and hemorrhage.

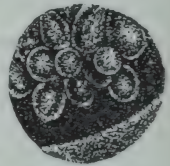
Papilloma of the bladder presents nothing special at the outset, unless it be a little undue frequency of micturition, which is probably the only sign which excites suspicion. But early in the progress of the papilloma, or all villous growths, there in an important sign, characteristic of it, throughout its entire course, and common to most other tumors at a later period, namely, the appearance of blood in the urine. Hemorrhage occurs after exercise, much more abundant than what would come from the presence of a calculus, and it is unaccompanied with pain and irrita-



Papilloma as seen by the endoscope on the walls of the bladder, cured by peroxide of hydrogen and salicylate soda.



Papilloma as seen by the endoscope on the walls of the bladder, radically cured by injections of thuja and peroxide of hydrogen, alternately—very weak injections.



Papilloma as seen by the endoscope on the walls of the bladder, radically cured by injections of peroxide of hydrogen twice a week, and daily inserting a thallin gelatinized bougie into the bladder and retaining it one hour.

tion of the bladder. As the papilloma increases in size, hemorrhage becomes more profuse; still pain is absent. A microscopic examination of the urine will reveal the characteristic appearance of papillomatous structure and the presence of a fungus.

The bladder should, in all cases, be washed out with a tepid solution of boroglyceride; an examination made with a sound, which reveals a soft, flimsy tissue, springing from a thick base. On those outgrowths, papoid or trypsin has a well-defined action as solvents, and much better adapted to the location than either lactic or acetic acid. Oil of thuja answers well, both locally and internally, and probably is our best drug. As an injection into the bladder it is of great efficacy, diluted half an ounce to four of tepid water.

Probably thuja internally to sterilize the blood, and papoid as a digestive agent for injecting the bladder.

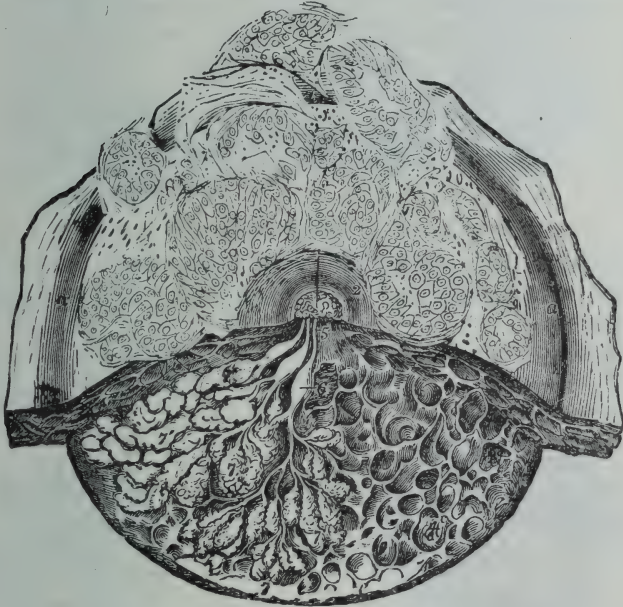
Tumors.

(*Adenoma—made up of Glandular Tissue.*)

Adenomata are tumors or growths of gland tissue, and they usually resemble tubular or racemose glands in consisting of saccules or acini, lined by epithelial cells.

The adenoma proper is an innocent tumor, its favorite seat is the female breast and lung, in pulmonary phthisis.

Adenoma of the Breast.—Irritation of various kinds, as corset-bones, dress; mechanical violence, as blows, contusions, etc.,

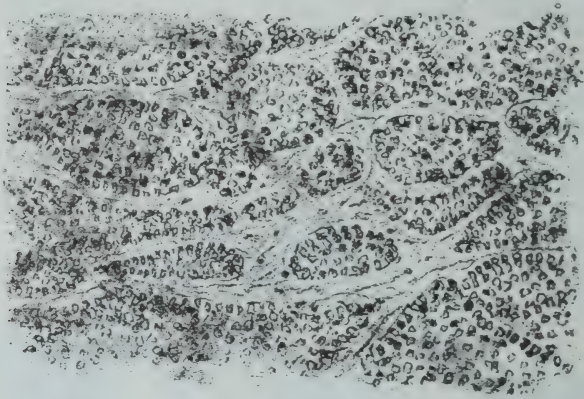


The female breast, dissected back to show adeno-fibroma of the nipple, showing the racemose arrangement of the acini or saccules lined with epithelial cells.

often cause a sort of glandular growth in the interstitial structure of the breast. In one variety of partial hypertrophy of gland structure, we find the tumor dense, compact, lobulated, and provided with a fibrous capsule; with ducts and sinuses developed. In another class, there are cysts with growths attached to their walls and floating in a fluid; while, in still another class, dilated ducts are converted into cysts, with growth of gland springing from their sides.

These glandular tumors, made up of the substance or out-growths of the breasts, occur in healthy women, between puberty and the thirtieth year of age; and single women are much more liable to them than the married. Their growth is slow, pro-

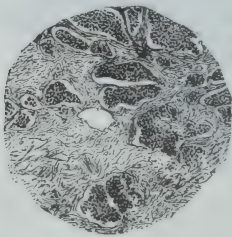
gressive, and an enormous size may be attained. In some cases they grow considerable, then cease, and often disappear; in



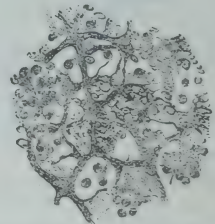
Section of an adenoma of the breast, magnified 750 diameters.

other cases, after growing to a certain size, they remain stationary and breasts disappear. There is never pain nor lymphatic enlargement.

Symptoms.—The tumor begins as a small, movable growth; seems to be isolated from gland tissue; never painful; nor does



Adenoma of the breast.



Gummy growth in the kidney, with an adenoid formation.

it involve the skin nor cause enlargement of the lymphatics of the axillary space. As it grows, breast may atrophy. Rate of growth depends on irritation. If it becomes very large the coverings might ulcerate, and the tumor protrude through.

Treatment.—The application of the ozonized clay during the day, and the belladonna ointment during the night, with a general vegetable alterative and tonic course, is the best treatment.

If the case is stubborn and resists these remedies, then apply a complete casing or covering of iodol in gelatine and glycerine, and internally administer ozonized iodine.

Tumors.

(*Mixed Cancer Germs and other Microbes.*)

During its activity, that is, secreting milk, the female breast is most obnoxious to what is termed a milk or lacteal tumor, generally due to violence or blows, which cause a rupture of a lacteal tube, which permits of the escape of the milk into the surrounding connective tissue; or it may take place from an occlusion of the orifice of a milk-duct, by inflammation of the nipple, and various other mechanical conditions. It occurs only during the activity of gland in lactation.

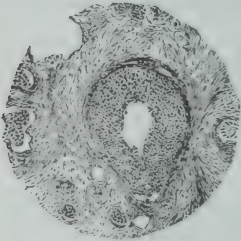
Symptoms.—A round, oval, or cystic swelling, varying in size from a walnut to that of a large orange or pear, can be felt, which, when recent, is elastic and fluctuating, but as its watery portion becomes absorbed, it becomes firm and solid. There is an absence of pain, and the general health is unaffected. So very little annoyance does it give rise to, that the patient may not discern the enlargement for quite a while, or by accident, and when she does so, becomes greatly alarmed, fearing cancer. If the patient is tubercular, the coagulated caseine in the lobule, or in connective tissue, sometimes become a concretion, like chalk.

Treatment.—If infant is old enough, or not near the approach, or during the summer heat, wean the child; arrest secretion of milk by belladonna; administer saline purgatives; and subsequently apply ozonized clay to the breast, and place patient upon an active course of alteratives, as compound phytolacca ozonized, iodide in stillingia compound, glycerite of ozone. If there is suppuration, incision and same treatment as for abscess. As a rule, there should be no interference with the coagulation until gland-tissue becomes inactive.

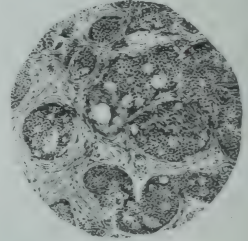
Mixed class of tumors are found in the antrum. They consist of bony matter, exostosis, and fibro-plastic tumors of the consistence and form of brain or liver; often the color of the latter, and difficult to recognize from cancer. Others have the color and consistence of kidney. We meet with fibrous tumors, very dense and encysted tumors, and other deformities, that may be mistaken for enlarged antrum.

With all diseases of the teeth and nose, the antrum has much to do. The incessant tinkering about old stumps; filling with amalgam loaded with mercury, sets up irritation and effusion. The ignorant extraction of teeth has also much to do with it. Catarrh, and its diseased germ, amœba, often block up the nasal opening. The trouble seems to be that when its lining membrane becomes irritated, that it will secrete an endless variety of substances, which, when liquid, semi-liquid, and glandular, are

easily got rid of by an opening, stirring up the contents, and washing out the antrum daily with a stimulating wash. The kidney or liver deposits are often mistaken for cancer by the great pain they occasion. In all cases, besides the removal of contents, an alterative and tonic course. From the number of



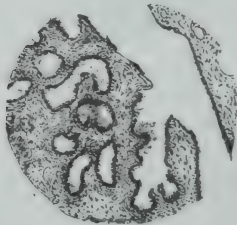
Adenoma-fibroma.



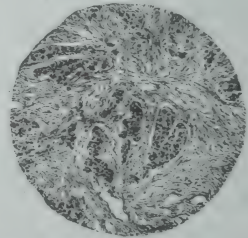
Adeno-fibro-sarcoma.

ignorant men entering the dental profession, it is highly probable the diseases of the antrum will be much increased.

We respectfully direct attention to the fact that the tissues, which are the seat of malignant neoplasms (cancers, sarcomas, epitheliomas, etc.), may, at a given moment, be invaded by divers microbes, the origin, species and nature of which, it has, so far, been impossible to determine. This invasion, the causes and mechanism of which are alike unknown, may remain latent for an indefinite period, but in certain cases, in the evolution and nutrition of the tumor, it may lead to several modifications, such as the rapid enlargement, the softening, or the ulceration of the part affected. Microbes are not to be found in all neoplasms, or even in all neoplasms of the same kind, nor yet in every portion



Adeno-fibroma, where the secretions from the glandular tubules have collected in them and given rise to numerous small cysts.



Adeno-fibroma, having a dense fibrous stroma, which includes newly-formed glandular or adenomatous matter, with increased proliferation.

of the neoplasm invaded. They are not to be found, for instance, in lipomas or in pure fibromas; they cannot be found in the early stages of sarcoma or cancer, in which the progress is slow, and

the growth is covered by healthy skin ; on the other hand they are nearly always to be found in softened and ulcerated tumors. These microbes, besides their irritant, phlogogenic and pyrogenic action, which they exercise locally even on the diseased tissue possess other pathogenic properties, which may affect the whole system. Thus, so far as an opinion can be found, they may give rise to a more or less intense and irregular febrile condition, whilst they are pent up in a tumor about to grow rapidly or to soften. Moreover, during the removal of a tumor, they may impregnate the fluids contained in the softened parts, infect the operative wound, and so inoculate it as to develop septicæmia, which may lead even to death. The knowledge of this last fact pleads strongly in favor of the removal of malignant neoplasms, so desirable from every point of view, and suggests forcibly to surgeons the necessity of adopting preventive measures, both during and after operations, for the extirpation of tumors infected with microbes.

Any form of tumor may have black pigment matter in its interstitial tissue to which the term melanosis has been indiscriminately applied to all tumors or deposits containing black pigment matter. Pigment is of frequent occurrence in the human body, and consists in a deposit in the form of the minutest sepia-colored granules, of a dark-brown or black appearance.

These granules may be free, or collected into masses, with a cell membrane around them, or they may be added to any morbid growth whatever. The chemical composition is not accurately settled, but nearly all forms contain from eighty to ninety per cent. of pure carbon. The division into true and false is a good one—the true being an animal matter, the spurious, carbonaceous matter from without that has found its way into the body, or the action of chemicals on the blood, or the stagnation of blood.

(A.) *True melanosis* is a diathesis or cachexia, in which large quantities of pigment may be deposited or infiltrated through many organs in the same individual, either alone or in conjunction with other elements. The primary growth is likely to arise from some pigmentary tissue, as the choroid, or a cutaneous mole. The secondary desposits are mostly found disseminated in the connective and adipose tissue, in muscles, tendons, mucous membrane and bone. The bones of the cranium, ribs and sternum, most frequently affected. The organs which it generally affects are the spleen, liver, lungs, pancreas, lymphatics, brain, eye, kidneys, testicles, uterus, ovaries, rectum, mammæ. It may be associated with cancer.

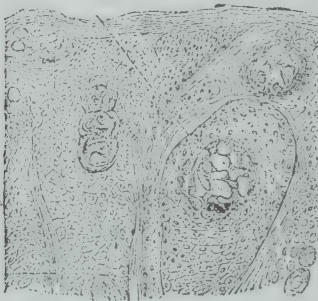
When melanotic tumors, or nodules, are on the surface there is no difficulty in their recognition. When deposited on or in

internal organs, symptoms are obscure. In all cases there is great languor and sinking of vital power. The cachectic appearance is a dusky, or ash-colored countenance; emaciation, dropsy, night-sweats, exhaustion.

Treatment.—Same as for *tuberculosis*.

(B.) *Spurious forms*: inhalation of coal dust in miners, in bronchi and lungs. From the action of chemical agents on the blood, and also from the stagnation of that fluid. It may not appear for twenty-four hours, or several days. Ecchymosis may, besides being due to injuries, be a symptom of purpura, scurvy, fevers, or of gangrene in inflammation.

Treatment.—The object in treatment is to check extravasation of blood, prevent inflammation and procure absorption of the effused blood. For this purpose the bruised part should be placed in a raised position, and if about the eye, a few leeches might be applied, and then a poultice of Solomon seal. If it occurs on other parts of the body, tincture of arnica or marigold should be used. Arnica or marigold has the property of astringing and contracting the walls of the capillaries, and also promoting the absorption of the effused blood. The ordinary garden marigold is an unexcelled agent. This should be taken when in full-bloom, flowers, leaves and stem, and put to steep in common whiskey for a month, pressed well down with whiskey enough to cover. It is much superior to arnica. Either of the two may be administered internally, but their effects are very doubtful in that way.



Black pigment matter as found in a rare form of epithelioma on the lip.

Pigmented or black cancer, usually begins as hempseed, to pea-sized, single or numerous, soft or dense nodules, which develop in time to tumors of considerable size, and are stained in various shades of color, from a grayish brown, or a slate color to a dead black; the pigment being occasionally displayed irregularly in streaks or bands, over the surface of the growth. They occur anywhere, the eye, skin, etc., starting as moles, marks, nævi.

The pigment is deposited in the protoplasm of the cancer microbe in the epithelium, and connective tissue frame work of the cancer.

All melanotic cancers are remarkable for their speedy growth, malignant career and noteworthy tendency to degenerate into

ulcers. Often such verrucous masses are surrounded by grayish or blackish papules or by diffuse cancerous infiltration of the integument, exhibiting irregular pigmentation of the surface.

The local application of lactic acid about twice a week and the internal administration of the Chian turpentine mistura are our best remedies.

Breaches of continuity of the surface are either the result of inflammation or some unrepaired injury. Ulceration consists in the gradual disintegration and separation of tissues, the healthy nutrition of which has been disturbed by local inflammatory changes, by impoverishment or poisoning of the blood, or by an injury to one or more of the nerves of the affected region. In this process the destroyed tissues break down into minute particles, or undergo liquefaction; in gangrene, to which ulceration is closely connected, the open sore is formed by the separation of the dead tissues in sloughs or large and visible masses. Ulceration may attack any organ or tissue; it is often met with in bone, and sometimes in teeth; the tissues most disposed to it are the skin, mucous membrane, and connective or areolar tissue. Nerves and blood vessels resist longer than other tissues the ulcerative process, and may, in cases of rapidly-increasing and sloughing ulcers, be seen isolated in the midst of discharge and slough. The cornea is a frequent seat of ulceration, which too often causes blindness or serious impairment of vision, by resulting in opacity or perforation of the membrane. Within the body ulceration very frequently occurs in some part of the alimentary canal. Ulcer of the stomach, ulcer of the duodenum, after severe burn, typhoid and tubercular ulceration of the small intestine, syphilitic and dysenteric ulceration of the colon and rectum, and fissure or painful ulcer of the rectum are all well-known affections.

The pathological process of ulceration occurs in many different diseases of the skin, but for the presence of special microbes and application of remedies, it is best to keep them apart from all other cutaneous diseases.

In ulceration there is always a loss of substance, a molecular death, disintegration and discharge of tissue.

As a rule, ulcers heal slowly, for in all breaches of continuity, there are disease germs present, and the molecular destruction hinder the formation of granulations.

The *nomenclature* of ulcers is exceptionally bad; we have the healthy or simple ulcer, the fungous ulcer, the weak ulcer, the inflammatory ulcer, the irritable ulcer, the varicose ulcer, the ec-

zematous ulcer, and many others. These names are little better than jargon, but are nevertheless in common use, and are likely to remain so. Such names as varicose ulcer, eczematous ulcer, and gouty ulcer may be regarded as a kind of conventional shorthand writing, and may possibly be justified on that ground.

Etiology and Pathology.—Simple ulcers of the leg always arise from some previous inflammation of the skin; they are, as it were, a pathological accident of the inflammatory process. There are many causes which may give rise to them, but three only require especial mention: (1) varicose veins; (2) chronic eczema; (3) blows or other injuries to the skin. Ulcers of the leg are seldom met with in the young; they are most common in middle and advanced life, and their production is much favored by any occupation that involves much standing. With regard to healing chronic ulcers of the leg, a prejudice exists among the public, and even amongst some members of the profession, against stopping a discharge, on the supposition that the ulcer gets rid of some morbid material out of the system, and that if the ulcer ceases to discharge, this will be retained, and the patient's health suffer in consequence. But the pathological changes which sometimes occur in other parts of the body coincidentally with the healing of a chronic ulcer of the leg, cannot possibly be explained in this way; the morbid discharge from the ulcer is certainly not drawn *as such* from the body generally, but is simply morbid in connection with the ulcer itself; its morbidity is entirely local.

All ulcers, or breaches of continuity, are germ depots, and must be treated with microbicides. All cases, no matter the cause, should be placed upon a general alterative and tonic course of remedies, with the best of diet, and regulated secretions.

With a breach of continuity existing, no matter whether it be superficial or deep-seated, it invariably creates a neurosis of the nervous system at large; consequently an essential point in the treatment of all ulcers is sedation, a tranquillized nervous system; nothing aids a local treatment so much as the regular administration of opiates in all cases. This is not incompatible with any form of treatment.

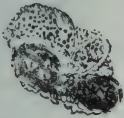
The local treatment of ulcer must depend on the amount of irritation present in the surrounding tissues; when this is great, the parts must be kept as quiet as possible, and lotions of boroglyceride or creolin applied on lint, changed often, covered with oiled silk, never permitted to become dry. As soon as the inflammation has subsided, a bandage, if the parts admit of it, should be applied from the extremity upwards. Taken off every night and re-applied in the morning; this is always of utility. Strapping

with salicylate rubber adhesive plaster above and below the ulcer, sometimes strips over it, so as partly to cover it, drawing the edges toward each other, allowing open spaces for pus to discharge; over and above this a bandage.

Those most liable to ulceration are the debilitated, the intemperate, mercurialized, or those whose blood is loaded with the bacillus of tubercle and syphilis.

Healthy Ulcer.—In constitutions, or parts predisposed to it, the slightest irritation may be sufficient to excite ulceration. In the vigorous it requires more irritation; but when produced, it may be what is termed a healthy ulcer, and present a sore free from pain with a fine granulating surface, with smooth, white, milky edges, and its pus thick and creamy. A healthy sore is smooth, covered with a transparent pellicle, or scum, which is lost on the margins of the granulations.

Treatment.—In all ulcers or breaches of continuity we must recognize a degradation of healthy, living matter, or diseased germs. In a healthy sore we find nothing but the bacteria, and streptococcus pyogenes, and those in very small numbers, so that it is important that all dressings exclude air completely, be somewhat stimulating, and invariably antiseptic. Ozone ointment, or black salve, should therefore be kept constantly applied,



Bacteria as seen in simple ulceration.



Living mass of working germs in irritable ulcer.

spread on fine old linen or lint, about one-sixteenth of an inch thick, a little larger than the sore, changed twice or thrice daily. The dressing on each occasion to be fresh. Before any dressing is applied, the limb should be bandaged from the extremity up, leaving a space for the application of the ointment, and over and above that a few turns of the bandage.

The limb should, if possible, be kept at rest, and in an elevated position. The constitutional treatment required here is tonics, cinchona, and a liberal, generous, blood-forming food.

Irritable Ulcer.—This term is applied to an ulcer when it is hot, tender, very red and painful; bleeds easily, and the discharge is thin, irritating; in some cases foul and copious, and heavily loaded with bacteria.

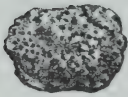
The cause of this is some malassimilation, perverted nutrition, or derangement of the general health.

The treatment should consist in opening the bowels, correcting

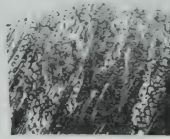
the malnutrition with tonics, as comp. tincture of matricaria; plain, unstimulating food. After a free action of the bowels, the irritability of the sore should be removed by applying a saturated solution of boroglyceride covered over with oiled silk, this will speedily exhaust the irritability and reduce it to the condition of a simple ulcer. If not, the ulcer might be sprinkled over with ozonized jequirity pulv. which will cause a complete exfoliation to take place, and stimulate it into a healthy condition. Then it might be healed up with ozone ointment.

In the case of irritable ulcer it is indispensable that anodynes be administered freely, tonics and alteratives pushed.

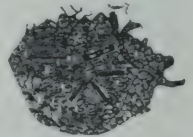
Indolent Ulcers.—Old ulcers of ten or twenty years' standing have generally a smooth, uneven surface, of a pale ashy color, like a mucous membrane. In some cases it may display a crop of weak fungus granulations. The edges are raised, thick, white insensible, either inverted or everted; discharge scanty and thin and contains a few bacteria. Those ulcers may remain stationary for years, or take on at attack of irritability, and become inflamed; or may heal, and then suddenly give way. An irritation



Bacteria in indolent ulcer.



Tubercular ulcer.



Another form of tubercle bacilli in an ulcer.

in the body existing for years gives rise to a cachexia which is essentially tubercular.

Treatment.—Before interfering at all with the ulcer, the patient should be placed upon a very active alterative and tonic treatment, with a varied diet, rich in blood elements, for a month or two. If the patient is feeble, the stramonium ointment and iodide of potass should be applied to the ulcer to soften and absorb the granulations and indurated edges. If he is in average health, the powdered or distillation jequirity might be applied to cause an exfoliation of its surface.

Ointments made either of hydrastin, lycopodium, or pinol, or naphthaline, or aromatic sulphuric acid, or resorcin.

Tubercular Ulcer.—The microbe of tubercle often blocks up the lymphatics in the neck, axilla, groin. Usually the bacilli crowd into the chain of lymphatics, two, three, or more; they aggregate together in nests, first in an albuminous form, then as they die in the lymphatics, they become milky, cheesy, and lastly calcareous; generally inflammation is excited at several

points in the lymph canals, cellular tissue, skin, giving rise to numerous openings, through which the curdy or cheesy matter exudes. These perforations communicate with each other in the cellular tissue, forming ugly puckered cicatrices on the neck or elsewhere, where they discharge and heal up.

In all cases, the general treatment for tuberculosis should be enforced: glycerite of ozone, iodized oil, or ozonized iodine, sulphur water, *avena sativa*.

Locally to the sores, ozone ointment, soziodol, iodol, peroxide of hydrogen, benzoin ointment.

Varicose Ulcer.—An ulcer dependent upon a varicose condition of the veins of the limb. The consequent venous congestion weakens the already debilitated parts, and renders them prone to ulceration. The ulcers are generally three or four in number, situated above the ankle. Oval in shape, indolent in their progress, neither extensive nor deep, but attended with considerable pain of an aching character.

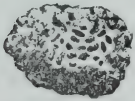
Treatment.—Get the general health into good order by tonics and alteratives, with abundance of good food and fresh air. Keep bowels regular, and attend to the skin by daily sponging. The internal and local exhibition of the witch hazel to tone up the veins; an infusion answers the purpose. The patient should wear an elastic stocking or bandage during the day. Before it is applied in the morning, limb to be bathed first with soap and water; then either tincture or infusion, or ozonized distillation of witch hazel applied; sore dressed with either black salve, vaseline or ozone ointment; over the dressing a piece of oiled silk; then an ordinary stocking, and, above all, the elastic stocking. The same should be repeated in the evening, but the elastic stocking need not be kept on during night, unless case is very bad one. Infusion of oak bark, alcohol, and salt, and other remedies are of no importance when we have the witch hazel. A cerate of calendula, or pinus, or of hazeline, are most effectual.

Fistulous Ulcer.—Consists of a tube or narrow channel, lined by a false membrane, which is a secreting membrane, and which may, or may not, lead to a suppurating cavity. In old cases, the walls of the tube are dense and semi-cartilaginous. Fistula may be produced by a deep-seated abscess, not healed from the bottom, or by caries, or necrosis of bone; or by the perforation of tissue by a mechanical irritant or obstruction, as a foreign body perforating through the walls of the rectum to the external parts.

If there are several openings, or fistulæ communicating with dead bone, it is folly to try to heal them. If the parts permit, they should be run into one opening, so as to give nature as little

work as possible in throwing off the dead bone ; or if due to the imperfect healing of an abscess, it should be slit up from the bottom and injected with peroxide of hydrogen. (See *Fistula in Ano.*)

Phagedenic Ulcer.—This term is used to express a variety of ulceration which destroys the tissues more rapidly and to a greater extent than ordinary forms of ulcer. The subjects of this local affection are usually individuals who have been debilitated by some severe febrile disorder of a typhoid character, or who have been subjected to the influence of cold and wet, foul air, bad and insufficient food, fatigue, and excessive indulgence in spirits. It is generally preceded by some sore or wound, and its local causes are irritation of the open surface, and gross neglect of cleanliness. A very superficial sore, such as that formed by the application of a blister, may under the above-mentioned constitutional and local influences, rapidly become phagedenic and produce much destruction of the soft parts. It has been most frequently met with in connection with venereal ulcers, especially in those cases in which the patients have been submitted to a prolonged and excessive use of mercury. Phagedena varies in intensity in different cases ; it is sometimes so mild as to be scarcely distinguishable from ordinary ulceration, and in other instances it spreads with so much rapidity and destroys so great an extent of the surface of the body, that there seems to be very



Saprogenic bacillus in gangrene and phagedena.

little difference between it and the affection known as *hospital gangrene*. This latter form of phagedena is met with in noma, cancerum oris, and the sloughing throat of scarlatina. It is believed by some surgeons that phagedenic ulceration is caused by poisoning of the blood, in consequence of the ab-

sorption of putrid matter.

In phagedena there is a large and rapidly spreading ulcer, the edges of which are formed of sharply-cut, indented and undermined skin. The surface of this ulcer is uneven and of grayish color, and is covered by a dark-colored, thin and very fetid discharge, which is often marked by streaks of blood. The integument surrounding the ulcer is swollen, and of a dusky-red color. The ulcerative process is attended with severe gnawing pain.

In the treatment of this affection it is necessary that the patient be supplied with good nourishment, and that alcoholic stimulants be given freely, but at regular intervals. Opium is generally administered for the purpose of relieving the severe pain, and of allaying nervous irritation. The patient should be kept in bed in a

large and well-ventilated room. The bowels should be kept open by mild purgatives, but great care must be taken to avoid diarrhea, as the subjects of phagedena may rapidly sink under any excessive drain upon the system. The local treatment consists in cleansing the surface of the ulcer by frequently syringing it with some disinfectant lotion, as a solution of carbolic acid, of permanganate of potass, boroglyceride, or peroxide of hydrogen, and in relieving the pain by the application of poultices or poppy fomentations. In severe cases, where the ulceration, in spite of this treatment, is spreading with rapidity and attacking important parts of the body, the surgeon often finds it necessary to apply the actual cautery, or some strong caustic. Of caustic applications, fuming nitric acid seems to be the most in favor.

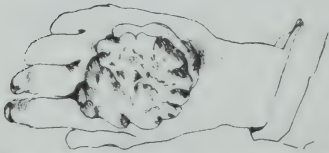
Bed-sores are large unhealthy ulcers formed over the hips, buttocks and the lower part of the back of bedridden persons. They are due to long-continued pressure on these parts, to a vitiated state of blood, and to general debility, and are met with in the subjects of fever, paralysis, broken back and in very old people who have been in bed for a long time. In cases of paraplegia, bed-sores are very large and deep and spread with rapidity. A bed-sore commences as a dusky-red patch on the skin, which becomes excoriated. After the separation of the cuticle the surrounding soft parts become swollen, and the inflamed integument is converted into a gray or black slough, from the under surface of which there is a discharge of thin matter, and the microbe of phagedena. This sloughing process extends both superficially and deeply until a large cavity is formed, which, in some instances, exposes bone. In old or very debilitated subjects death is frequently the result of this affection. Except in cases of palsy and broken back the existence of a bed-sore bears witness to the incompetence or carelessness of the nurse. In cases of long-continued illness and confinement to bed injurious pressure on the back and hips may be prevented by the use of soft pillows and air and water cushions, and by a constant attention to cleanliness.

Same treatment as phagedena.

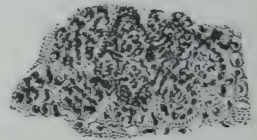
Gangrenous Ulcer—Hospital Gangrene.—Gangrenous and ulcerative processes which attack wounds and stumps after amputation, when the patients are collected together in great numbers and are placed under faulty hygienic conditions. Hospital gangrene in all its forms is both contagious and infectious, and seems in some instances to be due to epidemic influences. It is very prevalent among armies during military operations, and when large numbers of wounded soldiers are collected together in buildings unsuitable in size and internal arrangements for hos-

pital purposes. The disease has often made its appearance without any known cause in one or more American hospitals. It attacks small as well as large wounds, and even blisters and leech-bites, but is never met with in perfectly sound individuals. In the most severe form of hospital gangrene a small livid spot or bleb makes its appearance on a stump, or near the margins of a wound, which had previously been closing favorably. This bleb increases rapidly in size, and converts the extremity of the stump or the whole of the wound, with the surrounding healthy skin, into a black and swollen gangrenous mass. The disease spreads rapidly, and is associated with constitutional symptoms of a low typhoid character. At other times a stump swells and becomes hard and very pale, and its surface is marked by large blue veins. This form is also attended with severe general symptoms and much pain. Like the preceding one, it is generally fatal. In the less severe forms the surface of a wound is covered by a thick, yellow, and adherent crust, which increases rapidly both in depth and superficial extent. This disease has been met with chiefly in Europe, and is there known by the name of diphtheria of wounds. The constitutional symptoms are not so severe as those of the strictly gangrenous forms, and the fever, if it be present, is generally high and of an inflammatory kind. The general treatment should consist in supporting the strength of the patient by tonics, stimulants, germicides and nourishing diet. In the diphtheritic form, however, the diet should be moderate, so long as there is high fever, and alcoholic drinks should not be given freely. The local treatment is generally directed towards arresting the spread of the gangrene by the application of bactericides of great power, charcoal, yeast, resorcin, chlorinated soda, boroglyceride.

Syphilitic Ulcer.—A breach of continuity in which the venereal bacillus appears. When not due to a specific inoculation, they



The venereal bacillus eating the dorsum of the hand—forming a duplicating ulcer—which healed kindly under resorcin and ozone ointment.

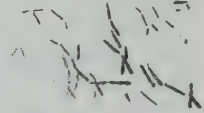


Pus from syphilitic ulcer with the venereal bacillus and streptococcus pyogenes, magnified 1250 diameters.

are usually met with on the legs, occasionally on the thighs and arms. The annexed diagram was photographed from a living subject, made a rapid cure under saxifraga and resorcin ointment.

Malignant Pustule (Anthrax).—Becoming very common, from importation of foreign wool, hides; and the operatives in such are often fatally affected. It begins as a little dark red spot, with stinging or pricking pain, on which a vesicle and then a pustule, seated on a hard, inflamed base. When this is opened it is found to contain a slough as black as charcoal, which is a mass of giant bacteria. There are likely to be more than one, and to spread with great rapidity, and the system becomes affected; or there may be systemic poisoning first, from the workers breathing in air loaded with the diseased germs.

Butchers are often affected.



Spores of the bacillus anthrax from a pustule on the hand of a wool-sorter, magnified 750 diameters.

The stomach, from its important functions, controlling the whole system of nutrition, merits greater consideration than it is apt to receive at the hands of many. Any disease of such an organ implies so much interference with all other functions as to preclude, in great measure, their proper fulfilment. Even the functions of the brain are intimately dependent on those of this organ. Common acute inflammation, such as often affects other organs, is rare in the stomach, except when excited by some powerful irritant swallowed. On the other hand, the slighter form of irritation, commonly called gastric catarrh, is much more common than is supposed, and is, indeed, the ordinary form in which the stomach resents ill-treatment; ordinarily, this form of malady is reckoned as indigestion merely.

Dyspepsia, as well as inflammation, is productive of ulcer.

The two most important maladies of the stomach are simple and malignant ulceration, the latter commonly going by the name of cancer. Cancer of the stomach—a painful and intractable malady—commonly affects one or other of the orifices of that organ, and of the two, by far the most frequently that next the bowel called the pylorus. Disease in this region interferes sadly with nutrition, prevents the half-digested food from passing onwards in the digastric tract, and so starves the patient. As a consequence of this obstruction, too, the organ commonly becomes dilated, the food, only half digested, collects and putrefies, and so vegetable organisms form in it. After being retained in the stomach for a time, giving off foul-smelling gases, the whole contents are ejected—a foul-smelling, black-looking mass, often resembling coffee grounds. The pain at these times is severe, but not at others, the great want felt being really a want of

food. In the simple ulcer of the stomach there is also, as a rule, vomiting, but the part most frequently affected being the posterior wall at some distance from either orifice, there is not that regularity in its occurrence there is in cancer. In simple ulceration of the stomach there is one serious danger always possible, that arises from bleeding.

The shape of the gastric ulcer is mostly round; if several make their appearance and coalesce, it is irregular, and occasionally belt-shaped. The shape at first is nearly always round; after existing for a time the ulcer becomes elliptic or gets small notches, and thereby becomes irregular. The ulcer spreads mostly in an oblique direction, thereby occasionally encircling the whole stomach like a belt.



Perforating ulcer of the stomach.

If the ulcerated process goes on until the ulcer reaches the deeper and larger blood vessels of this organ, it is quite possible for one of these to give way before it is closed at either extremity, and so the blood is poured out from it so rapidly that life is endangered. Most frequently under such circumstances the blood is vomited, and this vomiting of blood may be the first symptom of danger. At the same time, however, the blood will in part pass into the bowels, and being there partly altered and blackened, is so discharged. This constitutes *melæna*, vomiting being termed *hæmatemesis*. Often it is not easy to diagnose between the simple and malignant variety of ulceration, though this is important, the simple form being tolerably amenable to sound treatment, the malignant not at all so. When bleeding does occur it constitutes a danger so serious as to demand instant attention, for if the bleeding does not stop the patient will die. Frequently, too, it will be found that the bleeding recurs again and again, tasking the resources of the physician and the strength of the patient to the uttermost. Here are the rules to be adopted. The patient must be kept at absolute rest, and ice given freely. Let the patient crush the ice roughly with the teeth, and swallow it in lumps. Let ice be placed outside the body over the stomach. The best thing to give is dry champagne, in small quantities, well iced; if that is not to be had, iced brandy and soda, only the smallest quantity of brandy. The best medicine is gallic acid, made into a paste with water, twenty or thirty grains for a dose, with perhaps ten or twenty drops of dilute sulphuric acid. There are a score of other remedies, but these are the best, and as a rule will succeed if any will. But as regards food—there is the real difficulty. Well, it is best to face

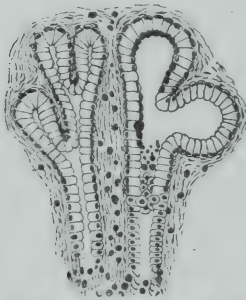
it from the beginning, and give no food by the mouth, but only nutrient enemata. If the case is severe, that is the best plan; in slight cases a little milk, iced, is best to be given. But in all cases of real difficulty, there is nothing like nutrient enemata--strong beef-tea. The bowels ought, however, to be well washed out with soap and water before administering the injection.

Disease germs are productive of ulceration of the stomach, and it is quite certain that by lavage of the stomach they can either be discharged or washed out. This is a valuable aid to medical treatment.

It is well to bear in mind that the symptoms of gastric ulcer in middle-aged persons, differ very considerably from those which have occurred early in life, though the symptoms consist chiefly of pain, tenderness, vomiting, and hæmatemesis. The individuals are no longer simply anæmic, but are often cachectic and wasted. The pain is often much less acute, and the sickness much more frequent and distressing. There is generally great tenderness over the region of the stomach, and the matter which is brought up is intensely acid, and contains quantities of blood, sometimes in the form of clots, but more often presenting the coffee-grounds form. In such cases there is often great difficulty in distinguishing between gastric ulcer and malignant tumor of the stomach, and indeed the diagnosis can only be arrived at with certainty after the case has been for some time under treatment, and the absence of a tumor has afforded further indications of the non-malignant character of the disease. At the present time it is rare to find death occurring from perforation in cases of gastric ulcer, and yet it has been estimated that the proportions of death by perforation is something like fifteen per cent. Largely, this result is due to improved methods of treatment, and to early recognition of the disease, but it may be doubted, even at the present day, whether as much is done in the shape of treatment, as might possibly be accomplished. One of the most important points to be borne in mind is to insist on the importance of simple physical rest. A physician is very commonly called upon to deal with two very distinct classes of individuals; those occupying a bed in hospitals, and those who either go to his out-patient room, or consult him at his own house. The greatest rapidity of recovery is always to be found amongst those who are kept quietly in their own beds.

It is extremely difficult to convince people that this is really an advantage. So long as individuals can move about at all, and more especially if they can move about with any ease and comfort to themselves, they are extremely loath to lie quietly in bed. It is only a very few who will place such complete reli-

ance on the instructions of their physician, as to allow him to carry out to his heart's content, treatment by rest. It is extremely difficult to lay down what particular forms of food should be taken or rejected, but most experience shows, though of course many instances to the contrary might be quoted, that all forms of uncooked food, meat, stimulants, and things generally known to be indigestible, must be prohibited. Some can take milk, some eggs, some farinaceous foods, whilst some seem to be specially irritated by them. As far as possible, it is desirable to insist on rectal alimentation. The value of the treatment of drugs depends largely upon the amount of an accompanying gastric catarrh. It is very much the fashion at the present day to give alkalies, usually in the form of carbonate of soda, combined with a little iodide of potassium, and possibly some opium.



Ducts and acini similar to the pyloric glands and the fine, richly cellular connective tissues forming the inter-tubular stroma in microbes.

If symptoms of hemorrhage supervene, it is obvious that all the more need exists for care in treatment; but the subject of treatment is so large a one that we must briefly epitomize it.

First, as to the alimentary canal. In their abnormal conditions, the digestive organs present a nidus peculiarly favorable to the development of the lower organisms, and I believe that many, if not most, of the annoying phenomena of indigestion depend on fermentation and putrefaction of their contents. An indigestion originally dependent either on some passing condition of the primæ viæ, or on some solitary indiscretion in diet, is often indefinitely prolonged by the development of *torulæ*, *sarcinæ*, and other microphytes. The acids and gases evolved by their baneful activity confirm a condition that otherwise would be evanescent. The delayed digestion of the so-called atonic dyspepsia, I am convinced, is often due to the excessive acidity of the stomach contents, which, in its turn, is due to the growth and activity of *torulæ* and *sarcinæ*. By the destruction of these microphytes, or even by the temporary inhibition of their activity, we greatly relieve, if we do not cure, the dyspeptic; and certainly in those cases not dependent on incurable organic lesions, we make a long stride towards cure.

But how destroy these microphytes, or inhibit their activity? Chiefly by the internal use of germicides. Those best adapted to this purpose are, so far as my observation extends, peroxide of hydrogen in the fluid ext. of *hydrastis* or *columbo*, or liquor *cerii*.

Of these, the liquor cerii is probably the most suitable in the majority of cases. It is efficient. It is a digestive as well as a general tonic. By its gradual solution, its action is prolonged, and even extended into the intestine. It is easy of administration. Thus we see that it answers a number of indications most admirably. It should be administered in about thirty-drop doses, three times a day, and always after meals.

Hand in hand with this, of course, should go the proper selection of foods, their thorough mastication, and the use of digestive and general tonics, such as pepsin, the vegetable bitters, and especially moderate quantities of alcoholic stimulants.

In dilatation of the stomach, the administration of the appropriate germicide should be preceded by a thorough washing-out of that viscus.

Authorities recommend the use, before meals, of the mineral acids in cases of excessive acidity, and of the alkalies, in deficient acidity, of the stomach contents. This advice, as they say, is based on the physiological fact that alkalies increase the secretion of the stomach acids, while, on the contrary, acids diminish it. This explanation has always seemed to me a little strained, and especially so, since the demonstration of the germicidal power of the mineral acids. Were it the true one, excessive acidity should be its own remedy. The excessive presence of the normal acid, I believe, is very rarely a cause of acid indigestion; on the contrary, the acid of acid indigestion is the acid of fermentation. With this view, the explanation of the efficacy of the mineral acids before meals, and of their failure after, is very simple. Administered on an empty stomach, their degree of concentration is sufficient to be germicidal, while on a full stomach, it is insufficient, and so the would-be remedy aggravates the trouble by adding its own acidity to that already existing.

The value of the mineral acids in this condition is not solely dependent on their germicidal powers; muriatic acid and nitric acid in a less degree assist in the digestion of the albuminoids, and by their astringency give tone to the debilitated mucous membranes.

Muriatic acid before meals, therefore, is one of our most valuable resources in the treatment of acid dyspepsia.

The bisulphite of sodium in full doses or in divided doses, repeated as necessary, is especially adapted to the treatment of those cases of acute septic indigestion, otherwise known as bilious attacks. It occurs to me that perhaps in these very cases it was, that calomel, as an unsuspected germicide, acquired its false reputation as a cholagogue. If administered in the very outset, both experience and observation assure me that bisulphite

of sodium will often abort these distressing attacks. Here it is best given in drachm doses, dissolved in mint-water to mask its abominable taste.

It must be fresh so as to contain an excess of sulphurous acid, which is liberated in the stomach, and on which its efficiency depends.

Lavage is an important element in the treatment of gastric ulcer.

Lavage is thus performed. An œsophageal tube, with a blunt double-eyed extremity, made of flexible-rubber, 28 inches in length, and from a $\frac{1}{4}$ to $\frac{1}{2}$ an inch in diameter, is attached to a small section of glass tubing, which is also attached to a yard of soft rubber tubing, into the free extremity of which, a glass funnel capable of holding eight ounces should be inserted.

This œsophageal tube well-warmed and oil, should be passed down the œsophagus in the usual manner, the patient aiding all he can by attempts at deglutition. When the stomach has been reached the funnel is raised above the patient's head, and from a pint to a quart of the lavage solution is slowly poured in, obstruction or regurgitation being noticed by the glass tube joining the two tubes. When sufficient of the lavage solution has been introduced, the funnel is lowered and inverted over a basin. While making this change compress the tube; when the change is made, relax it; freed from the pressure, the tube becomes a syphon, and the contents of the stomach is rapidly removed.

If there be irritability to the passage of the tube, smear its edges with cocaine ointment, and if patient be very nervous, extract of musk-root to be given.

With regard to the solutions used; as simple lavements, infusion of slippery elm and resorcin; boroglyceride; creosote, one-per-cent.; carbon bisulphide; charcoal; creolin; naphthaline.

The strength of the various solutions must be carefully regulated.

In some cases, as with slippery elm, or wild indigo infusion, they may be permitted to remain. Any irritability must be overcome by painting the fauces and throat with cocaine.

The different forms of ulcer of the larynx may be embraced under the following heads:
 Ulcers of the Larynx. Catarrhal; follicular; diphtheric; tubercular; syphilitic, and other forms due to the micro-organisms of the eruptive fevers. The tubercular and syphilitic are the most common.

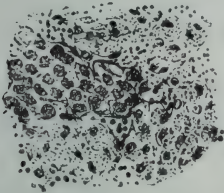
Catarrhal ulcers are not infrequently associated with nasal ca-

tarrh, and are usually superficial, as they are round, then oval, and gradually, as the germs burrow (*amæba*), become more extensive in size, and more numerous; often coalesce, become large with irregular outline.

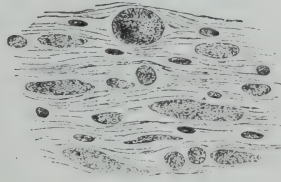
The follicular ulcer as a rule, is superficial with a limited area of extension.

The tubercular ulcers are either superficial or deep; most commonly met with at the inter-arytenoid commissure, generally associated with laryngeal tuberculosis. The deficient vascularity of the pale and thickened arytenoids favors the occurrence of those ulcers. They have their inception in a neurosis, a general bankrupt state of the nervous system, the evolution of the bacillus tuberculi which causes deep destruction, calcification and necrosis of the laryngeal structures, which is usually aggravated by discharges from the bronchi or lung, independent of degenerative changes and tubercular nodules.

Syphilitic ulcers of the larynx depend greatly on the general health, if vital energies are greatly exhausted, the mucous mem-



Syphilitic microbe as found in the scooped-out copper-colored ulcers on the larynx.

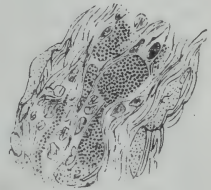


Section of the mucous membrane of the larynx of a patient who died of leprosy, in which the syphilitic microbe also existed.

brane of the entire larynx may be involved, general destruction of tissue; if not so much prostrated, there may be simply ulcers, with everted edges, with a yellow hue in their excavation, owing to the presence of the syphilitic germ.

Diphtheric, and ulcers due to the germs of variola, measles, scarlatina, are easily diagnosed by the attendant malady.

Symptoms.—All forms of laryngeal ulceration are attended with symptoms of irritative catarrh. The patient has a hard stridulous cough of long standing, the expectoration containing microbes, blood and the debris of laryngeal tissue, with hoarseness amounting at times to complete aphonia. Patient usually complains of a burning, smarting, pricking sensation in the larynx, with tenderness on pressure,



Ulcers on the mucous membrane of the larynx of a child that died of scarlatina.

which is increased by the use of the voice; painful and difficult deglutition attended by wavy laryngeal respiration.

If such things exist there is reason to suspect the existence of a laryngeal ulcer, but a positive diagnosis cannot be made from these symptoms alone, as extensive ulceration may exist, and all those symptoms be wanting; there may be laryngeal catarrh with inflammation, etc.

An examination of the parts with the laryngoscope clears up the matter and makes us able to give a positive diagnosis.

Our prognosis of all cases except the tubercular and syphilitic is good, in those two latter most uncertain.

The general principles of treatment in all cases are a general alterative and tonic course; everything calculated to improve the general health.

Since the introduction of the peroxide of hydrogen, ulcers dependent on the presence of the bacillus of tubercle and syphilis are more amenable to treatment. A spray of glucozone, which is simply the peroxide reduced in strength by the addition of glycerine, is more energetic in killing the spores of both bacilli in the ulcers than any remedy ever introduced. Ozonized iodine in one or two drop-doses internally every four hours operates well.

Kephaline and oats act well on the larynx; so does the ozonized coca wine, which is of all drugs a laryngeal stimulant.

By this is meant a chronic sore within the rectum, **Ulcer on** anywhere between the internal sphincter and the **Rectum.** sigmoid flexure. The ulceration may be so superficial as to be wide-spread, or so deep that it may penetrate or perforate the rectal walls. It may be limited to one point or consist of several small or large patches. But generally there is only one, usually located from one to three inches above the sphincter. Some of them discharge large quantities, more or less mixed with blood. In some cases it flows from the rectum or oozes away; more frequently, there is no appreciable discharge. The inflammatory products are absorbed into the circulation. On careful examination of the stools from day to day, there will be seen, if not always, that they are streaked with blood, pus, or an albuminous substance like the white of egg.

Ulceration is very common, much more so than is generally supposed. Fissure and irritable ulcer make their presence known by pain, but ulceration above the sphincter may exist unsuspected*for months or years, the attention of both physician and sufferer being direct to some reflex symptom.

Ulcers in the rectum are usually classified according to their appearance; catarrhal form, in which the entire mucous membrane is involved; traumatic, from a wound; dysenteric, when it arises from that affection; tubercular, when the bacilli affect a germ-eaten rectum; syphilitic, cancerous; that peculiar to the insane; gangrenous, in which the *oidium albicans* are present.

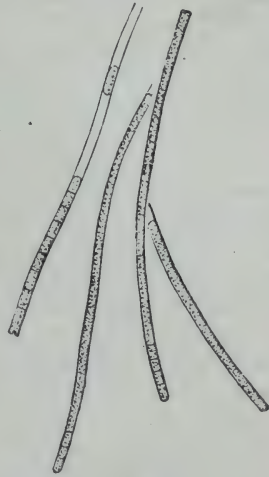
Causes.—A general feeble state of health, with a catarrhal state of the rectal walls, originates more ulcers on the damaged mucous membrane than all other causes. A nervous temperament, with special brain lesions, in which the vibrios are present in the alvine discharges; the bacilli of tubercle; the micrococci of syphilis and cancer readily find a location in a relaxed tissue to breed. Dysentery is a fruitful source of ulceration.

The agents which produce ulceration are very numerous, such as fruit stones, hardened fæces, foreign bodies accidentally swallowed, often lacerate the mucous membrane; child-birth, piles, fissure, polypus, and other states often cause ulceration.

Symptoms.—Rectal ulcers, being usually unaccompanied by pain, are often unsuspected until they have made great progress; until they have caused destruction of tissue, or penetrated to other organ. The remarkable absence of pain is due entirely to the absence of sentient nerves above the sphincter.

But although nearly painless, it has a certain train of symptoms, as itching about the anus, a slight protrusion and smarting at stool, occasionally experienced in the coccyx; not infrequently is there trouble with the urinary organs, ovaries, and uterus in females, and the prostate and kidneys in males. There is always less or more blood poisoning from absorption of purulent products of the ulcer, and the re-entering of disease germs into the circulation.

The direct symptoms which indicate rectal disease are generally manifested by a morning diarrhea, or diarrhea alternating with constipation, severe pain in the lower extremity of the coccyx, radiating through the hips and down the thighs, passing of mucus, blood, pus during stool; burning, itching in rectum; inclination to remain at stool, after a movement has been effected; burning sensation for some time.



The species of bacteria found in rectal ulceration due to catarrh.

The reflex symptoms cause disturbance of the entire body, reflected from the plexus of nerves around the rectum; these symptoms are giddiness, loss of memory, pain in the back of the head, indigestion, bloating of the bowels, functional disturbance of the liver, kidneys, bladder.

One of the most diagnostic symptoms of rectal ulceration is morning diarrhea, the discharge consisting of mucus, matter like coffee grounds, hardened feces and watery discharge, a pressing desire to continue at stool, a sensation of weight and weariness in the hips and legs; various pains that are usually referred to the region of the rectum and anus.

The constancy of the hip and leg weariness is a good point in diagnosis. In men, the bladder and prostate seem to suffer greatly, as there are often seminal emissions, the result of adjacent irritation often unsuspected, from the ulcer being within half an inch of the seminal vesicles.

In women, bladder and womb dyspepsia should be carefully guarded in a diagnosis.

Treatment.—This will vary in character and energy, according to the extent and complications of the disease. In all cases an alterative and tonic course of medication are indispensable, with a dietary rich in blood elements. Special rectal tonics should be given in all cases, so as to excite or stimulate a renewal of life in the rectum. This will embrace the persistent use of that great rectal tonic, Virginia stone crop, collinsonia, mineral acids.

The results of rectal ulceration are exceedingly variable, both in their nature and intensity. They are inveterately chronic, and often hold on with varying degrees of fluctuation, now nearly well, at another time ulcerating deeply and widely, dependent on the state of the general health.

So it is necessary in the management of those cases to have a direct treatment for the actual state of the ulcer. As a rule, those ulcers are generally found on the posterior portion of the bowel, but may be found anywhere. In making any application, the bowel should be washed out with castile soap and warm water, or a solution of boroglyceride; subsequently the application should be applied by the physician, if possible, through his speculum, not oftener than twice or three times a week.

The following will be found useful formulæ for direct medication:

Salol, sugar of milk, of each one drachm. Mix. Apply by dusting.

Salicylate soda, one drachm; sugar of milk, two drachms. Apply by dusting.

After each stool, the patient should wash out the bowel by

injecting a teacupful of warm water; after this has been retained for a short time, and then passed off in either catarrh or ulceration, a small piece or quantity of either of the following formulæ should be injected, and repeated as long as it may be necessary. The formulæ may be utilized according to the nature of the case, as they are useful in any of the forms of rectal disease:

Carbolic acid, two and one-half drachms; balsam of Peru, two drachms; ext. matico, two drachms; lac sulphur, three drachms; vaseline, sixteen ounces. Mix.

Carbolic acid, fifteen grains; pulverized opium, fifteen grains; tannic acid, twenty grains; muriate of cocaine, two grains; lanolin, one ounce. Mix.

If there is much soreness and irritation, wash out the bowel and insert a piece of the following, two or three times a day:

Submuriate of mercury, thirty grains; pulverized opium, sixteen grains; solid ext. belladonna, five grains; elder-flower ointment, one ounce. Mix.

For night treatment, from twenty to thirty drops of either of the following mixtures should be added to a small quantity of starch and water, and injected into the rectum with a syringe on going to bed, and permitted to remain over night; if constipation be predominant, pulverized slippery-elm should be used instead of starch:

Fluid ext. hamamelis, five drachms; Monsul's solution of iron, one drachm; carbolic acid, two grains; glycerine, two drachms.

Fl. ext. hamamelis, six ounces; fl. ext. hydrastis, two ounces; phenol sodique, four ounces; glycerine, three ounces.

Carbolic acid, thirty-five grains; simple cerate, one ounce; vaseline, one-half ounce; oil of wintergreen, fifteen drops.

Carbolic acid, three grains; sulphur, eight grains; lanolin, one ounce.

Carbolic acid, fifteen grains; black pitch, one ounce.

Those formulæ are excellent, and one cannot go wrong with any of them. They should be alternated, and if the bowel is washed out before they are applied, and they retained, splendid and gratifying results will be effected.

A very frequent result of ulceration is stricture, the ineffectual attempts on the part of nature to heal the ulcer results in a deposit of plastic lymph, which thickens the mucous and muscular coat, thus lessening the calibre of the canal.

Nature is most provident in rectal ulceration, the ulcer being generally found on the posterior part, the perforation is not such a grave affection, unless very high up, when it is apt to burrow and form a fistula, or abscess; whereas, if it was common anteriorly, the bladder and vagina would be liable to be perforated.

As these ulcers are chiefly due to the presence of microbes, all remedies, to be of signal efficacy in treatment, must be germicidal, such as the cocaine suppository, or some one of the following may be selected.

Iodol and resorcin, of each, sixty grains; pulverized opium, ten grains; butter of coca, sufficient quantity to make ten suppositories. Insert one morning and night.

Ozonized distillation of the witch hazel, one ounce; resorcin, half an ounce; morphia, two grains. Mix. Inject one tablespoonful thrice daily.

Peroxide of hydrogen in glycerine is a most effective agent in rectal ulcer.

Irritable Ulcer on the Rectum.—This is very similar to fissure, and it is really fissure extending above the internal sphincter, which has expanded into an oval or rectangular shallow rare sore. Properly speaking then, irritable ulcer is but an extensive fissure. Whatever its source or cause, it is usually found on the mucous membrane covering the internal sphincter. It is not so intensely painful as fissure, as oftentimes patients are not aware of its existence. The cause is the same as fissure.

In the treatment of this form of ulcer, belladonna ointment should be smeared over the external parts, around the sphincter, so as to paralyze it; castor oil or fluid extract of juglandin should be taken in sufficient quantity to move the bowels, then the rectum should be washed out with a solution of boracic acid, a speculum introduced and an examination made. Thoroughly cleanse the exposed parts with a sponge and soap; then a piece of sponge or absorbent saturated with the following:

Nitrate of silver, thirty grains; distilled water, one ounce.

Salol weakened somewhat by triturating it with pulverized gum arabic might be used instead. The following yields most beneficial results:

Distillation of witch hazel, twelve ounces; fluid extract hydrastis, six ounces; aqueous extract of opium, four ounces. Half a teaspoonful to two teaspoonfuls of water injected before retiring at night.

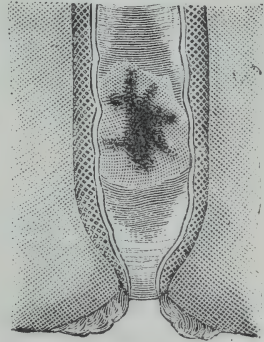
While pursuing this course, the sphincter should be kept relaxed and a good rectal tonic, like stone crop, should be administered internally, and one to three tablespoonfuls of the following injected into the bowel twice daily:

Aromatic sulphuric acid, one ounce; sulphate of quinine, half an ounce; water, sixteen ounces.

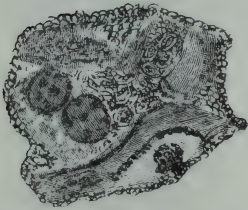
Ulceration of the Rectum.

There is a proneness to the occurrence of inflammation about the lower end of the rectum, which is attributable in a great measure to the structure of the part; the looseness of the skin, the large size of the veins, and their liability to become irritated or inflamed by sluggishness of the liver and the irregularity of the function of the bowels. The abscesses and ulceration may vary much in character, size, depth, and their degree of connection with the bowel. They form in the mucous or subcutaneous tissue. Apt to occur when there is a derangement of the general health, and disease germs in the blood. They often have no traceable origin, are indefinite in their duration, and if large are to be looked after with care.

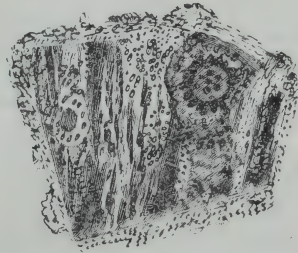
A very large percentage of rectal abscesses terminate in fistula in ano. It matters little how an abscess arises, it may be a foreign body penetrating and ulcerating through the rectal walls; disease germs eating through the structure, the thickness of structure necessarily causes it to be slow, as it perforates matter



Rectal ulcer, following an abscess, with ragged edges, often met with in syphilitic subjects.



The discharge from the same ulcer, magnified.



The pus of the same ulcer, magnified 1250 diameters, showing the germs actively engaged in the work of destruction.

all the time being regurgitated into the rectum, and nature in order to protect herself forms a sinus.

An excellent illustration of syphilitic ulceration of the posterior portion of the rectum, extending several inches up, the syphilitic microbe eating and burrowing in all directions. Packing the ulcer with iodol; rectal bougies of boroglyceride most successful.

By the movements of the integuments and sphincter, and the anatomical construction of the parts, and by other means, a closure is arrested, and the tube or opening is lined with a firm fibrinous deposit, variable in different cases. Abscesses may be associated with hemorrhoids.

Fistula is always preceded by an abscess, which having discharged its contents, may remain open or close up.

An abscess at this point is attended with great pain, owing to the density of structure and the large supply of sentient nerves. The pain is augmented when the patient sits or walk, and during an evacuation of the bowels, but the subsidence of the swelling by the escape of its purulent contents is attended with instant relief.

—————

A breach of continuity of, or on, the os or neck of the uterus, may be the result of some injury, but more generally it is the result of congestion, effusion of lymph, breaking down of the lymph in the follicles of the mucous and muscular tissue. Ulceration of the neck of the uterus is not nearly so common as ladies are led to imagine; true, there is much induration or thickening, much congestion, and often papilloma on the mucous tissue, but real solid ulceration is rare.

It is indispensable in the coming age that the physician be a Christian gentleman of the highest possible scientific attainments and skill; a man incapable of exaggeration, or deviating from the truth; the true physician should be honest, straightforward; he should have none of the characteristics of either a sneak or a cur, or a vulture, or a prevaricator, but he should be magnanimous and honest; a man above a falsehood, one who, when consulted regarding a headache, defective sight or hearing, or indigestion, or ingrowing toe-nail, will bluntly tell what it is and not insist upon a vaginal examination, and pronounce these affections as arising in all cases from the uterus. In the gynecological epidemic which pervades the medical profession, all, everything, is due to ulceration of the uterus os, or neck; an examination is called for, it is made, the case is pronounced obscure; another is called for, and another, and too frequently are a chaste, refined female's affections alienated from their proper source.

There are no isms or pathies in medicine to the bacteriologist, he sees nothing but the best means of killing germs, sterilizing the human blood, raising the standard of vital force by any and all means; every honest Christian physician is a social benefactor, irrespective of his school; he does not, like some charlatans, coin new names for trifling maladies and invent disease.

Women are sensitive and imaginative, know little of physiology, but feel keenly any ache, pain or irregularity, and attach more importance to it than there is any need to. So, if she has dyspepsia, or dysmenorrhœa, and a slight bearing-down, she is much impressed, and consults one of those mountebanks; her fate is at once sealed, by the designation "ulceration of the neck of the uterus," when nothing is the matter but fatigue. It is the fashion, they live by it, it is their bread and butter. Poor lady, three times a week she trudges to his office, and has his applications applied for a disease that does not exist, and, if it did, should be cured without such a mess of degradation. This is an everyday game.

We have another class, meaner still, who go for ulceration and displacement. This class assert that there is scarcely a woman living whose uterus is where it ought to be. It is antiflexed, retroflexed, or verted this way or that way. An examination by speculum must be made; and as he gets a large percentage from some unprincipled "uterine supporter" patentee, or manufacturer, there will be a variety of contrivances tried, but none answer till his favorite is reached; and, oh! the fitting-in, the adjusting and readjusting, in order to cure the headache, irritation of the bladder from the uric acid, or pretended albuminuria, and a thousand other ills that do not exist!

Now, where this is done by an educated gentleman, a Christian, one who knows what he is doing, and what difficulty he is dealing with, if there be one, much good may be accomplished; but when imitators, pretenders, rascals, go at it for cash, nothing but harm follows. With these fellows there are muddling and meddling of the most disreputable kind, and patients get tired of it, their money and patience become exhausted, they give it up; and if there is something the matter, become chronic invalids, and are a nuisance to themselves, relations and friends.

In all cases of chronic inflammation there should be no let-up in treatment until the thickening of the neck, produced by effusion of lymph is removed by the application of the jequirity paste, by packing the vagina with boroglyceride; copious injections of ozonized iodine, etc.

Effusion of lymph, if permitted to remain in the interstitial structure of the neck of the uterus, is liable at any time the health becomes slightly impaired to become the streptococcus pyogenes.

Simple Ulcer, or an excoriation, or erosion of the lips of the neck of the uterus, is the simplest form of ulceration. The epithelium is simply removed from the part; the villi, the fine network of capillaries, can be felt, velvety to the touch, or it can be

seen through the speculum. Usually little hardness, scarcely any perceptible redness.

Symptoms.—There is a general depression of the health; headache, and languor; leucorrhœa, pain in pelvis and sacrum, irritation of ovaries, bearing-down, aching in thighs, indigestion, flatulence, with irregular action of bowels. Menstruation is likely to be disordered in some way. Vaginal secretion acid.



Induration with ulceration of the neck of the uterus, all round.

In the treatment of simple ulcer of the neck of the uterus, the bowels should be regulated with cascara sagrada lozenges, or kola nut paste, or some other mild stimulant; then the appetite should be fostered and invigorated with tonics, as comp. tincture matricaria; American columbo; aromatic sulphuric acid and quinine; gentian and collinsonia; best of blood-forming diet prescribed, beef, mut-

ton, poultry, milk, cream, eggs, and if slow or retarded, ozonized pepsin.

Patient should be placed upon uterine tonics and restoratives, as the wine of the aleteris farinosa; comp. syrup of partridge berry; ozonized elixir of apiol.

Locally, after it has been ascertained to exist by a careful speculum examination made in either the presence of the mother or husband, and details of treatment arranged.

What is to be the treatment? Not a depleting, antiphlogistic course, assuredly not by any caustics. We grant the proposition, the ulcer is but a mass of living, working germs, but we can do better than apply the solid stick of nitrate of silver and destroy tissue. This ulcer can be stimulated by blowing ozonized powdered jequirity over it; or by brushing a paste of the same, or inserting a capsule close by it filled with the same powder. This will cause the ulcer to exfoliate, peel off, leaving soft delicate but healthy tissue behind, which in a few weeks becomes very vital.

Still a milder but effectual plan is dusting or blowing on the ulcer the anti-microbe powder.

Still another excellent plan is to pack the vagina with boroglyceride over night for one or more nights in succession.

At the same time rest in the recumbent posture; hip-baths thrice daily; vaginal injections by or through a two-quart foun-

tain syringe, tepid fluids. Before using any medicated injection, it is well to run through the vagina a quart of castile soap suds, to wash out; then follow with either solutions of boroglyceride or resorcin, lime water and tincture of iodine.*

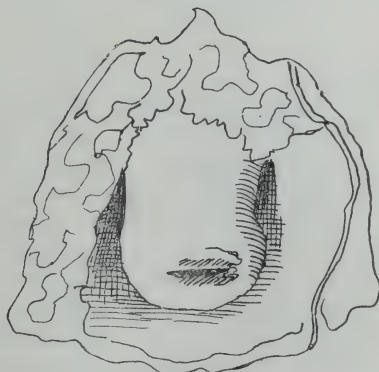
Pastiles inserted on retiring are of great utility, those composed of boroglyceride and cocaine are most efficacious; so are those composed of white pond lily, and other vegetable astringents.

If married, sexual congress for a few weeks should be rigidly forbidden.

Irritable or Inflamed Ulcer involves the os or the lips, but is vascular and very red; the loops of the capillaries have given



Hypertrophy, with ulceration,
highly inflamed.



Inflamed cervix uteri, causing general irri-
tation of the uterus.

way, and there is an excavation; there is considerable redness and ichorous discharge.

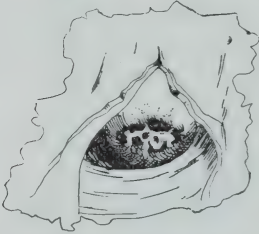
Symptoms.—All the symptoms are much aggravated, more debility, even mental depression; the leucorrhœal discharge is profuse, and muco-purulent, and greenish; great headache, tongue coated, no appetite, anæmia, neuralgia; dirty, sallow hue of skin; bowels irregular, usually constipation; pain in the back, hips and thighs, aggravated by exercise; reflex irritation of blad-

* Out of one hundred thousand physicians in the United States, the most successful in the treatment and cure of all forms of ulceration of the neck of the uterus, are Phebe Low, M. D., Liberty, Sullivan Co., N. Y.; E. Thompson, M. D., Romeo, Michigan; Alice A. Benton, M. D., Spokane Falls, Washington. The remedies used by these three learned ladies are chiefly those above enumerated, together with other bactericides, with which they have each had such brilliant success.

der, rectum and breasts. There is often menorrhagia in this variety.

The treatment of the inflamed ulcer must be much more energetic than the simple ulcer. General alteratives and tonics, compound saxifraga and phytolacca alternated with wine of aletris farinosa and compound syrup partridge berry.

To the ulcer, either powdered jequirity or a paste, or pastile of the same, causes a complete exfoliation of the ulcer without leaving a trace behind, followed by copious slippery elm injections, and subsequently boroglyceride and resorcin.



Intra-uterine catarrh, with ulceration of the os uteri, just assuming the rodent form; numerous points of beginning ulceration.

Rodent Ulcer.—In the simple and irritable ulcer there are usually present in the ulcer the common microbe bacteria and pus germ; but if an ulcer takes on the “rodent type,” we find in addition the *oidium albicans*, the streptococcus of diphtheria and phagedena is present in large colonies.

The causes which give rise to this form of ulceration are a general breaking down of vital power, coupled with great irritation and insanitary conditions, bad food, filth.

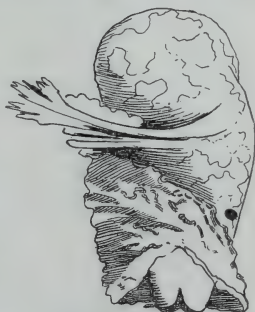
Symptoms.—It is to be regarded as a perforating, eating ulcer, with a bloody exudation; ulceration gradually and slowly extending. As it eats away, burrows and perforates, complaint is made of heat, pain and discomfort; thin, watery discharge streaked with blood. The constitutional symptoms are those of great prostration; headache, want of appetite, pallor, indigestion, constipation, great physical weakness; pains in back, thighs, hips; burning pain in uterus, and attacks of hemorrhage. On examination, an irregularly-shaped, eating ulcer, with ragged or indurated edges. There may be several; they all look excavated. They may be dry, or glossy, but there is always blood dripping from their edges. When vital force is very low, they may eat away the neck and body of the uterus, and give rise to dreadful hemorrhage. It is often mistaken by the inexperienced for cancer. It often destroys life, if not seen to and treated correctly before it eats into uterine vessels.

In the treatment of rodent or phagedenic ulceration of the neck of the uterus, the patient should be removed from the insalubrious locality in which she is placed; her apartments thoroughly disinfected. She should be placed upon full doses of compound conium pill so as to relieve all pain, all sense of irritation; compound saxifraga and phytolacca, in alternation with wine of the

aleteris farinosa and compound syrup partridge berry ; bowels to be freely opened. The vagina should be thoroughly washed out with a strong solution of castile soap in tepid water. Parts carefully examined, if the ulcer, or ulcers are small, either the ozonized jequirity powder or paste, would perhaps be sufficient to cause exfoliation ; if the ulcer or ulcers are very ragged, uneven, a perfect mass of disease-eaten germs, then it might either be brushed over with C. P. lactic acid, or a ten-per-cent. solution of ozone paste or chloride of chromium ; following any of these three remedies a thorough vaginal douche of boroglyceride, or simpler and easier still, pack the vagina with either boroglyceride or resorcin or thymol jelly. Any of these applications will destroy the germs in the ulcer and stimulate the sound tissues.

Bactericide injections thrice daily. consisting of either boroglyceride or resorcin, or creolin, or hydronaphthol, or lime-water and tincture of iodine, or a solution of sulphide of lime.

Ulceration of the internal cavity of the uterus is a frequent result of abortion. The ulceration follows a previous condition of villosity ; the villosity is destroyed and ulceration takes its place, or it may begin with ulceration. It is not common in the young, but in the old, the result of abortion. There are slight bleedings when ulceration extends into the cavity of the uterus. If seen early, treat it by introducing thallin bougies into the cavity of the uterus, with the same remedies internally as in other uterine ulcers.



Ulceration of the internal walls. In this case the fundus of the uterus was converted into a tumor, somewhat separated from the general tissue.

Syphilitic Ulcers are often met with on the os or neck of the uterus ; entire colonies or nests of the syphilitic germ are found lodged about the labia, on all sides, within the canal of the neck.

Symptoms.—The copper-colored appearance of ulcers and mucous membrane ; thickening and induration ; the muco-purulent discharge is excessive from both uterus and vagina ; patches of abrasions, or ulcers, are to be seen on the labia of the uterus. Menstrual function is irregular ; most frequently menorrhagia. Besides, there will be syphilitic cachexia, loss of hair, enlargement of post-cervical glands, copper-colored mucous membranes, pain in the breast-bone and other bones at night, copper-colored eruption, nodes, mucous patches, etc.

Same treatment as for rodent ulcer and syphilis.

Ulcer on the Vulva. Sexual intercourse, excessive, loose or varied, has a most exhausting effect on the mucous membrane of the vulva and labia, so much so that when this condition is combined with feeble vital force, filth, great depravity, overcrowding and insani- tary states, a peculiar form of corroding or eating ulcer makes its appearance.

The microbes of this form of ulceration are extremely diversified, and are all pathogenic of squalor, uncleanliness, phagedena.

Symptoms.—It usually exhibits itself in the form of an intract- able ulceration of the labia, and extends over vulva and vagina ; surrounding structure usually becoming indurated. As ulcer heals in one direction, it extends to another ; process of repair accompanied by the formation of a firm, horn-like cicatrix, which has a tendency to cause a puckering, or contraction of the vaginal walls, or anal orifice. As a rule, patient does not experience much inconvenience from it for a long time ; not until the vaginal orifice, or neck of the bladder, becomes fissured by it ; then the patient experiences great pain after micturition. For a long time it seems not to interfere much with sexual congress or men- struation. By-and-by general health becomes greatly impaired, appetite fails, the body wastes, there is diarrhea, night-sweats, a profuse discharge from the parts, very offensive, and a general breaking-down of the health.

In such a case the most active treatment possible with our most powerful bactericides ; perfect rest must be enjoined ; secre- tions and excretions regulated ; the functions of the skin stimu- lated with baths ; appetite must be stimulated with tonics, and the very best of food given, and every possible means taken to improve the general health.

At once, without delay, the patient should be placed upon alteratives, tonics and bactericides ; the latter to sterilize the blood.

No caustic or irritating application should be made to the ulcer or ulcers. The vagina should be thoroughly washed out three times a day with either a saturated solution of boroglyceride, or creolin, or some other germicide ; these injections should be copious, two quarts or so.

Lotions of either lime-water and tincture of iodine or peroxide of hydrogen, or ozonized sulphur water or aromatic sulphuric acid and quinine ; lotions are best if they can be kept moist ; if they cannot be thus maintained, ointments ; then boroglyceride, creolin, resorcin should be tried.

The building up of the general health and the surrounding the patient with every element calculated to vitalize.

This term denotes an excess of urea in the **Uræmia.** blood. In healthy states of the body this substance is present in the blood in very small quantities, but under any circumstances in which the renal functions are impaired, it accumulates in large quantities, especially in structural disease of both kidneys, or where the ureters are occluded.

The symptoms of uræmic poisoning relate chiefly to the nervous system, consisting of neuralgia, delirium, blindness, coma, convulsions, vomiting and diarrhea; pallor and puffiness of the face, due to anæmia and œdema.

The symptoms are not due to the retention of urea alone, for the urine contain substances a thousand times more poisonous than this.

In health all the poisonous substances formed during tissue-change are excreted chiefly in the urine; but when the kidneys are diseased, or have been in any way rendered functionally inactive, the alkaloids may accumulate and give rise to those symptoms of poisoning which are usually known by the name of uræmia. In cases of disease of the kidney where such a condition has been threatening, an exclusively milk diet proves of the greatest service, and probably does so in a great measure by washing the poison out in the way I have just mentioned, although it is also likely that such a diet tends to limit their production. The objection may be raised that there is no very obvious relation to chemical constitution. This is quite true. It has been pointed out that most of the alkaloids obtained are either amines or diamines, or else more complicated compounds of nitrogen and carbon allied to uric acid, yet the chemical structure of many of those formed in the body either in health or disease has yet to be discovered. When we know their chemical nature we may be able, in a case of uræmic poisoning, at once to administer an antagonistic remedy and save our patient, instead of standing, as at present, almost helplessly by. A knowledge of the relation of chemical constitution to physiological action is likely to guide us also in our investigations regarding the nature of the poisons in uræmia. One set of poisons is probably allied to uric acid, and may include guanidine, methylguanidine and other derivations of urea.

In health the greatest parts of the products of albuminous waste are excreted by man in the form of urea; uric acid occurs only to a small extent. But in various disturbances of nutrition we find that the quantity of uric acid is greatly increased, and that sometimes along with it oxalate of lime makes its appearance. We might, therefore, naturally look for compounds of

oxalic acid as among the substances likely to give rise to symptoms of poisoning if retained in the body.

Symptoms of Uræmia.—For my own part, I have sometimes been struck with the extremely rapid pulse in cases of uræmia, although there was no rise of temperature to account for it. This rapidity could hardly occur unless the vagus were either paralyzed or inactive, and resembled so much the effect of atropine that I have been inclined sometimes to think that an atropine-like body was giving rise to the symptoms.

Hypothesis as to the Nature of the Poison in Uræmia.—Now there is a substance allied in its chemical constitution to oxalic acid, namely, oxalethylene, which has the power of paralyzing the vagus and producing great rapidity of the pulse, just like atropine, which it also resembles in its action upon the pupil and brain, dilating the pupil and exciting the brain. When one atom of hydrogen in this body is replaced by chlorine so as to form chloro-oxal-ethylene, we obtain a body which no longer dilates the pupil, acts upon the brain like morphine, but still paralyzes the vagus. We thus have a group of symptoms which closely correspond with those occurring in certain cases of uræmia. Should this substance, or any one nearly allied to it, be found to be present in cases of uræmia, experiments could readily be instituted with a view of finding antagonistic compounds, and the end we desire might be attained. In some cases of uræmia the injection of pilocarpine has arrested the convulsions, and it appears to me more likely to have produced these effects by antagonizing the convulsing compound than simply by producing profuse sweating, although such an action might possibly tend to help elimination. This appears to be more from the observation of Sanger that pilocarpine is only of use before the occurrence of coma, for this symptom probably indicates either the presence of another alkaloid not antagonized by pilocarpine or an accumulation of poison to an extent which cannot be neutralized.

The urine in health is a clear, amber-colored liquid of slightly acid reaction, saline taste, and of a peculiar aromatic odor. The amount voided in twenty-four hours ranges between thirty-five and sixty ounces. Its specific gravity varies from 1010 to 1030, the average being from 1015 to 1020. After exposure to the air, the acidity of the urine, which is chiefly due to the acid phosphates, continues for a few days; then fermentation takes place, which changes its character according to the amount of uric acid or urate of soda

that may be present. The alkaline change is due to the growth of a fungus, the *micrococcus urea*, which gives rise to the decomposition of the urea and the formation of the carbonate of ammonia and triple phosphates.

The frequency of micturition depends on quantity, as in diabetes and the waxy form of Bright's disease; in all inflammatory states of the prostate, bladder, pyelitis and nephritic calculi, urine is frequently voided.

In enlarged prostate, the cirrhotic, or contracting form of Bright's disease, the calls to micturate are frequent, and occur during the night.

Normal Constituents of the Urine.—These may be regarded as the products of the metamorphosis of the various tissues of the body; the most important organic constituents are urea, uric acid, hippuric acid, phosphates and chlorides, oxalic acid, kreatinin, xanthin, and a number of basic substances, the product of oxidation and coloring matter; also, disease germs and their ptomaines.

Urea.—This substance is the ashes of the tissues, the retrograde metamorphosis of the fibrine of the blood and of muscles, of the nitrogenous body tissues and the excess of the nitrogenous elements of the food. It is due to the wear and tear of structure, taken up by the blood, filtered by the kidneys, and appears in the urine to the amount of from 500 to 600 grains daily.

Urea or ashes of the tissues is increased by excessive muscular exercise, hard physical labor, excess of animal food, febrile, and inflammatory, and exhaustive diseases; it is abnormally increased or diminished in anæmia, cholera, starvation, yellow atrophy of the liver, cirrhosis, amyloid and fatty degeneration.

The liver is the chief organ concerned in the formation of urea. The tissues in their oxidation or disintegration constitute but a small portion.

The chief source is the red corpuscles which are broken up in the liver, the coloring matter of which goes to form bile, and subsequently that of urea; the rest of the protoplasm of the blood cells form urea. Derange the structure or disturb the function of the liver and you cause an increase or diminution in the urea.

The urea excretion is affected by the administration of drugs. Phosphorus undoubtedly increases the elimination of urea, as do all diuretics; whereas morphia, quinine, and iodide of potass diminish its quantity.

The quantitative estimation of urea is of much importance. It may be carried out in either of two ways, either by a solution of the nitrate of mercury or by a solution of the carbonate of soda.

Uric acid, its origin the same as urea ; generally found in the urine combined with some base, such as lime or soda. In health 6 to 9 grains of uric acid are usually passed in the 24 hours ; this amount is somewhat variable, depending on the kind, quality and quantity of food, a beef diet increases the amount, out-door exercise decreases it. It is increased in the many hepatic affections, in leucocythæmia, in acute rheumatism, indigestion.

Uric acid appears in the urine as a crystalline deposit.

Small quantities of kreatinin, hippuric acid and xanthin are also found which represent oxidized products of tissue change.

The strong acids which appear in the urine, during the stage of acid fermentation speedily decompose the urates and set the uric acid free.

This is deposited in the form of yellowish red colored crystals which assume an infinite variety of forms, (constituting what is known as red gravel). To the naked eye they resemble grains of cayenne pepper. Microscopically these crystals vary much in shape. They take the form of four-sided tables, or six-sided rhombs, or they may be lozenge-shaped, ovoid, or barrel-shaped, or still more elongated and arranged in a stellate fashion. In whatever form uric acid appears, the crystals are always more or less yellow ; and as no other crystal which spontaneously separates out from the urine is



Uric acid. The most common form, with disintegrated crystals and formation of rounded masses. X 250.

so tinted, there can be no difficulty in its recognition.

Uric acid is readily separated from the urine by the addition of hydrochloric acid, which deposits it in a crystalline form.

It can be readily detected by the microscope, but this is not always convenient.

Uric acid may always be detected thus : a small quantity of the sediment of the suspected urine is dissolved in a porcelain dish with a few drops of nitric acid, and the solution so obtained is evaporated. To the reddish residue a few drops of dilute ammonia are added, when the beautiful reddish purple color develops itself ; by dropping on it a few drops of caustic potassa it passes into bluish purple.

It is more difficult to estimate the quantity. A quantity of urine is taken, pure hydrochloric acid added. Let it stand 48 hours, then filter. Wash with a little cold water and weigh.

Coloring and Extractive Materials.—The normal coloring of

the urine is due to the presence of a pigment, a substance closely allied to the coloring matter of the bile, derived from the blood by the action of the spleen and liver. Another normal pigment of the urine is indican; when the quantity of indican in the urine is excessive, it indicates that albuminous matters are under-going rapid decomposition; that bacteria are active.

Kreatinin is a normal constituent of urine, and its presence in somewhat larger quantity than uric acid. Its presence is readily detected by adding to a small quantity of urine a few drops of a very dilute solution of nitro-prusside of sodium, when, on the further addition of dilute caustic soda, a beautiful ruby-red color develops itself, which soon passes into deep straw yellow.

Plomaines.—The excreta of microbes are most abundant when fever is high; they appear as a white crystallizable substance, which give all the reactions of an animal alkaloid.

Albumen.—When albumen appears in the urine, its common origin is the blood and the kidneys; from the former when the microbe of diphtheria, scarlet fever, erysipela, variola are present in the lymph spaces; lead-poisoning, epilepsy, goitre; in the latter to partial death of the kidneys, structural lesions, blood pressure; albuminous urine is generally of a low specific gravity.

Before testing for albumen, the urine in question must be rendered clear by careful filtration, and neutral, by the addition of an alkali or acid. Of the many methods in use the boiling test is probably the best.

Fill a test-tube one-third full, and heat in the flame of a spirit-lamp to the boiling point; the albumen, if present, will separate as a white cloud, which on standing, collects at the bottom of the tube in fine flakes. If the urine contain much earthy phosphates, these are apt to separate when the tube is heated, and the cloud so formed may be mistaken for albumen. It is, however, dissolved, on the addition of a few drops of acetic acid.

The ferrocyanide test is very handy. To a test-tube nearly filled, add a few drops of acetic acid, then a small quantity of a solution of ferrocyanide of potassium. If albumen be present a white flocculent precipitate will separate out in the cold; albumen present in urine never fails to be indicated by this teste.

Albumen in the urine is indicative of kidney disease, chronic interstitial nephritis, it is greatest in this form, much less in the cirrhotic and waxy forms. It is of great importance to distinguish correctly whether it is persistent or liable to remissions; renal tube casts and epithelium are most abundant in chronic interstitial nephritis.

Albuminuria occurs in cardiac disease, after an epileptic fit; in goitre; in lead-poisoning, and sometimes in pregnancy.

The albumen in the urine in certain cases may be derived from the blood from the presence of disease germs in the kidneys.

Urinary Sugar.—When the urine contains much glucose or grape sugar it is of a pale, yellow color, sweetish taste, and vast in quantity. Its specific gravity is nearly always high, generally between 1030 to 1065, an isolated case, one in a thousand, where it is as low as 1010. When persistent, large in quantity, it indicates a grave pathological lesion, diabetes mellitus. It is often met with temporarily in nervous shock, chronic alcoholism, eczema.



Glucose fungus.

In normal urine a minute quantity of grape sugar is present, but it is so very small that none of the ordinary tests can detect it. Sugar in an abnormal amount

constitutes the pathological condition termed glycosuria.

The qualitative tests for urine containing sugar depend upon the coloration caused by boiling with caustic potassa; upon the power grape sugar possesses of reducing hydrated oxide of copper; and upon the evolution of carbonic acid gas, when fermentation is set up by the yeast plant.

In all cases, if albumen be present, it must be got rid off by coagulation by heat and filtration, before any other test is applied.

1. *The Caustic Potash Test.*—Mix one ounce of urine with the same quantity of caustic potassa, boil the mixed fluids in a test-tube over the flame of a spirit lamp. If sugar is present it will assume a dark brown color.

2. *Sulphate of Copper Test.*—Take a certain quantity of urine in a test-tube, add to it one-third of its volume of liquor potassa, and then a drop or two of a saturated solution of the sulphate of copper, the precipitate which falls will re-dissolve if sugar be present, and more of the copper solution must be added, until a small quantity of the hydrated oxide remains as a precipitate. On boiling this mixture, a yellow color will show itself if sugar be present, and will pass into a reddish yellow granular precipitate of the sub-oxide of copper.

3. *Fermentation Test.*—Under the influence of yeast, grape-sugar breaks up into alcohol and carbonic acid, and this evolution of carbonic acid has been made the basis of a test for sugar: It is readily performed. Take two test of equal size, fill one with the suspected urine and the other with water, adding to each a small piece of yeast, cover them with saucers, and then invert them. If sugar be present in the urine, carbonic acid gas will

collect at the upper part of that test-tube. A few bubbles of gas may come from the yeast itself, but the second test-tube containing water, will show these also, so that any mistake is hardly possible. This test is not very sensitive, as it only shows sugar, when it is largely in excess of two grains to the ounce.

4. *Fehling's Test Solution for Sugar in Urine.*—It is prepared in two solutions No. 1. Dissolve 17.32 grams (267 grains) pure crystals copper sulphate; water 250 c. c. (6 fl. ozs.) No. 2. Dissolve 86.5 grams (1328 grains) pure crystals Rochelle salts; sodium hydrate solution sp. gr. 1.12 250 c. c. (8 fl. ozs.) These two solutions are mixed in equal volume when used. This is the most delicate and reliable test for sugar in urine, being quantitative and qualitative. The copper in 100 c. c. (25 $\bar{5}$) is precipitated as cuprous oxide by 0.5 grams ($7\frac{3}{4}$ grains) of glucose.

How to Use It.—About 20 c. c. (5 $\bar{5}$) of Fehling's solution are put in a test-tube of four or five times this capacity, heat it slowly over spirit lamp to the boiling point, then gradually add the suspected urine slowly in quantities of ten to fifteen minims, let boil after each addition. If sugar is present the following changes in the color of fluid takes place: it first becomes slowly yellow, turns to red, the beautiful green of the normal fluid is rapidly disappearing, during the whole the red cuprous oxide is being formed and precipitated; after standing half an hour when the heat is discontinued the precipitate falls to the bottom of the tube, and the fluid is nearly colorless if the reactions have been so complete as to have converted all the copper and all the sugar in the urine has been used up in the process. These reactions are developed in fulness in proportion to the quantity of sugar in the urine. If the quantity is very considerable it is advisable to dilute the urine with an equal volume of water. It is best to test this urine for albumen, which, if present must be taken out by precipitation and filtration, then the clear urine is tested for sugar. It is always in order to test Fehling's solution by heating to the boiling point; if it remains clear and free from any precipitate it may be trusted. It is well to recollect the worst cases we have to treat are those in which the quantity of sugar continues considerable while the patient is on a pure nitrogenous diet exclusively. Those cases in which the quantity of sugar daily passed in the urine is decreased in proportion as amylaceous and saccharine food are withheld, and the effect of medicaments is satisfactory, are curable. Never lose sight of the vast importance muscular exercise, and plenty of it, is to such patients.

Take a small quantity of that solution in a test-tube, heat it to boiling, and then add a few drops of the suspected urine. If sugar be present, reduction of the copper in Fehling's solution

will at once take place, giving rise to a red precipitate. If the solution be always boiled previous to the addition of the urine, no error can occur as to the result.

It is somewhat difficult to estimate the quantity of grape-sugar in a given amount of urine either by any method of analysis or even by the polarimeter.

Bile.—Urine containing bile varies in color from a deep reddish brown to a dark green, acid reaction, high specific gravity. The coloring matter of the bile, such as bilirubin, biliverbin, biliverdin are the portions which appear in the urine in disease.

It is found in jaundice and all morbid states of the liver or gall-duct.

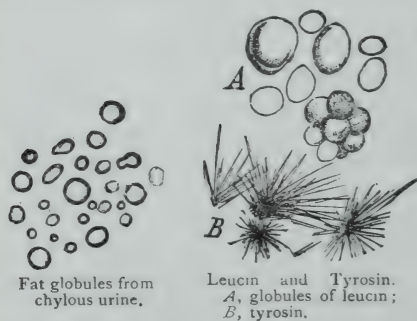
Its presence is very easily detected when the urine, which contains the pigment bile, comes in contact with nitric acid in a play of colors. Place some of the pigmented urine in a conical glass, permit it to stand a little while to settle, then drop gently down the edge of the glass a little nitric acid, when a series of colored rings will form in the following order: Yellow, violet, blue, green.

Bile acids are found in the urine in considerable quantity in hepatogenic icterus.

In a small quantity of this urine dissolve a little sugar, then dip in it a strip of filter paper and permit it to dry. If now a drop of sulphuric acid be allowed to fall on the paper a purple ring will appear round it.

Lactic acid is found in the urine in diabetes, yellow atrophy of the liver, trichinosis, osteomalacia.

Fat.—Fat is occasionally met with in the urine, when present it gives that fluid a milky appearance; as it is generally associated



Fat globules from chylous urine.

Leucin and Tyrosin.
A, globules of leucin;
B, tyrosin.

with abumen it forms an emulsion, a sort of coagulation, and in a short time standing it rises to the top and disappears by the addition of ether. Under the microscope minute globules of fat are seen, usually interspersed with lymph and blood corpuscles.

Leucin and Tyrosin.—Two substances, found in the urine, often in large quantities, due to the prolonged action of the pancreatic ferment upon the nitrogenous elements of the food.

Leucin appears either in the form of white crystalline scales,

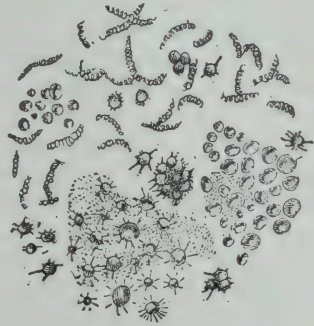
freely soluble in water, or as small round yellow bodies, looking like fat cells.

Tyrosin is in the form of white masses consisting of long shiny needles arranged in star-shaped groups. Leucin and tyrosin appear in those diseases in which oxidation is very greatly impaired, such as acute yellow atrophy of the liver, typhoid fever, small-pox and in hepatic diseases generally.

Urates.—The amorphous deposit of urates which is so frequently met with even in healthy urine, consists chiefly of urates



Urate of soda. *A*, amorphous granules in clusters, resembling moss: *B*, granules in strings, sometimes mistaken for granular casts. $\times 250$.

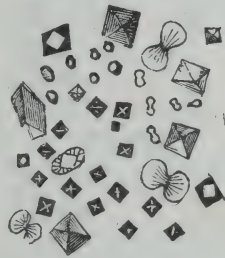


Urate of ammonia.

of soda, of potassa, magnesia, ammonia. To the naked eye the deposits of amorphous urates has a reddish brick dust color, due to pigmentation with uroerythrin. When the urine has been allowed to stand in a glass for some time, and deposits those urates, a peculiar bloom may be seen on the sides of the glass when it is bent over at an angle of 45 degrees, which is a characteristic, and unmistakable sign of the presence of urates. Microscopically this deposit appears amorphous and finely granular. On warming the microscopic slide, the sediment becomes dissolved, and it separates out again on cooling and the same reaction can be seen in a test tube.

In health, a deposit of urates often occurs after profuse perspiration and violent exercise. It is abundant in all febrile and inflammatory affections, in organic disease of the heart and liver.

Oxalate of Calcium.—Calcium oxalate is often held in solution in the urine, but when it is precipitated it takes one of



Oxalate of Calcium: the octahedra, most frequently present, are seen on the left. The comparatively rare form of dumb-bells is also shown. $\times 250$.

two forms, either a small, colorless, sharp-edged octahedra crystals, or dumb-bell shaped crystals. To the naked eye the deposit appears as a white, undulating, clearly defined layer, resting upon a gray deposit beneath.

Oxalic acid is much increased by the consumption of sugar and of such vegetables as contain it, as rhubarb.

It is the last stage of the decomposition of effete tissue, the result of impeded metamorphosis. Oxaluria or oxalate of lime in the urine is accompanied with a well marked train of symptoms. The affected individual is emaciated, very nervous, extremely hypochondriacal and irritable—pain in the loins, irritability of bladder, muscular weakness.

The crystals of oxalate of lime are found in cases of disturbed respiration, emphysema of the lungs, rachitis, epileptic convulsions.

Cystine.—A white crystalline body derived from the liver, is not often found in the urine, but when it is present, it presents itself in the form of hexagonal plates, which are of a neutral reaction and can be dissolved by caustic mineral alkalies. When this substance appears in the urine it is apt to give rise to calculus. The pathology of cystinuria is very obscure.

Mucus.—A small quantity of mucus is present in normal urine; but in such affections as catarrh of the bladder, prostrate, urethra, it is greatly increased. It is of importance always to distinguish between mucus and pus in the urine. This is readily done by filtration, when, if pus be present, the filtrate will give the reactions of albumen; but if it contain mucus, it will give that which is characteristic of mucin, that when acidulated with acetic acid a precipitate of mucin separates out in the cold.

Pus corpuscles when present in urine give it the appearance of having a deposit of white yellow flocculent substance, easily recognizable to the naked eye; microscopically, as a rule, present their normal appearance; but if the urine be strongly alkaline, they tend to run together and form a homogeneous mass. To ascertain

A, pus corpuscles as ordinarily seen in urine; B, the same, treated with acetic acid. x 300.

whether it is pus or not, it is only necessary to add either a small piece of caustic potass or liquor potass, stir with a glass rod; if the sediment be formed of pus it will become tenacious, glassy, and semi-solid.

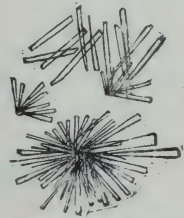
Another test for pus is, bring a few drops of peroxide of hydrogen into contact with the pus, an effervescence will take place.

This action continues till all the pus is destroyed so that it cannot be recognized microscopically.

The presence of pus in the urine is a sure sign that there exists either an acute or chronic inflammation at some part of the urinary tract, as a stone in kidney with renal abscess, pyelitis, cystitis, or urethritis.

Earthy Phosphates.—The earthy phosphates are the most common sediment met with in the urine, when the urine is alkaline they are never absent; they present themselves as the ammonio-magnesium, or triple phosphates, or as the phosphate of lime. During the stage of alkaline fermentation the ammonia produced combines with the phosphate of magnesium present, and the result is that the crystals of the triple phosphates, being insoluble in an alkaline fluid, are thrown down in large quantities, as are also the crystals of the phosphate of lime; the separation of the latter depending upon the presence of the fixed alkalies as the carbonate of soda. The crystals of the triple phosphate vary according as they are the result of rapid or slow crystallization; in the former they assume a feathery form, looking like two crystals crossing each other at acute angles; in the latter they appear as triangular prisms with bevelled edges.

The phosphate of lime forms a whitish flocculent deposit, which is not dissolved by heat, but passes into solution by the addition of a drop or two of nitric or acetic acid. Under the microscope this deposit is seen to consist of fine granules, usually arranged in irregular groups. In microscopical appearance they closely resemble amorphous urates, but the reaction of the urine will at once indicate their nature.



Pho-phate of lime.

A sediment of the earthy phosphates does not of necessity show that there is an abnormal amount in the urine, but it shows an alkaline state of the urine, and points out in most emphatic tones a too rapid metamorphosis of brain and bone, and the possible danger of the formation of phosphatic calculi.

Chlorides.—The chlorine which is contained in urine exists in combination with potassium, sodium, ammonium, magnesium or calcium.

The presence of these chlorides may be detected by adding to a small quantity of urine in a test tube, a few drops of nitric acid, and then a small quantity of a solution of nitrate of silver.

A white flocculent precipitate at once falls, containing mainly chloride of silver, but also containing combinations of silver, with uric acid, creatinin, xanthin, and urinary pigments.

The average quantity of chlorine excreted in the urine in 24 hours is about 100 grains. It is increased by the consumption of salt and copious drinking of water.

The diseases in which we have the largest diminution of chlorides are all fevers and inflammations, except those caused by malaria.

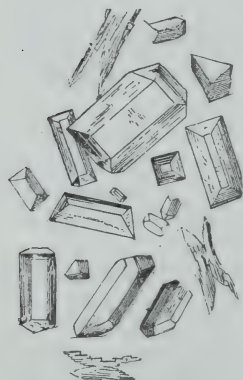
Sulphates.—The sulphates which are found in the urine are derived from the breaking up of albumen, either that of the tissues, or that which is contained in the food. Sulphuric acid exists in the urine in two forms; either in combination with the alkalis, or in the form of aromatic ether-sulphuric acid. Both of these aromatic bodies, when heated with hydrochloric acid, break up into phenol or indigo and sulphuric acid. Acetic acid does not cause this decomposition.

To detect sulphates, acidulate a portion of urine strongly with acetic acid, then add the chloride of barium in solution, then there will be immediately precipitated the sulphate of barium, representing the sulphuric acid, which was combined with the alkalis.

The amount of sulphuric acid passed daily is about 30 grains. It is increased and diminished according as more or less albumen is broken up, and therefore corresponds with the quantity of urea and uric acid, both in health and disease.

Phosphates.—In normal acid urine phosphoric acid is met with in the form of phosphates of the alkalis, sodium and potassium, and calcium and magnesium. It may appear in the form of glycerin-phosphoric acid and lecethin. About 50 grains of this acid are eliminated in the urine every 24 hours. It is enormously increased in all nervous diseases and also in morbid states of bones; much diminished in all fevers and inflammations, and excessively so in pneumonia and interstitial nephritis.

When the urine loses its carbonic acid by being heated, the earthy phosphates separate out as a white flocculent precipitate, which becomes re-dissolved on the addition of acid. The addition of ammonia to urine causes an amorphous precipitate of the phosphate of lime, while the phosphate of magnesium unites with the ammonia-magnesium-phosphate (triple phosphate), which appears in a crystallizable form.



Triple phosphate.

Phosphates in the urine represent the precise amount of tissue

change or waste of brain and bone ; in other words, they are but the ashes of the nervous and osseous system. In chronic bone and nervous diseases the phosphates are increased excessively.

The food consumed has a marked effect, an animal diet giving rise to more excretion than vegetable. In constipation the earthy phosphates are much increased.

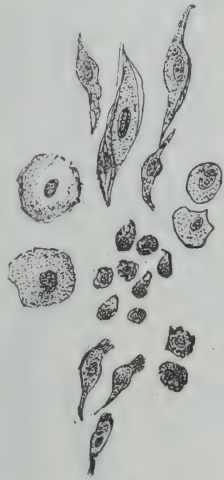
To estimate the quantity of phosphates, take a given quantity of boiled urine, say four ounces, then add a solution of nitrate of silver, which will precipitate the phosphates. Then either percolate through blotting paper, or evaporate the watery portion ; the remaining powder, well dried, and weighed, will give the phosphates.

Epithelium.—The epithelial cells in the urine are best seen when stained with eosin or fuchsin. They may be derived from any portion of the urinary tract. The epithelium of the urinary tubules consist of round or polygonal cells, each having a large and sharply defined nucleus. Those of the pelvis of the kidney are conical, with one, or sometimes two tail-like processes. The large irregular pavement epithelial cells, which are often seen in the urine, come from the bladder or vagina.

Peptone.—The presence of peptone in the urine is in yellow atrophy of the liver, enteric fever, pneumonia, systemic syphilis, phosphorus poisoning, cancer of the stomach, and in abscess, phthisis.

The appearance of peptone in the urine is to be explained on the supposition that when it passes into the blood it does not undergo the usual change, and so reaching the kidneys as peptone, it is excreted as such.

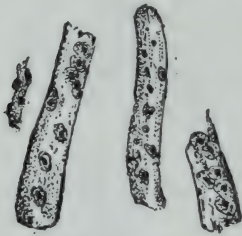
To detect peptone in albuminous urine, the albumen must be completely separated by means of acetic acid, boiling and filtration, and then by the addition of hydrated oxide of lead, the lead being subsequently removed by sulphuretted hydrogen. This process must be repeated until no trace of albumen can be detected by the ferrocyanide test. The peptone in the filtrate is then precipitated by means of a solution of tannin, the precipitate collected and washed, the tannin removed by means of the hydrate of baryta, and the baryta by means of dilute sulphuric acid.



Epithelium from urinary deposits.

Renal Tube Casts.—Before examining the urine for tube casts, a specimen should be allowed to stand in a conical glass for twenty-four hours, at the end of which time, a few drops of the sediment may be raised by means of a pipette, and examined microscopically. Staining with eosin will make the tube casts more distinct.

Renal tube casts are almost always associated with albuminuria, or Bright's disease, although they often appear when no albumen can be detected in the urine. They are, as their name implies, casts of the renal tubules, in the majority of cases of the convoluted tubules of the cortex. The chief forms of tube casts are the following:



Epithelial casts.

1. *Epithelial Casts.*—In these the fibrinous cylinder has become covered over with epithelial cells, which have been detached or exfoliated from the lining membrane of the tubule. These cells may be more or less cloudy and swollen. Such tube casts are peculiar to Bright's disease.

2. *Pus Casts.*—Casts containing in them pus corpuscles, are diagnostic of glomerulo-nephritis.

3. *Fatty Casts.*—Very frequently in fatty degeneration of the kidneys, do we find oil globules studded in the casts.



Fatty casts. $\times 250$.



Granular casts. *A*, large granular casts; *B*, small finely granular casts.

4. *Granular Casts.*—Dark opaque granular casts are also the result of epithelial degeneration in the renal tubules.

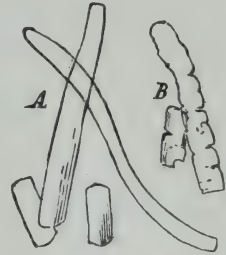
5. *Blood Casts.*—Many consist wholly or partially of blood; the corpuscles being closely adherent to one another, or fibrinous casts may be seen containing one or two blood corpuscles imbedded in them; such casts point to capillary rupture, as in acute nephritis.

6. *Hyaline Casts*, are structureless, transparent cylinders, having a tendency to fracture transversely, and are derived from

the fibrinous exudation which has passed through the degenerated walls of the renal vessels and coagulated in the tubules of



Blood casts. *A*, collecting tube blood casts; *B*, mucous casts.

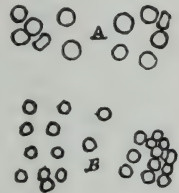


Hyaline casts. *A*, delicate hyaline casts; *B*, cense, so-called waxy casts.

the kidneys. Small hyaline casts are present in the incipient degenerative stage of Bright's disease, whereas, the larger casts are to be seen in the chronic form.

Occasionally hyaline casts may be found, which exhibit the amyloid reaction, becoming reddish brown on the addition of iodine, and dirty violet on the further addition of sulphuric acid; and giving a beautiful violet, with methyl green. Waxy and amyloid casts are more strongly refractive than the ordinary hyaline variety, and being less flexible, they exhibit deep fissures where they have been torn asunder in passing through the straight tubules.

Blood.—Blood may be found in the urine as such (hæmaturia) or blood corpuscles, or blood pigment may be present (hæmoglobinuria), and these two conditions are readily distinguished by the fact that in the former case blood corpuscles are found on microscopical examination, while in the latter they are absent. A very small quantity of blood in the urine gives it a peculiar smoky appearance. When blood is present in a larger quantity the urine becomes bright red or dark brown. Small quantities of blood are best detected by the microscope, but when no corpuscles or crystals of hæmatin are present, recourse should be had to the spectro-



Blood. *A*, Swollen red corpuscles seen in urine of low specific gravity; *B*, Crenated corpuscles from dense urine. $\times 250$.

scope.

In cases of hæmaturia it is important to ascertain from what point in the urinary tract the blood comes, and this is not usually difficult. The hemorrhage may come:

1. *From the urethra.*—The blood is mixed with the first portion of the urine voided—often being expelled as a long clot, and it continues to flow in the intervals of micturition.

2. *From the neck of the bladder*, or prostatic portion of the urethra. In this case, the blood usually appears at the very end of micturition, when the sphincter vesicæ begins to contract.

3. *From the bladder*.—The blood is usually coagulated, and is passed in clots as large as the calibre of the urethra will allow to escape.

4. *From the ureters*.—In this case, the blood often appears in the form of long worm-like clots, which are casts of the ureters.

5. *From the kidneys*.—When the blood comes from the kidneys, it is generally equally diffused through the urine, very rarely in large quantities; when the urinary sediment is examined, there are found tube casts, usually containing blood-corpuscles.

Hemoglobinuria appears in the urine in such diseases as purpura, scurvy, pyæmia, typhus, small-pox, etc. Results from a breaking down of the red corpuscles in the blood stream, and the consequent liberation of the hemoglobin they contain, when it escapes into the urine. In malarial germ-laden blood it is often periodic, its appearance ushered in with a chill.

Micro-organisms.—Living matter, degraded bioplasm, disease germs, or microbes, lower class of organism are found in the urine; passed in the urine as it leaves the body. In all diseases due to the presence of a micro-organism, as measles, scarlatina, variola, cancer, tuberculosis, syphilis, typhoid and other fevers, etc., the urine has a peculiar condition, termed bacilluria, in which it is opalescent when passed, from the enormous number of bacilli present. The reaction is acid, and when the urine has stood for some time, the microbes sink to the bottom of the glass, leaving the supernatant fluid clear.

Very rarely do we find the embryonic form of parasites which infest the blood present in the urine.



Spermatozoa.

Fully-developed hydatids and echinococcus, or only portions of these, may appear in the urine, having been developed at some portion of the genito-urinary tract. The microbe of malaria, the sarcinæ and yeast plant of gastric catarrh, the former in the hæmaturia of malaria, the latter in fungous sugar urine.

Spermatozoa are occasionally found in urine. They preserve their normal appearance for a long time. If the urine be very alkaline, they may even be seen in active motion, but those movements are soon lost. Urine which contains spermatozoa becomes alkaline very rapidly.

Urticaria. Urticaria may be defined as an acute non-contagious affection of the skin, characterized by the development of wheals, and accompanied by sensations of stinging, itching and burning, like those produced by the stinging of a nettle.

(*Nettlerash.*) In the wheals of the eruption can be detected a bacterium, remarkable for its easy culture in acidulated beef-tea; so far it has not been proved to be pathogenic.

Nettlerash is remarkable for its variable and fugitive character, and for the great variety of circumstances and conditions under which it is developed. In all cases, however, the presence of wheals or some equivalent eruption is pathognomonic of the disease. The size, form and general appearance of the wheals vary greatly; sometimes they are no larger than a split pea, while at other times they may occupy a considerable extent of surface and cause much swelling of the skin. In typical examples they are round, raised and circumscribed spots, with a white centre and a reddish border, closely resembling the eruption produced by a nettle sting. In other cases they may take the form of streaks, ovals, or irregularly shaped patches; sometimes the only eruption consists of a diffuse erythematous-looking bright red blush; but whatever be its form, it is very evanescent and liable to appear and disappear almost suddenly, leaving no trace behind. In all cases the subjective phenomena are nearly the same, and consist in excessive itching, tingling, stinging, and burning sensations; sometimes the itching preponderates; at other times perhaps the stinging or burning sensations are the most marked, for like the eruption itself, they are subject to constant changes. The rash often appears with a sudden burst all over the body, while at other times it is developed more slowly and appears successively on different parts. The subjective sensations invariably cause the sufferer to scratch and rub the skin; this greatly aggravates the symptoms, and brings out fresh wheals wherever the finger-nails are applied, and in severe cases small excoriations and little spots of coagulated blood may be seen scattered about the skin as the result of scratching. The eruption is roughly symmetrical and may appear on any part of the body, but is most common on the trunk, face and upper extremity. An ordinary attack of urticaria may last from a few hours to several days, but always with partial remissions and exacerbations; it is usually associated with very slight febrile disturbance. It must not be forgotten that the mucous membrane sometimes participates in the changes which occur in the skin; this is especially the case about the fauces and throat, which become suddenly swollen, so as even to threaten suffocation.

The circumstances under which urticaria is most likely to occur require a brief notice, as having some bearing on diagnosis. (1) It is extremely apt to complicate other irritable affections of the skin, such as scabies, phthiriasis, prurigo, and eczema; this is especially the case in children, who are more liable than adults to this affection; the production of nettlerash under these circumstances is due to a reflex nervous action set up by scratching. (2) Urticaria produced by the irritation of some part of the mucous tract is not uncommon, and belongs also to the group of reflex nervous actions. We often meet with examples of this kind dependent on uterine irritation from pregnancy and other causes; also in children who suffer from worms. (3) The bites and stings of poisonous insects and the hairs of stinging plants will produce in some people pretty severe local attacks of urticaria, so that the face or arms become much swollen and very painful. (4) Certain kinds of food are apt to produce nettlerash; amongst these may be specially mentioned shell fish, mushrooms and many kinds of fruit; but in these cases much depends on the idiosyncrasy of the individual. (5) There is a nervous form which occurs in individuals whose nervous systems are utterly broken down. (6) Certain drugs give rise to it as copaiba, capsicum, turpentine, cubebs.

In its diagnosis great care must be exercised so as to assign it its proper type—a great variety of forms, as urticaria papulosa, lichen urticatus, purpura urticans, urticaria vesiculosus.

Urticaria may take the form of simple, roundish, red patches, or it may be white, or a buff copper color.

Urticaria is undoubtedly associated with a weak digestion and mal-assimilation of food; in its treatment therefore, our attention should be specially directed to a suitable diet. As a rule, fruit, vegetables, pastry and sugar should be avoided, together with any other food that seems to produce indigestion; the sufferer should, in fact, adopt the simplest form of a plain and nutritious diet, such as milk, meat (once cooked), toast or bread, light puddings and cocoa. Wine, beer, coffee and most other stimulants should be avoided, but in some cases a little weak brandy and water may be required, and is the form of stimulant which is generally the most suitable. No rules as to diet can be laid down which are applicable to all cases; it is only possible to indicate the general plan of dietetic treatment; the idiosyncrasy of the individual must, of course, be studied. For example, with some people milk always disagrees, and it would be the height of folly under these circumstances to insist on a milk diet with a view to improve a weak digestion. The conditions of the teeth and the proper mastication of food, regular and suitable exercise

and a sufficient amount of rest, are all points that demand attention. With regard to medicines, those are most useful that promote the processes of digestion, correct an excessive secretion of acid, and prevent an unhealthy decomposition of the food. By far the most generally useful is a mixture containing bismuth, carbonate of magnesia, bicarbonate of soda, and small doses of nux vomica taken before each meal. Sometimes small doses of Fowler's solution with alkalies do great good, chiefly by improving the powers of digestion. Nux vomica and carbohc acid pills are occasionally useful.

A large proportion of the cases of urticaria are distinctly of neurotic origin, indicated by other disturbances of the nervous system. This especially applies to that form which recurs at a fixed hour in the day, and which sometimes replaces an attack of neuralgia. Quinine and tonics are both useful in dealing with urticaria of this kind, but thorough change of air is of all remedies the one which is most certainly beneficial. The malady is, however, often very obstinate.

Acute urticaria of the ordinary kind is generally produced, by poisoning from shell-fish, fungi, or some other poisonous food. Under these circumstances it is often associated with vomiting and diarrhea, which relieve the most serious symptoms. The best treatment in these cases is free purging and a simple emetic, if the latter can be administered soon enough to remove any of the offending matter from the stomach; this treatment is particularly applicable to children, who usually bear emetics well; followed with resorcin, or naphthaline, or with 24-grain doses of salicylate of sodium, every two hours.

Acute febrile urticaria is a rare affection, and occurs without any assignable cause except perhaps some severe shock to the nervous system; it should be treated by rest in bed, a light unstimulating diet, mild saline purgatives, followed by tonics, especially quinine. As the suffering is very considerable, soothing external treatment must be adopted; warm alkaline or bran baths, and alkaline and sedative lotions are the most useful. Very severe symptoms sometimes occur in consequence of the sudden swelling of the mucous membrane of the throat; when this happens, a sharp quickly acting purgative is always indicated.

Lichen urticatus, which is a form of urticaria almost confined to children, is a most troublesome affection to deal with. In many cases it does not in any way yield to treatment; the affection, however, usually dies out in a few years. The most generally useful medicine, I find, is carbonate of magnesia and soda with a little bromide of potassium; the bowels should be

kept open and the diet carefully regulated; soothing lotions should be applied to the skin, and amongst the many that have been tried, one containing bicarbonate of soda and hydrocyanic acid dilute is excellent.

Among the myriad of remedies for those troublesome affections, we have no other which affords such complete and instantaneous relief as a solution of menthol. Not only is the itching relieved for a time, but a cure seems to be effected. In pruritus and in eczema, moistening the parts with menthol solution causes an immediate cessation of the pain. The solution should contain from two to ten grains of menthol to the ounce of water.

Vaginal Medication. Vaginal alimentation has been thoroughly tested, and the absorbing powers of that canal have been proven to equal that of the rectum. Suppositories containing various animal and vegetable foods have been used, capsules containing peptonized foods have been introduced into the vagina at regular intervals, and it is asserted by the experimenters that the results were better than when the same foods were introduced into the rectum.

Moreover, the vagina has many advantages over the rectum. The necessity of an alvine evacuation every day, a tight sphincter ani, the presence of hemorrhoids, an irritable rectum, render the vagina less objectionable as a receptacle for food or medicine than the rectum.

The absorbents of the vagina are much nearer the uterus, ovaries, and other tissues connected with the genital apparatus than the stomach. Physiologically, all medicinal substances ought to act more promptly on the pelvic organs when placed in the vagina.

In my gynecological practice for nearly twenty-five years, I have practiced applying to the uterus and vagina the remedy indicated by the symptoms and condition of the organs affected. Whenever I could induce the patient to allow the proper application of such remedies, or apply them herself, I have found the curative process to proceed much more rapidly than when medicines were given by the stomach. Some medicines when applied in the vagina to the os and cervix, will act as quickly as when given hypodermically.

To those not accustomed to observe the action of medicines applied per vagina, I will say that I have repeatedly observed the general temperature to fall 2° in as many hours after the application to the os uteri of a tampon wet with aconite 2x dil. I

have seen severe uterine pain relieved quickly by the local use of belladonna 3x dil., and uterine spasm by the use of cannabis indica, ergotin, hamamelis and sabina. Cinnamonum will arrest chronic hemorrhage as soon or sooner when topically applied. I have arrested the violent vomiting of pregnancy with tampons moistened with ipecac, cocaine, bromide of soda and ozonized iodine, when they had failed otherwise. Every gynecologist has observed when applying iodine, carbolic acid, iodoform, argentum nitrate and mercurial agents to the os and cervix, that the woman has complained or observed the *taste* of these agents immediately. I have known the mouth and tongue to become dry and the pupils dilate in one minute after the application of a too strong lotion of belladonna or atropia to the cervix.

Innumerable instances could be mentioned proving the rapid absorption of medicinal agents into the *general system*, when placed in the vagina. By this method we can sooner get the tonic and hæmatic effects of iron, manganese, aurum, argentum, hydrastin, cinchona and quinine as well as cod liver oil, cocoa and other nutrients.

This consists in dilatation and a convoluted state
Varix. of the veins, due in most instances to an obstruction of the current of blood towards the heart. It occurs very often in the lower part of the rectum, where it constitutes hæmorrhoids; and in the affliction known as varicocele, the veins of the testicle are thus affected. The most frequent seats of varix, however, are the lower extremities, a condition being there established which is commonly termed that of "varicose veins."

In a well-marked case of "varicose veins" the inner surface of of the lower limb, from foot to groin, is studded with a number of soft, bluish swellings, varying in size and shape, and which are formed by a tortuous and dilated condition of the large saphena vein, which extends along the whole length of the limb. These swellings become more prominent when the patient stands up, or after constriction of the knee or thigh. The skin covering the tumors is generally thin and distended. This condition gives rise to stiffness and aching pain in the affected limbs, and even slight exercise is soon followed by a sense of fatigue. The skin about the ankles is puffy and is marked by purple patches of small veins, arranged in an arborescent form, etc. The feet are generally cold, and the toes of a bluish color. The skin of the leg is generally dry and itches very much; it is very often red and inflamed, and the seat of an eczematous eruption. In old people, and in cases where the varicose condition is of long stand-

ing, large ulcers may form on the lower third of the leg, constituting the so-called *varicose ulcers*. An occasional serious result of varix is thinning and giving way of the skin over a distended vein and hemorrhage, which, so long as the patient remains in the erect position or allows the leg to hang down, continues, and may speedily become fatal, but which may be readily arrested by placing the patient on his back, elevating the limb, and applying slight pressure with a pad of lint and a bandage over the bleeding point.

The predisposing causes of varix are an inherited tendency and debility, due to old age, over-work, or long illness. It is believed by some that the distension of the veins is occasionally preceded by a gouty condition of the blood. The chief exciting cause is obstruction to the venous circulation applied either directly to the lower limb, as in the case of wearing tight garters, or indirectly, as in disease of the heart, congestion of the liver, or constipation, with overloading and distension of the large intestine. Varix may be caused by the pressure upon the veins of the pelvis of tumors, or of the pregnant uterus. Pursuits necessitating much standing or walking very often give rise to the affection. It has been stated that cooks and soldiers are the people most especially prone to the formation of varicose veins.

In all cases of varicose veins, an effort should be made to strengthen the whole body; tonics, best of diet, rest. The patient should avoid as far as possible the standing posture.

When the veins of the limbs are affected, they should be bathed every night, well rubbed and then the ozonized extract of witch hazel rubbed well in and permitted to dry.

In the morning the same proceeding is gone through, and before the affected individual is permitted to get up, either the limb should be bandaged from the toe to the groin, or else an elastic stocking should be applied. If this does not cure it will at least prevent such complications, as eczema, ulceration.

The essential elements of all sound treatment are to strengthen the various tissues of the body by every possible means; the most generous diet, massage, electricity, change.

The internal as well as the local exhibition of hamamelis is of great utility.

Indeed the witch hazel in alternation with cinchona and avena sativa form about all the reliable remedies for varix, and they should be perseveringly given.

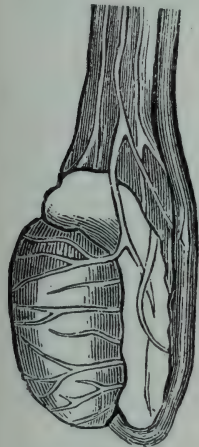
Many operations have been recommended for the purpose of producing permanent obliteration of the distended veins. Of these none of them can be recommended as safe or reliable. Neither ligation nor sutures are of any real permanent benefit.

A condition of varicosity of the veins of the spermatic cord, usually of congenital origin, resulting in or associated with deficient development, or functional imperfection of the corresponding testes in the majority of cases. The varicose condition is always well marked, and is altogether, from that temporary fullness which may from time to time occur in the spermatic veins of any healthy individual from intro-abdominal pressure.

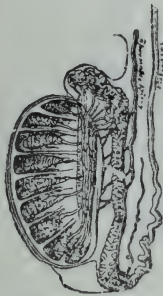
In the large majority of cases the affection is only on the right side; in a certain number of cases both sides are affected. When limited to the left side, the disease may be the only evidence of varicosity in the body, when it occurs on both sides, there is usually more or less varicosity of the veins of both lower extremities.

The causes then of varicocele may be inherent weakness of organization, direct or from maternal impressions during intra-uterine life, or masturbation prior to and subsequent to puberty, or for indiscretion of the newly married, or men advanced in years who push their failing powers too far.

The sexual appetite—the faculty to perpetuate the species is impaired by work, by suffering, confinement, sedentary habits, worry and care—anything that tends to wipe out the typical fissures of thought—as alcohol, tobacco, opium and chloral; any element of partial death will give us varicocele, with undeveloped or wasted or mis-shaped parts, as twisting or curving, with a perfect



Natural testicle.



Section of healthy testicle.



External appearance of the parts in varicocele.

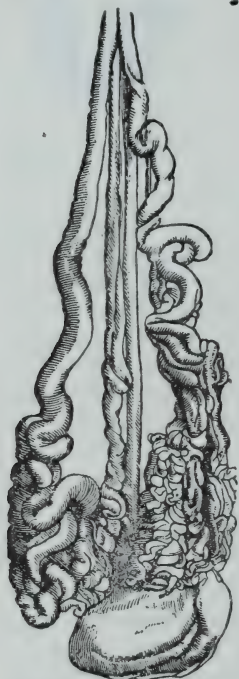
perfect avalanche of nervous symptoms.

Varicocele, a dilated, tortuous, relaxed, knotty, hard condition of the veins of the cord, feeling like a bag of worms, dilate on coughing, diminishes or disappears when the afflicted individual lies down, gives rise to burning, aching in and along the cord and testicle, great dragging in the back with partial or total impotency, great nerve prostration.

The habit of masturbation is very damaging, of most disastrous effect upon mind and body, producing a mental and physical wreck, must be discarded before any treatment can be effective or a debilitated organ restored to its integrity.

Varicocele invariably gives rise to seminal weakness, nervous exhaustion, shattered mind and body, wasting of testes, and latent spermatorrhœa, as weeping, draining of life (without erection or pleasure) in the urine. This very loss, this abnormal waste causes the organs to waste still further, until perfect atrophy ensues. One testicle, generally the left, at first becomes soft and

flabby, and both become similarly affected. A testicular waste or atrophy soon becomes identical with castration, but more disastrous to the mind. The reflex state of dwarfage of the genital organs gives rise to greater despondency, deeper despair, more profound gloom and mental disorder.



Varicocele, the result of masturbation after puberty.



Varicocele, the result of masturbation before puberty.

In the cure of varicocele, the irritable condition of the seminal vesicles, and seminal losses, must be got rid of, sexual vigor restored, and a speedy positive cure established. There must be a general appreciation of the true physiology of the reproductive organs.

The entire profession keenly appreciate the tincture of the green

root of gelsemium and the ozonized extract of black willow in the cure of varicocele—the former a genital sedative of the highest order; the latter, one of the most profound sedatives and astringents to the spermatic ducts and veins of the cord, it contracts, soothes. For varix within the range of the genito-urinary organs the black willow operates well.

All members of the profession are agreed on the utility of well-regulated secretions, local baths, local application of witch-

hazel, and mechanical support with a suspensory bandage, bathing with the ozonized extract of witch-hazel, and a general alterative and tonic course of remedies.

No remedy ever presented has been so favorably received by all members of the profession for the cure of all weaknesses of the generative organs as the saw palmetto—the sales of this drug have been immense, and the most satisfactory, unprecedented success has attended its exhibition. It has been thoroughly tested and extensively used, and as an exciter of glandular growth found to be unexcelled.

Nearly all cases of varicocele are associated with seminal weakness, emissions or leakages, due to irritation of the prostatic portion of the urethra and an inflamed or relaxed state of the ejaculatory ducts; these must be checked, blotted out by use of the cocaine suppository or a urethral bougie. Physiological rest should be obtained, so as to allow the parts to regain their tone and normal strength, and all unnatural losses of leakages arrested before a cure can be effected.

As soon as this is accomplished, the patient, dilapidated and a wreck, should be placed upon those great brain essences or fertilizers kephaline and phosphated tincture of oats; then the dilated and sagging veins become emptied, the testes begin to grow larger, the parts regain their tone, strength, contractility. Relief is prompt with such remedies.

Vascular Excrescences and Erectile Tumors of the Female Urethra.—These are mostly composed of bunches of capillaries, distended and varicose, covered with a highly sensitive mucous membrane, are essentially warts. They are generally met with at the orifice of the urethra, and extend back a little distance. They grow in size, extend in numbers, become exquisitely sensitive, cause great untold agony to many ladies, so much so that the reflex effect of it breaks down and shatters their nervous system.

Severe, often acute and prolonged pain accompanies micturition; the suffering is often protracted after the act. Pains pass back into the rectum, cause straining and bearing down, so that hemorrhoids soon appear.

The uterus suffers; there is often a constant congestion of the organ, owing to reflex irritation. The bladder symptoms are apt to overtop all others. The irritation extends up from the urethra, causing bladder tenesmus, sometimes retention, then frequent desire to pass urine, of which but a few drops are passed. The pain attending the act is often fearful.

Treatment.—The first thing to be done is to quiet the irritability of the urethra and anesthetize the mucous membrane and

the growths. This is best accomplished by applying a 10 or 20 per cent. solution of hydrochlorate of cocaine, then apply the *thuja occidentalis*. Give the same remedy internally. This is superior to all known agents as a local and internal remedy to those painful erectile tumors at the orifice of the urethra.

Whenever sexual intercourse is loose and varied, few women among many men, there takes place a change, an alteration or degradation of the living elements concerned in the nutrition of the genital organs of both sexes into a diseased germ. This change in the embryonic cell or primary elements of nutrition is the direct result of a violation of natural and divine law. This degradation of biophasm may result in the evolution of an immature or perfect germ. This naturally leads to the description of the venereal disease under two distinct divisions—the *immature*, imperfectly developed germ, which, when applied or deposited on any mucous membrane, especially that of the urethra or vagina, will give rise to a specific form of inflammation, with a profuse muco-purulent discharge, or if applied to a crack, or fissure, or abrasion, will cause follicular inflammation, or soft, non-infecting chancre or sore; whereas the *mature* germ, the perfectly formed microbe, may localize, by aggregation, in the urethra, or vagina, and give rise to a very slight inflammation with a scanty muco-purulent discharge, or if there be a crack or a fissure on the external parts, and the germ-laden pus applied to it, will produce a sore or chancre, with a hardened base, from which focus, the point of induration, a germ-breeding colony, the germs will enter the blood, causing a disastrous destruction of the red corpuscles, the life of that fluid, and grow there with less or more vigor according to the degree of vital force.

The *immature* germ is a microbe of low potency, and although capable of exciting violent inflammation in the urethra or vagina, and causing a non-infecting chancre, which, in conditions of filth and insanitary states, may assume a phagedenic state; still, the germ never enters the blood, even if the individual has it a hundred times. The germ is so immature that it will not grow in an alkaline fluid like the human blood; and if it is not interfered with, will die out in a few weeks; whereas the *mature* germ, the microbe of syphilis, the perfectly developed germ, whether it finds access to the urethra, and there gives rise to a pock, or a crack, fissure or abrasion anywhere on the skin, invariably enters the blood.

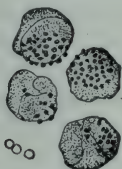
The growth of the true syphilitic germ in the blood depends

altogether on the degree of vital force he possesses; if vital force is good, its fecundation and growth may be retarded—that is, it will remain latent; but if vital force be slightly deteriorated, it will grow; and if vigor be low, it will grow with rapidity. Nothing can be more disastrous than the contraction of the disease from an opposite and distinct race of men or women.

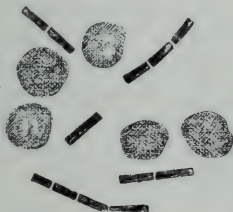
As the venereal disease has been described and spoken of under the terms primary, secondary and tertiary stages, these terms must now be discarded, for the discovery and elucidation of the disease, as being due to a living microbe, renders the use of such terms absurd and meaningless under the science of modern medicine. The living syphilitic germ can enter the body in many ways, as by towels, drinking vessels, breath, sweat, saliva, kissing, close contact, as in sleeping; through air, water, milk, clothing, cushions, articles handled in ordinary use, from parent to child, neither primary nor secondary states existing.

Just let the germ enter the blood in any way, so it reaches the true skin, and it will grow and multiply in weakened tissues or gland with a slowness or rapidity according to the status of vitality of the individual.

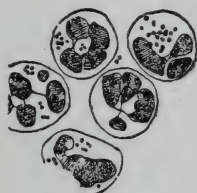
Gonorrhœa.—This is essentially a specific form of inflammation of the mucus membrane of the urethra of the male, or vagina



The Micrococcus of Gonorrhœa, 12 hours after sexual congress with a woman afflicted with gonorrhœa, magnified 750 diameters.



Microscopic diagram of the gonococcus and the germ syphilitic in the same patient. The cocci are the gonococcus of a soft chancre; the rods in section, the embryonic germ about to split up in curved microbes, true cryplica syphilitica. Taken from the discharge of an infected female. Magnified 750 diameters.



The Micrococcus of simple Gonorrhœa, due to the immature germ of a soft chancre, from 24 to 48 hours after coition, magnified 750 diameters. Within may be seen several forms of fission of their nuclei, and micrococci moving in the protoplasm. (magnified 600 diam.)

of the female, caused by the gonococcus, or immature germ. It usually makes its appearance in from forty-eight to seventy-two hours, sooner or later, after a suspicious connection or exposure to the germ-laden virus.

As men and women have numerous other discharges, the microscope should be brought to bear upon all doubtful cases.

The above beautiful microscopic diagrams of the gonococcus in different stages of microbial existence are worthy of

serious attention. Interspersed through those germs we have the streptococcus pyogenes, pus germ, which has been completely isolated and removed.

The gonococcus, cocci, singly, in pairs, groups. They are found in great abundance in the muco-purulent discharge from the urethra, in the pus of a soft chancre and buboes. The microbe bears cultivation well in nutrient broth, and the pathogenic character of the cocci is established beyond all doubt by inoculation.

Symptoms.—The presence of the gonococcus in a healthy urethra or vagina gives rise to the following: The first manifestation which attracts attention is a tickling, burning or smarting sensation at the orifice or at about three-quarters of an inch within, upon its under surface. On examination, the meatus is found to be of a pinkish color, slightly swollen, and between its lips may be seen a drop or two of mucus, as the germs multiply rapidly. Pain and smarting in urinating become decided, discharges increase in quantity, become thicker, muco-purulent, change to milky hue, then yellowish or greenish, often streaked with blood. The pain in urinating increases, the meatus becomes highly inflamed, swollen, contracted in calibre, the glans penis, and the whole extremity of the organ becomes reddened and enlarged. The prepuce may become affected, swollen, puffed up by infiltration of the products of inflammation into its cellular tissue, that it may be impossible to cover the glans, or it may be swollen over the head and it may be impossible to retract it. Pain is experienced all along the urethra, sensitive to pressure. An increased desire to urinate is felt at all times, and the act is accompanied with difficulty and extreme suffering owing to the swelling of the urethra. The act of micturition is described as if molten lead was passing. Extremely likely to be attended with chordee, a bent or crooked condition of the penis during an erection; painful erections along the urethral canal; pain in the back, groin, perinæum, fever, aching in the testicles.

In four or five weeks, without treatment, there is a gradual subsidence of the acute symptoms.

In order to constitute a gonorrhœa, the characteristic microbe must be present and detected in or on the mucous membrane, in the discharge. In the male this is never difficult, but in woman there are numerous bacilli and cocci which are satellites of that micro-organism which render a diagnosis more obscure.

There is, so to speak, a conglomeration of germs usually present in the female vagina when the gonococcus is present. Indeed, the female genital tube is a true, natural incubator, favorable to the most luxuriant growth of germs. A bacterioscopic

examination is imperative in both sexes, so as to detect the microbe. Such a proceeding aids diagnosis, prognosis and treatment.

Although the gonococcus is an immature germ,—never enters the blood,—still its presence either in the acute or chronic form operates disastrously upon the genitals of both sexes, giving rise to impotency and sterility.

The formidable prevalence of the gonococcus demands the strictest surveillance over prostitution.

Diagnosis of a gonorrhœa in a woman, the gonococcus must be present, and there must be pelvic trouble, her general health suffering to an extent not explainable by the slight changes observed in the sexual organs. She has a purulent discharge, not depending upon the presence of an existing erosion, sarcoma, or carcinoma; or there may be a scanty glairy discharge from the bright red, eroded cervix. There is a catarrh of the ducts of the vulvo-vaginal glands. Small acuminated condylomata are seen around the vaginal outlet; there may be a ring of them just above the anal orifice. Granular vaginitis is present. Evidences of peri-salpingitis, or ovaritis, the latter being of the glandular variety. It is essentially important, that several or all of these symptoms should be combined; a single one has no diagnostic value whatever.

Of all forms of venereal disease, originating in sexual intercourse, the above is the most common.

In the other form of gonorrhœa, the infecting form, that due to the microbe of syphilis, the *mature germ*, there are few of the above symptoms present,—usually a slight muco-purulent discharge in the morning. The entire urethra is not affected, simply a small area, in the lower aspect of the canal—an ulcer or chancre at the neck. In this form there are few complications, except chordee. The great trouble with this form is syphilitic germ disease of the entire blood.

Treatment of Gonorrhœa.—Since the recent discovery of the germ origin of gonorrhœa, the treatment has been somewhat modified. If a case is seen early before the discharge has become muco-purulent, an effort should be made to abort the germ evolution in the urethra. For this purpose the patient should be instructed, after every urination, to inject the urethra with the ozonized distillation of the eucalyptus, in the proportion of one ounce to four of water. This might be repeated for twenty-four hours after every micturition, and at night before retiring, a soluble gelatinized germicidal bougie, composed of either thallin, or three grains of iodol to each bougie inserted. If this is performed early enough, the gonococcus is killed; even if it is the true syphilitic germ it is likely to be sterilized.

The aborting or stamping out of a gonorrhœa may be effected as follows: It consists in irrigating the urethra with large quantities of a tepid solution of boroglyceride or creolin, and repeating the procedure three times a day. It is best effected by a fountain syringe; patient seated upon the edge of a chair; syringe elevated four feet above the pelvis, rubber tube same size as number six catheter, passed to the deep urethra, and let current flow, it passes out outside of the catheter, causes no irritation whatever. In nearly every case in which this is tried, the microscope has shown no micrococci to be present, but it is best to continue the irrigation, as the germ is often imbedded in the lymph spaces of the mucous membrane.

In some cases it is worthy of a trial.

If this abortive treatment is not successful, in arresting the entire germ colony in the urethra or vagina, then a regular systematic course must be resorted to and persistently pursued.

In beginning this treatment, the patient must be carefully instructed to have his bowels opened every morning with some saline, such as the following mixture; sulphate of magnesia, one ounce; bitartrate potassa, two ounces; nitrate potassa, one drachm; water, six ounces. Mix.

A tablespoonful or more added to a glass of water first in the morning. This will keep the urine alkaline, obviate the presence of an overloaded rectum, overcome the local congestion, lessen the pain in urinating. He should also be cautioned to avoid all active exercise, such as prolonged walking or riding on horseback, dancing, etc., and as much as possible to sit or lie down. No doubt the best position is the bed, in the recumbent posture, as the erect posture favors congestion of the parts. This may be impossible, but a partial compliance may be effected. All sexual excitement while suffering from the disease must be avoided. The diet should consist of articles, that will not engender acidity; salads, hot dressing, mustard, pepper, asparagus, gross food like pork, together with all alcoholic and malt liquors, must be positively forbidden.

Frequent ablutions, are an important part in the management.

The patient should be directed to bath the parts morning and night, or more frequently, in hot water, and to immerse the penis and testicles in it for five or ten minutes at a time. If the parts are much swollen and painful, the patient should be instructed to wear a T bandage, and by means of that and a handkerchief keep the organs properly supported, so that they do not hang loosely.

Various methods of treatment are resorted to and pushed with less or more activity, all having but one object in view the destruction of the germ.

This being so, all remedies used, internal or local, should in the highest degree be of the most germicidal character, and the internal ones of utility are those not used up in the process of digestion, such as kava kava, copaiba, oil of sandal wood, resorcin, petroleum; these exert an antiseptic action on the mucous membrane of the urethra, in the urine in form of infinitesimal molecules come in contact with the germ, unite with it and destroy it.

Formulæ for killing the gonococcus in gonorrhœa.

Comp. syrup stillingia, four ounces; tincture of kalmia, one ounce; balsam copaiba, one ounce; oil of sandal wood, two drachms; oil of peppermint, thirty drops. Mix. Shake well before taking. Dose, one teaspoonful every four hours.

Balsam copaiba; sweet spirits of nitre, of each one ounce; mucilage of acacia, two ounces; tincture of opium; tincture of iodine and tincture of lavender comp., of each two drachms. Mix. Dose as above.

Mucilage acacia, four ounces; oil of cubeb; oil of sandal wood, of each one ounce. Mix. Dose as above.

Comp. syr. of tolu, four ounces; oil of sandal wood, one ounce; spts. nit. ether dulc. Mix. Dose as above.

Kava kava paste or pill.

Comp. syr. tolu, fl. ext. kava, oil of sandal wood, equal parts. Mix. Dose as above.

One of the above should be selected, the one which the physician deems best suited to destroy the germ; have the best healing and modifying action upon the irritated or ulcerated mucous membrane. The use of some such remedy in all stages of the disease is attended with advantage. *They are useful remedies, and should not be omitted.

The use of the gelatinized urethral bougies, highly ozonized, is to be recommended in all cases. They are prepared from various ingredients all of a powerful antiseptic character, capable of killing the gonococcus and healing the abraded mucous membrane. They are prepared from hydrastis canadensis, iodol, resorcin, thallin, and numerous other agents, incorporated in a plant of glycerine and gelatine. When a bougie made of any of the above ingredients is inserted into a germ-laden urethra, it immediately commences to dissolve, and the medicating ingredient with its peroxide of hydrogen causes the microbe to die, and heals the abraded surface. As time—from twenty minutes to three-quarters of an hour—is required for the complete solution of the bougie, a gradual prolonged and continuous action of the remedy is maintained, and during that time it does its work well. It causes no pain in its introduction, it separates and distends the walls of the urethra; penetrates into every sinus, every follicle or

fold. As the germicidal properties of the bougie penetrate in all and every direction, killing the germs as fast as evolved, and healing.

The advantages of these bougies, are, they are thorough in their action, prompt in their effect, affording a speedy cure in all cases. They prevent the formation of stricture, relieve chordee, and will effect a cure without any other treatment, in all stages of the disease.

Gleet.—In this we have great debility of the mucous membrane of the urethra, either from long-continued inflammation or inherent weakness, with a glairy, weakening discharge, like the white of an egg, or it may be milky or watery, without any symptoms of inflammation. The discharge may be quite little, a drop or two, or even very profuse.

It is most important in all cases of so-called gleet to be sure that there be no stricture, no prostatorrhœa.

Then pursue a tonic course of treatment, either administer internally compound tincture matricaria alternated with ozonized iodine, or iron and quinine alternated with salix nigra.

Urethral bougies of iodol, hydrastis, have an excellent effect.

Urethral Catarrh.—Patients will sometimes return after a subsidence of all the symptoms, when they are apparently well, complaining that the discharge has returned, probably owing to some indiscretion, as prematurely, having sexual congress, or causing their urine to become acid by the use of malt liquors, etc.

On examination of these cases there is found a slight watery discharge, probably most in the morning, or merely a drop or two, once or twice a day; no pain in urinating, simply due to debility, a sort of lack of tone in the capillaries of the mucous membrane of the urethra.

General tonic and alterative course; compound saxifraga and phytolacca, compound tincture matricaria, avena sativa.

Stricture.—When the case is permitted to run along for several weeks or months there is very apt to be deep-seated damage done by the inflammation or by the remedy administered; lymph is often effused from localized patches of inflammation that may exist; this lymph is generally effused on the inferior aspect of the urethra; it is thrown out either in a flattened piece, or in membranous bands across the canal, and if not promptly removed will form an impediment to micturition, cause the stream of urine to be twisted like a cork-screw, or forked, or like a thread or in drops. This continued obstruction gives rise to a leakage or discharge; if they are old, ulceration is liable to take place behind them; they invariably produce congestion of the prostate and prostatorrhœa, with functional impotence, invariably some leakage.

The correct treatment—gradual dilatation and absorption.

Chordee.—This is perhaps the most common complication of a gonorrhœa, when it is permitted to run its course; the gonococcus eats through the tissue, usually the inferior aspect. When the patient becomes warm at night in bed, owing to the existing inflammation, a great determination of blood takes place in the organ, powerful, painful erections; when these erections take place the penis becomes crooked or bent, in the form of a bow or arch. The complication gives rise to great suffering.

The best remedy for the purpose of paralyzing the erectile fibres of the penis is the green root tincture of gelsemium in the following mixture:

Camphor water, four ounces; bromide of potassa, half an ounce; nitrate potassa, two drachms; green root tincture of gelsemium, one ounce. Mix.

This mixture should be given in the afternoon, after supper and before retiring, in teaspoonful-doses, added to a little water.

The rectum should be washed out with ozone distillation of hamamelis, followed by a cocaine suppository. Sleep on hard mattress, in a cool room, avoiding all sexual thoughts.

Chronic Gonorrhœa.—As a rule, the gonococcus dies in from five to six weeks in an acute attack of gonorrhœa without treatment; with treatment, of a germicidal kind, a few days, or at least from a week to ten days, should be ample time to kill the germ and cure the patient. True, there are cases in which the germ may hold on, the discharge quite a good deal, re-aggravated by the slightest provocation.

Even indigestion, the slightest sexual excess, or ungratified sexual desire, the use of alcohol, cold, wet, over-exertion, will resurrect the gonococcus, give rise to more or less pain in urinating, with a rather profuse creamy discharge and other inflammatory symptoms.

The patient should be placed upon a general alterative and tonic course of remedies, embracing compound saxifraga and sandal wood, kava-kava paste.

The most common lesions occurring in chronic gonorrhœa are these: 1. A catarrhal inflammation localized in deeper parts of the urethra. 2. Papillary granulations resulting from hyperplasia of the mucous membrane. 3. Granular vegetations, or peculiar bloodless (or rather vesselless) protrusions, the degeneration ending in atrophy of the tissues. Every one of the three forms is accompanied by a mucoid or muco-purulent discharge, and may lead in course of time to the formation of strictures of varying size. The stenoses of extreme degrees are usually recog-

nized fairly easily. It is otherwise in cases of milder strictures, which frequently do not give rise to any marked symptoms beyond the so-called *goutte militaire*—that is, a morning drop of discharge arising from inflammation caused by stagnation of the urine behind a narrowed spot. Without a careful examination, such slight strictures may be easily overlooked, and our treatment accordingly prove a failure, since such means as routinary injections are powerless to remove the lesions of this kind. In view of the facts, Dr. Hobensack recommends the examination of every patient suffering from urethral discharge by means of a large-sized catheter. If the latter failed to pass into the bladder, a stricture is present. If the instrument passes with some difficulty, one of the three lesions mentioned above must be suspected. The best means for establishing a differential diagnosis between the forms is undoubtedly afforded by an endoscopic examination. The latter, however, requires a considerable skill and experience. In the absence of the conditions, the endoscope may be, to a certain extent, substituted by a bulbous catheter. In such cases, where the introduction of the instrument causes a strictly localized pain, and is followed by a few drops of blood, either the 1 form or the 2 must be thought of. In the absence of the pain, and bleeding, the cause of the urethral discharge is constituted, probably, in granular vegetations (the form 3). The treatment varies according to the nature of the cases. In those mentioned under 1 and 2, excellent results may be obtained from injections of ozonized distillation of eucalyptus. In cases of granular vegetations, soluble bougies of papoid. Strictures are best treated by a systematic dilatation of the urethra with metallic bougies.

Besides the two forms of gonorrhœa, men are liable to have numerous other discharges, all due to micro-organisms; sexual congress with females who suffer from intra-uterine catarrh, in which both the yeast plant amœba and sarcinæ are present, will contract a discharge in which these germs appear.

Congress with ladies during their menstrual flow, or with those affected with ulceration, will be likely to give rise to a discharge in which the bacteria, the factors of the irritation, are present, so with cancer, the bacilli of tubercle, etc.

Both forms of gonorrhœa are liable to have a train of complications or sequelæ in their acute and chronic stages; they exhibit features and characteristics of inflammation of mucous membrane, whatever germ be present. The germs travel back gradually, extending by continuity of surface, to the deep urethra, bladder, ureters, kidneys.

The Venereal Bacillus.
 (*The Pathogenic Microbe
 of Syphilis.*)

The venereal disease consists of two distinct germs, one immature, the other a full-fledged microbe. The immature germ gives rise to a gonorrhœa, and a soft, non-infecting chancre, but is too feeble to enter the blood and produce any havoc there. The immature germ gives rise to specific suppurative inflammation on both mucous membrane and skin; on the latter a well defined pock or pustule, with scooped-out edges, and an abundant secretion, and when you take it between your finger and thumb, it is soft to the feel.

In the treatment of this form of sore, since the introduction of so many germicides, caustics are avoided, and instead, this class of sores are promptly destroyed and healed by sprinkling on them iodol, or applying a wash of lime water and tincture of iodine, or any other good antiseptic, like the peroxide of hydrogen lotion. Whichever of these be used, they should be applied fresh every morning and night, until the sore is healed.

When this immature germ is inoculated on the prepuce or glans of an individual of a tubercular diathesis, the sore in which the germs are breeding take on a serpiginous or horseshoe appearance, owing to the tubercular bacilli and the venereal germ mingling, which gives us a true hybrid; one which cannot procreate, but is nevertheless most intractable to get rid of.

The iodine salts are the best remedies, painting the sore with a mixture of tincture of iodine and iodide of potass, in the proportion of half an ounce of the former to three drachms of the latter, about once a week; keeping iodol applied in the interim. Keeping the patient upon the comp. saxifraga, internally.

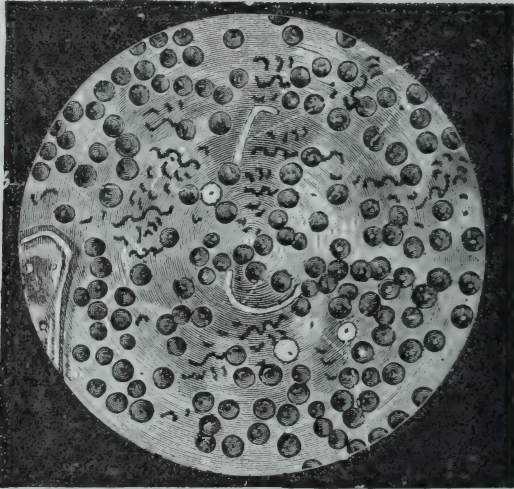
The non-infecting sores have a great tendency to suffer additional degradation if exposed to, or in close proximity to, insanitary states, such as overcrowding, filth, meagre, or unhealthy food, mercury, imperfect drainage, absence of sunlight, etc., the oidium albicans, evidence of the human rot, mingles with the immature, and gives us phagedœna, eating, sloughing condition.

Such cases call for prompt attention: apartments should be disinfected by the fumes of burning sulphur, greater cleanliness observed, removal of all nuisances, germicidal applications, as lotions of peroxide of hydrogen, boroglyceride, sulphur-water, fresh air, nourishing food, thorough hygiene.

The bacillus of syphilis consists of rods, very minute. Two or more ovoid points are visible in the course of the rod, which are spores. They are best observed from the secretion or discharge of the indurated chancre, or from the ulcers in the mouth.

When the blood is searched for them, they are, when present, found in the interior of the nucleated cells. The microbe is pathogenic of systemic syphilis. Bears culture well; reproduces itself in all red-blooded animals when injected subcutaneously.

The ptomaines excreted by the syphilitic germ are peculiarly toxic to skin, mucous membrane, bone, brain, lungs, etc. When the atmospheric electrical influences are low, germ breeds most actively. Thence the nocturnal pains in bones, etc.



The bacillus in syphilis as seen in the blood; the full-fledged microbe.

The mature, full-fledged germ, the true syphilitic microbe, wherever it reaches the true skin, a true secreting membrane, through a breach of mucous tissue, or cuticle, finds ingress to the human blood, its genuine pasture field, where it remains latent or breeds according to the degree of vital force present in the individual. There are numerous other channels of ingress into the blood for this germ, besides cracks, fissures, abrasions on the genital organs of either sex. It may come into our bodies from the germ-laden tissue of the affected by close contact, breath, kissing, clothes, bathing dresses; through food, especially milk and raw beef, and we might cite the case of professional tattooers, who often contaminate thousands of persons by their saliva.

In ordinary everyday life, the spread of this germ, either in the urethra, vagina, male genital organs, is generally through a scratch, or abrasion, or fissure of the cuticle or mucous mem-

brane ; in this crack, or fissure, the microbe breeds, forms a nest, or reservoir, from which the veins carry the germ to the nearest lymphatics, or blood-forming glands ; so fast, so energetically does the microbe breed, that the veins are unable to carry off the germs, so entire colonies remain at the point of inoculation, forming a ridge, or eminence, or induration of the sore. It is simply a mass of germs, an aggregation which feeds the blood. When those microbes enter the blood they are safe, their living particles find protection and nutrition there.

If vital force be maintained at a high standard, it will resist or retard germ evolution, and the microbe can be held dormant, although the individual

can at all times be transmitting the disease to others, especially to his offspring. Let vitality be low, depressed by any cause, then growth, active multiplication of the germ takes place ; the rate of germ growth and destructive metamorphosis being in proportion to the deviation from the standard of health ; and if there be any localized weakness in any part of the body, the microbes will congregate there and grow, giving rise, through the germ-laden blood, and reflex irritation, to obscure chronic disease of vital organs, as the brain, heart, lungs, bones, mucous membrane, skin.



Indurated chancre on the lip, the result of a kiss.

the body, the microbes will congregate there and grow, giving rise, through the germ-laden blood, and reflex irritation, to obscure chronic disease of vital organs, as the brain, heart, lungs, bones, mucous membrane, skin.

From the moment that the germ enters the body, till its death or destruction in the body, for it must die there, systemic syphilis is a contagious and infectious disease, whether it be latent or active. Suppose, then, that vital force is depreciated and the germ merges into activity and growth. Simultaneously with the entrance of the germ into the body, if vital force is feeble, or six months later, if somewhat stronger, or even years, subsequently, an indescribable train of symptoms make their appearance in no definite order. There may be languor, lassitude, debility, even fever. If the skin is feeble, the germ may appear there in some form or grade corresponding to the condition of vital force ; if mucous membrane be feeble, colonies of germs will settle there, giving us various forms of ulceration, but it has now blended with it the *oidium albicans* of aphthæ ; but on skin and mucous membrane it is easily recognizable in

the Caucasian by its copper-colored appearance and lack of sensibility; if the bones are feeble, the germs will lodge there, giving us periostitis with nodes; ostitis with necrosis and caries; they often find their way into the most delicate parts; one even can estimate or approximate their growth and their destructive action on the blood, by the degree of nocturnal pain in the bones, the tenderness of the sternum and enlargement of the post-cervical glands of the neck; they are never-failing criterions; the matrix of hair suffers an invasion, and the hair drops out. Tuberculæ are created, mucous tubercles or patches become common at points where skin and mucous membrane meet, lips, vulva, anus; often iritis, if vital force is greatly shattered, with deafness, and brain affections; in some cases, the onyx of nails are copper-colored, and often rot or crumble; ulceration of tongue, hard and soft palate, perforating ulcers, larynx, trachea; elevations and gummy deposits; caries and necrosis of the cartilage and bones of the nose, and in a large per cent. of cases the germ invades various vital organs, as the brain, spinal cord, lungs, heart, liver, kidneys, never appearing on skin or mucous membrane at all.

Treatment.—The first and most important consideration in the management of these cases is the care of the general health. The bathing of the entire body daily is a matter of great importance. Cold or tepid baths, either by sponging or immersion, followed by shampooing or massage, are of great utility. The clothing should be woolen, adapted to the season of the year, so as to give warmth. The diet should be generous, consisting of the most easily digested and nutritious articles possible.

The mouth, gums, and teeth should be well cleansed before and after meals, with a solution of boroglyceride, or comp. tincture cinchona, tincture of myrrh, or resorcin, added to water. Tobacco in all its forms must be rigidly forbidden, as it is decidedly injurious. The patient should sleep in a well-ventilated apartment, and alone, as his disease is pre-eminently contagious and capable of transmission to sound persons by close contact or by drinking vessels. Gentle exercise in the open air, selecting healthy locations, elevating amusements, the regular routine of business, unless it proves too exhausting, then change of scene. The mind should be kept cheerful, free from needless worry or anxiety, and all thoughts of their disease as much as possible avoided.

Malt and alcoholic drinks should be employed solely under the explicit directions of a physician.

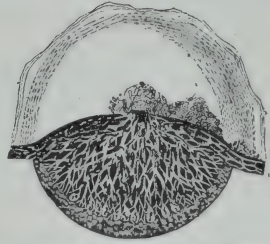
Infection.—The question of the possibility of several attacks of syphilis has long been settled. It admits of no discussion. An

individual may have attack after attack ; his blood never becomes sterilized to the ingress of brood after brood ; there is no immunity ; re-infection after re-infection is the rule.

A man or woman may each have an indurated chancre ninety-nine times, and each time it is a fresh syphilitic re-infection. The germs are there until they are absolutely annihilated.

Turning to the use of remedies employed in systemic syphilis, we may remark that there is no routine plan of treatment, no specific which can be advantageously used in every case. The remedies which are to be employed must be powerful germicides, and on the part of the physician, he must have experience, fine discrimination, good judgment, unusual professional skill to manage those cases.

The success in curing venereal cases, that is, destroying the microbe in the blood, does not depend on the largest amount or varied assortment of drugs, but in the tact and skill in their application in combating a most formidable disease. Preparations of mercury, iodide of potass, nitric acid, iron, quinine, are the great remedial agents for the destruction of the syphilitic

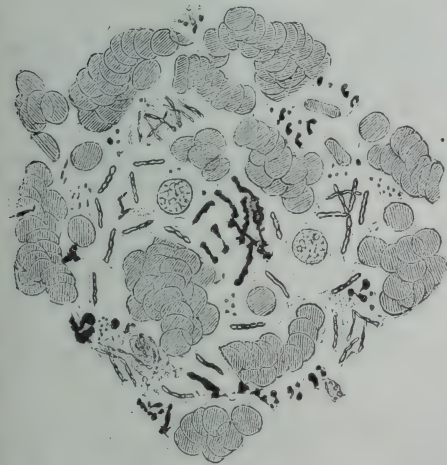


Venereal Microbe in the breast, caused by nursing a syphilitic child.

microbe ; these may be used to no purpose by one physician, whereas another, with greater tact, achieves the most brilliant results with them.

The vegetable preparations, stillingia, saxifraga, phytolacca, kalmia, dulcamara, iris versicolor, are slower, but fully as effective as the mineral agents.

But a microscopical inspection of the blood in syphilis is the best for diagnosis. This is positive, and demonstrates clearly to us that the germ is there, and how



The microbe of syphilis as seen in the inter-corpuscular spaces, from the blood of an affected individual, 1200 diameters.

numerous or how scanty they are. During a course of treatment under saxifraga, phytolacca, and other germicides, it emphatically

tells us how fast the disappearance of the germ takes place. The preceding diagram exhibits the syphilitic germs in the blood, active with life, hurrying hither and whither with the ceaseless motions of protoplasmic life. They appear as copper-colored bacilli in the blood.

Before proceeding to lay down a course of treatment for the destruction of the *microbe syphilitica* with remedies of acknowledged value, it must be borne in mind that no two cases are alike ; that there is the widest range between the most benignant forms of private practice to the most malignant type as seen in hospitals.

Mercury as a germicide stands to-day unrivalled as a remedy for the destruction of the syphilitic germ. Administered with skill, in a properly graded dose, immense advantage is often gained by its use, provided the patient gains in health, strength, and vigor ; but if salivation, stomatitis, fetor of the breath, spongy state of the gums, with inappetence, gastro-intestinal disturbance, be produced, more harm than good may be produced.

The least hurtful, and a form of great energy is the protochloride in the following :

Comp. saxifraga, four ounces . tincture of kalmia, one ounce ; iodide potass, two drachms ; bichloride of mercury, two grains. Mix. Dose, one teaspoonful every three hours.

The hypodermic injection of mercury is very popular and effective. The following is the formula in general use.

Hydrarg. bichloride, eighteen grains ; chloride of ammonia, eighteen grains ; chloride of sodium, one drachm ; distilled water, four ounces. Dissolve and filter, and add the white of one egg.

Our professional brothers should test the action of the compound saxifraga or the compound phytolacca, ozonized, or either combined, or as follows :

Compound saxifraga, ozonized, four ounces ; tincture of kalmia, one ounce ; iodide potassium, three drachms ; resorcin, one-half ounce. Mix. Dose, a teaspoonful thrice daily.

Watch the blood changes on the syphilitic germ, and later on the total disappearance of the germ from the blood, under this germicide.

Since the discovery of the venereal bacillus, there has been inaugurated a change from the older methods of treatment to one essentially of a bactericide character ; the change has been gradual and progressive, and to-day it is as simple and sensible as formerly it was complicated and senseless.

The very moment it is detected, treatment should be begun, and continued for some time after all symptoms have disappeared.

In this way it can be cured. It is not necessary to have an initial, as the microbe can enter the body in many ways without, as by close contact, breath, saliva, sweat.

If there is a sore, or pock, excision is regarded with favor by a few syphilographers as capable of preventing general infection. Others regard the initial lesion as a sign of general infection. The former position is hard to establish, as it is open to two objections: first, that it is impossible for the diagnosis of the initial lesion to be certain until later manifestations appear; and second, that it is impossible to be sure that the disease may not manifest itself after the usual period of observation. This part of the treatment of syphilis cannot, therefore, be considered as yet accepted. Again, as to the proper time to begin treatment, we say at once, Treatment early diminishes the intensity of the disease. There must be no inaction where this germ exists, as we have abundant means for combating it.

The Venereal Bacillus.
*(The Pathogenic Syphilitic
 Microbe in the Eye.)*

The bacillus of syphilis frequently localizes itself in the eye and on the lids. On the lids the microbe appears in three forms, primary lesion from a towel, or a finger, with the virus, initial sclerosis, exanthem, and gumma. Ophthalmia due to the mature germ is very rare. Still occasionally we meet with ulcers on the cornea, following corneal abscesses in which spores of the syphilitic germ can be isolated.

Iritis is undoubtedly the most common of all eye affections. In broken down states of the body associated with poor or meagre food and insanitary conditions.

In such cases, general treatment must be energetically pushed, with stimulation to the nape of the neck, quinine internally, never neglecting atropia in the eye.

The tendency to corneal ulceration often lies in a diminished vitality of the cornea, which debilitates it for the battle against the ever present pyogenic microbes. One essential portion of the treatment must, therefore, ever be the fortification of the general system and improvement of its condition. In many cases in which ulceration of the cornea is found to frequently recur, it will be found that there is a chronic condition of trachoma, or a neglected inflammation of the lachrymal sac, or obstruction of the duct, causing the cornea to be constantly bathed in stagnant tears. These collateral relations should ever be borne in mind, for no treatment can be successful which does not include a rational attention to the general physical, as well as the local health of the cornea and its adjoining tissues.

The Venereal Bacillus.

(*Phrenal Syphilis.*
The Pathogenic Microbe in
the Brain.)

Civilization with its varied improvements is unfavorable to brain longevity, much more so than the intellectual torpor of a semi-civilized condition. Modern thought with its neurasthenia of the cerebrum, renders the brain proper a favorite site for the location and evolution of the germ syphilitica.

But over and above the well-recognized forms of nervous and mental disease, there are certain groups of symptoms which may fairly be regarded as indicative of specific infection, although the proof may not be greater than that to which the lawyers give the name of "prima facie"—*i. e.*, proof amounting to a presumption, which may, however, be rebutted by adequate testimony to the contrary. These symptom-groups, if I may be allowed to formulate from my own experience, are as follows:

- (1) Quasi-periodical cephalalgia of a peculiar kind. (Nocturnal.)
- (2) Hemiplegia under forty years of age, with or without preceding cephalalgia of the aforesaid type.
- (3) Cephalalgia followed by hemiplegia, which bear a singular relationship to one another in that the cephalalgia ceases immediately upon the supervention of the hemiplegia, and does not recur.
- (4) Convulsions in the adult, which have not been preceded by convulsions in infancy, and are not of traumatic or nephritic origin, or due to pregnancy, or in an individual subject to migraine.
- (5) Symptoms indicative of a lesion at the base of the brain.
- (6) A comatose condition extending over days or weeks, not traumatic, meningitic, diabetic, nephritic, or from typhoid fever.
- (7) Tabes dorsalis.
- (8) General paresis.
- (9) Spinal lesions in a subject who has had intracranial syphilis.

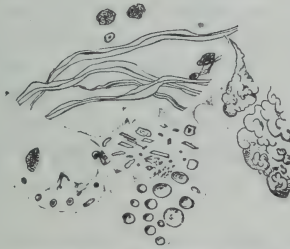
I have very pronounced ideas with regard to treatment. I have no faith whatsoever in mercury.

I am quite prepared to say, that unless the iodides with their proper adjuvants—of which I shall speak in a moment—can cure a case of nervous syphilis, it cannot be cured at all. But the dose of the iodides which is administered by the Germans and French will often be entirely inadequate. I give the iodides until the symptoms yield, or until iodism is produced. Should iodism ensue before the symptoms yield, I pursue one of two methods. I first increase the dose of the iodide by about one-third, and rapidly increase each succeeding day. Singular to say, in some cases this increased dosage will cause the iodism to disappear, and the larger doses will be borne very well. Should, however, these larger doses still more increase the iodism, I decrease to one-half of the dose at which the iodism had begun, and continue

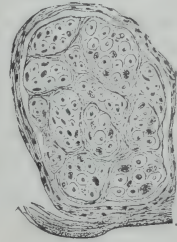
this decreased dose until the iodism diminishes or disappears, when I again rapidly increase the dose, and am usually able to go on without further trouble. In some few individuals, however, no amount of care will cause more than a certain amount of the iodide to be borne, and such cases, as I have said, are usually of unfavorable prognosis. In some cases, too—fortunately they are rare—even small doses of the iodide will produce a cardiac disturbance that prohibits its administration. I am perfectly well aware that the medical chemist will object that these large doses of the iodide pass through the body and are quickly excreted by the urine; but I am equally well aware, in the face of this fact, that these large doses of the iodide will cause symptoms to yield that cannot be made to yield by lesser doses. I have given as much as several hundred grains of the iodide of potash in the twenty-four hours, and have seen symptoms disappear with these enormous doses that would not yield to minor ones. I administer the iodide after meals, and either in a full tumbler of ice-



Cerebral softening. Small blood-vessel from a focus of yellow softening in phrenal syphillis.



Softening of the cerebral pulp in phrenal syphillis.



Sclerosis of the brain. Cerebral sclerosis in chronic interstitial inflammation from the presence of the syphilitic germ.

water, or in a glass of Vichy, or in a glass of Bohemian spring water, the Giesshübler.

But he who expects to cure his patients with the iodides alone, unless the case be so grave as to call for immediate relief, will be disappointed. The human organism must be put in the best possible condition. A generous diet should be employed. Freedom from care and worry, where possible, should be enjoined, and all strenuous exertion of body or mind avoided.

The germ syphilitica frequently localizes itself on the circumference and base of the brain, in the form of an exosmosis from the blood vessels, and appears in the form of thickenings, adhesions, contractions, puckering, with a germ-eaten state of the blood vessels.

Microscopically throughout the effused lymph, there appears soft jelly like masses, irregular in form, blended intimately with brain structure, the pathogenic micrococci appear as spindle and stellated cells imbedded in an alveolar frame work.

It is needless to emphasize the fact that cerebral syphilis is very common—true the brain resists with tenacity the localization of the germ—but epileptic seizures, paralysis, as hemiplegia, or eye neurotis, aphasia, etc., occurring in middle life, are most significant, especially if there are symptoms of nocturnal headaches, numbness, formication; heats and colds, etc. If those exist look for syphilis, because tumors, abscesses, organic lesion are rare at that time of life.

By placing the patient on specific treatment for syphilis, when in doubt, is the safest. The repeated application of two small fly blisters to the nape of the neck for six hours at a time, twice weekly, often diverts the germ to other pasture fields. It is safe, salutary. The internal administration of comp. saxifraga ozonized is a treatment calculated to be invariably beneficial; its use for months is the only probable means of cure. The origination and use of this remedy is the outcome of a national necessity, an agent that never fails to give satisfactory results.

Good authority says, the profession must depart from their usual course in the treatment of syphilis—the initial lesion affects the whole system—disseminates the germs through every tissue. Our people, more than any other nation, suffer from phrenal syphilis.

Syphilitic growths, gummata, will, if formed on the brain, disappear as speedily as any other lesion; and when their microbial growth gives rise to pressure, the resulting damage to the nerve structure is recovered from in the most complete degree.

When there is reason to suspect inflammation of the cranial nerves—syphilitic neuritis—the prognosis is chiefly influenced by the duration of the morbid process. If the inflammatory products are in such a stage that they can be removed, the prognosis is good if the damaged nerve fibres will recover conducting power. If, however, there is reason to suspect cicatricial transformation of the new formation into fibroid tissue, it is improbable that the degree of improvement will be sufficient to permit severe symptoms to pass away entirely. The same general prognosis is true also of infiltrating growths. In true acute inflammation that is treated early and arrested early, the prognosis is the same as in similar inflammations that are not specific. The recovery or persistence of the symptoms depends on the recovery or persistence of the changes in the nerve elements which are produced by an intense inflammation, and effusion of germs.

The clinical history of the neurotic form of syphilide has an individuality of its own. In the very early months of the diathesis, either in the stationary period of an early syphilide or at its decline, generally preceded or accompanied by severe neuralgic symptoms involving the facial or cranial, intercostal, anterior crural, or, in fact, in any cutaneous nerve, by severe cephalalgia, continuous or nocturnal; by rheumatoid pains in muscles or joints, and by general malaise and debility, this eruption makes its appearance with more or less promptitude and develops quite rapidly. In some instances the invasion is very acute, so that at the end of a week, we may find fully developed tumors an inch or two long, in others and in the majority of instances the development is slower and nearly two weeks elapse. Besides the general neuralgic symptoms, local pains on the site of the lesions or in the whole territory on which they are developed are experienced. These may be continuous or intermittent, and in some cases are excruciating as in severe herpes zoster.

There are two points in the treatment of syphilitic diseases of the nervous system on which I think a word of caution is urgently needed. The first is regarding the prolonged administration of anti-syphilitic drugs, especially of iodide of potassium. By "prolonged" I mean exceeding from six to ten weeks. I believe that full doses in this time will effect all it can achieve in the removal of the syphilitic process. Here, as I have just said, we want facts that are visible, numerous, and carefully observed, to guide us in our conclusion. I do not say that the symptoms will have disappeared. It cannot be too firmly remembered that symptoms are due to changes that are not syphilitic, changes in the nerve elements secondary to the syphilitic disease, but so far independent in course that they may persist long after the specific lesion is at an end. Hence the fact that the symptoms have not yet ceased is no indication that the specific lesion is not entirely removed. If iodide be continued, as it often is, during many months (and much more, as it sometimes is, during years), there is a danger that the normal tissues of the patient may become so accustomed to its presence that the drug may no longer hold in check the syphilitic processes. Probably we may still influence the lesions by increasing the dose, but this process must have limits in practice, if not in theory. Such prolonged and augmented treatment may do definite injury to the patient's health, and even then fail to effect the desired object. If the poison is in an organized virus we might *a priori* expect this result. By long-continued, gradual alteration in the conditions, low organisms, as has been shown in remarkable experiments, can be made to endure influences that would at first be fatal to

them. By slowly raising the temperature they will not only live but flourish at a degree of heat which, had it not been for their acclimatization, would have killed them in a few minutes. But the question is not one in which we can be guided by theory, far less by analogy, possibly remote. There is, moreover, a positive danger in this method. It is also great in the practice to which I referred, that of repeated courses of energetic treatment to remove residuary symptoms that cannot be thus removed, because they do not depend on any residual specific process.

A very eminent authority says: Inherent weakness of certain parts or structures of the brain permits of the deposit and localization of the syphilitic germ if present in the blood. The microbe is here found in the form of gummatous tumors, composed of small, round, oval and pyriform cells, with basement substance. These masses may undergo a variety of changes and degenerations, and often migrate from bone to brain and *vice versa*.

The history of the case, persistent localized nocturnal headache, impaired intellect, dull, stupid, apathetic; impairment of the senses, often facial paralysis, and, if energetic treatment is not pursued, unconsciousness, stertorous breathing, dilated pupils and death.

The diagnosis rests chiefly on the presence of the syphilitic germ in the blood.

The treatment consists in the use of the most energetic remedies to kill the germ, with persistent repeated blisters to the nape of the neck to attract the germ away from this vital organ.

The Venereal Bacillus.

(*Pathogenic Microbe
Syphilitica.*)

The venereal disease, both contagious and infectious, is to a great extent a preventable disease, if licensed and put under restraint by the State.

The microbe, when once in the body, is generally carried to every nook and corner of the tissues. The ingress of the germ is silent—effected without a sore, coming in by the breath or contact, or through the translucent lymph of vaccine pustule.

Of all forms of venereal infection, lung syphilis is the most potent and effective. The microbe is generally scattered throughout the entire body of the blood vessels and lymph canals. It is to be freely found in all the secretions and excretions—in the synovia, bone, periosteum, brain, skin, etc., but in no form is the infection so great and pungent as in pulmonary syphilis.

So, it is well in all cases, especially those with a cough and expectoration, to resort to rigid antiseptic precautions.

The room in which a lung syphilitic affected individual sleeps or lives in should be disinfected at least every two weeks, thoroughly fumigated with burning sulphur; that his sputum, fæces, urine, should be destroyed; that the individual should be isolated from his fellows. He should not be permitted to sleep with or come in contact with healthy persons.

All workshops in which venereal patients congregate should be frequently disinfected.

It must ever be remembered that both in tuberculosis and syphilis, that domestic animals play an important part in carrying these germs from one individual to another.



Syphilitic germ in the kidney, found forty-eight hours after death actively evolving spores; they were detected in the urine several months before death took place.

The Venereal Bacillus.

(The Pathogenic Microbe of Syphilis passing from Parents to their Offspring.)

The microbe passing either in the spermatozoa of the male or ovum of the female, or both, is a frequent cause of either blighting the fœtus, caus-

ing its death, or, if the uterus is healthy, it often repels the germ-smitten fœtus, and miscarriage results.

The child may be born with unmistakable signs of the disease, or may be born apparently healthy and in a few weeks the symptoms develop. Emaciation or great sleeplessness may suggest the taint. The symptoms resemble the secondaries in the adult, and appear about the same time as the acquired after inoculation. When markedly present the child has a peculiar "old man" look, a prematurely old appearance, is very emaciated, simply skin and bone, these children being frequently premature. The cry is shrill and hoarse, compared to the sound of a penny trumpet, and the child has a hard cough, often sickness and diarrhea, coryza, and snuffling due to inflammation and ulceration of the mucous membrane of the nose causing it to become blocked, the child therefore refusing the breast on account of it only being able to breathe properly by the mouth. The skin is hard, dry, dirty looking and wrinkled; soon acquires patches of a light brown color, and the nails are often cracked. The skin and mucous membranes are the first to show the symptoms, gummata being met with later in the skin, mucous mem-

branes, periosteum, bone and lymphatic glands. The usual history helps in the diagnosis, as rash, throat, bones, miscarriages, or children dying soon after birth, etc. The eyes seem weak, the eyelids sore. The parts about the mouth, nostrils, buttocks, anus, flexures of joints get copper-colored, fissured and excoriated. A dermatitis about the pelvic region is not always specific, and may be due to wet napkins, etc., although if reaching beyond the limits enclosed by the napkin, *i. e.*, down the legs and up on the abdomen, it is syphilitic. A detachment of the epidermis from the palms and soles is an almost certain sign of the disease. In the various systems the following lesions are met with :

Skin.—Dermatitis and detachment of the epidermis as stated. Deep red or copper-colored blotches on palms, soles and pelvic region (gluteal folds and genitals). Mucous tubercles about the anus and flexure of the groin, condylomata about scrotum, and on neck, thigh and arms.

Mucous Membranes.—Condylomata and mucous tubercles about the mouth and anus, bucco-pharyngeal mucous membrane, and in larynx. A chronic inflammation and ulceration of the mucous membrane of nose causing "snuffles." At the angles of the mouth we get ulcers leaving cicatrices (specific stomatitis).

Bones.—Periostitis leading to formation of nodes ;

Diffuse ostitis, causing hypertrophy and sclerosis.

Ulceration, causing caries and necrosis (in the case of the nose causing the bridge to fall in).

Cranio-tabes from atrophy (often not specific as is rickets).

Cranial bosses (often not specific as is rickets).

Separation of the epiphyses.

Stoppage of ossification.

Eye.—Acute iritis, interstitial keratitis.

Ear.—Otitis. The disease in question is the most common cause of double deafness in children.

Voice.—Laryngitis.

Teeth.—Notched (the permanent ones).

Visceral.—Congestion and fibroid enlargement of liver and spleen. Peri-hepatitis is one cause of infantile jaundice and ascites.

Chronic inflammation of cerebral arteries.

Meningitis, hydrocephalus, pulmonary affections, etc.

With regard to infantile syphilis, this is either hereditary or acquired. If the former, it is transmitted from one or both parents, and the infected foetus may be expelled with a clean skin and the characteristic rash not displayed for six weeks after birth ; if the latter, the immediate contagion may be from the nipple of the nurse, or from kissing, or from some article of dress.

The presence of the syphilitic germ in an infant gives rise to a shrivelled or emaciated appearance. Some cutaneous manifestation appears near the sixth week. Defective nutrition, in the form of emaciation or marasmus. Emaciation progresses rapidly; the skin seems to stretch unnaturally over the facial bones; the expression is one of distress; the cry becomes a fretful moan; the skin loses its natural hue, and acquires a sallow or muddy tint; and very peculiar wrinkles or puckered lines radiate from the angles of the lips. The faces of those germ-eaten creatures have the appearance of age.

In the recognition of the disease, the history of the case, the copper-colored appearance of the rash, together with syphilitic coryza, give a clew to the presence of the germ. The discharge from the nose, at first serous, later purulent, desiccating sufficiently to obstruct the nasal passage.

Crusts form about the nose and angles of the mouth, giving rise to the snuffles, obstruct respiration.

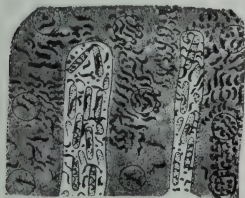
The mouth, larynx, vulva, anus are often the seat of mucous patches or condylomata.

The Venereal Bacillus.

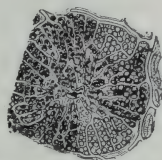
(*The Pathogenic Microbe of Syphilis in the Liver. Syphilitic Hepatitis.*)

The liver in our country is naturally weak, being exposed to the malarial germ, the irritating action of carbonaceous food and drink, and to this organ the bacillus often migrates. Let the germ enter the body of a person with a weak or devitalized liver, the first thing we often observe is syphilitic hepatitis. As a rule,

The liver in our country is naturally weak, being exposed to the malarial germ, the irritating action of carbonaceous food and drink, and to this organ the bacillus often migrates. Let the germ



Microbe of syphilis in the liver.

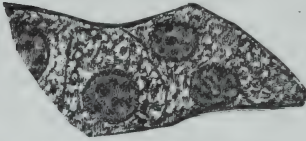


Fatty liver, interspersed with the syphilitic germ.

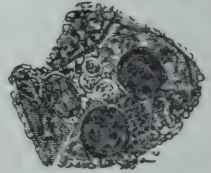
the syphilitic germ does not manifest any special preference for the liver, like the skin or mucous membrane; it does not seem to be a pleasant or congenial pasture field. When it takes that organ for its abode, it colonizes in three forms: (1) germs generally diffused through interstitial structure; (2) a large congregation of germs, colonies varying in size from a linseed to a bean; (3) in large irregular patches.

Symptoms.—Sometimes there are all the indications of chronic inflammation of the liver; in other cases, there are few, if any, symptoms present but jaundice, a coppered-colored appearance of mucous membrane, with other marks of syphilitic cachexia, enlargement of spleen and albuminuria.

When the microbe migrates to the liver, there is usually all the symptoms of jaundice present; nausea, vomiting, brown-coated tongue, yellow skin and conjunctiva, itching in the skin, clay-col-



Syphilitic microbe in the liver.



Another form of syphilitic microbe in the liver.

ored stools. The usual treatment for the destruction of the syphilitic germ must be persevered with, to wit, saxifraga, phytolacca, comp. dioxide of hydrogen, etc.

In addition, local stimulants over the liver, as either the irritating plaster, or take iodoform, one ounce; ether sulphuric, sufficient quantity to dissolve it. Mix. Paint freely over the region of the liver twice daily; or ozonized iodine. Internally, such remedies as phosphate of soda, nitro-muriatic acid, fringe tree, with chloride of ammonia.

These remedies exercise a most salutary action on the liver.

In all cases, it is most important to attend to this germ migration and at the same time take care of the mother germ and its brood of spores in the blood.

The Venereal Bacillus.
(*The Microbe in the Lungs.*)

All individuals who have the pathogenic microbe in their blood, if their lungs be weakened in any way or from any cause, are liable to have a migration of that bacillus to that weakened point, when it passes by the name of syphilitic phthisis.

There can be no question, that in the majority of instances in which phthisis has been produced through acquired syphilis—and syphilitic phthisis is more prevalent than is generally believed—the symptoms, physical signs, and course of the disease are peculiar and characteristic, and distinguish it somewhat from other forms of phthisis. There is no doubt, too, that many cases which are regarded as examples of ordinary phthisis possess a

congenital element of syphilis, and that this disturbs the normal course of the disease. Just to what extent this factor is operative we are not prepared to say, but it is very certain that some cases of ordinary phthisis are more readily influenced by microbicides than others.

Although syphilitic phthisis is a well-reorganized disease, so far as its pathology goes, I am convinced that clinically it is not understood as well as it should be; and in order to aid as much as I possibly can in determining it from other diseases, I shall endeavor to lay before you the salient points of the disease as they occur in its clinical course.

The characteristic signs and symptoms which distinguish the syphilitic from the non-syphilitic form of the disease are chiefly an absence of well-defined physical features in its earlier stages, frequently the only evidence of the presence of the disease being a wavy respiration, or an impaired respiratory sound. However, when crepitation appears it commences suddenly, and is usually



The sputum in syphilitic phthisis.



Micrococci in the sputum in syphilitic bronchitis.



Mould of bronchial twigs expectorated in a case of syphilitic bronchitis.

of a loud, moist character, and may diffuse itself very rapidly over the whole side of the chest. Hæmoptysis is generally a prominent factor; there are no persistent, well-defined fever and night-sweats; the expectoration is frequently tough, white, stringy, and abundant; the patient, as a rule, is anæmic, subject to diarrhea and vomiting; the marked anorexia and wasting do not appear early; and every change which occurs in the course of the disease, either toward recovery or death, is generally more marked and sudden than in the ordinary form.

The absence of fever, or the tendency of the fever to assume an irregular or abnormal course, I regard as one of the most valuable symptoms in differentiating this form of phthisis. Whenever I meet with a constant low temperature in such cases, my suspicion of infection is always aroused, in spite of the absence of other satisfactory evidence. The presence of fever is determined, I think, in a great degree by the rapidity of the destructive process. If this assumes a gangrenous form, as it does occasionally, the fever, as a rule, runs high. In addition, there may be aching pains in the sternal region, over the crest of the tibia, as well as in some of the articulations.



The venereal bacillus in lung structure, found forty-eight hours after death in a case of syphilitic phthisis

Also enlargement of the post-cervical glands, with nocturnal pains in the bones.

There is a great difference between the behavior of microbe of syphilis and the tubercle bacilli in the lung, an interstitial as well as an anatomical difference.

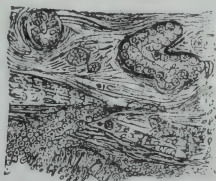
The anatomical changes in the lung chargeable to syphilis are cicatrices, connective-tissue growth, gummata, and chronic induration of the pulmonary tissue in the form of peri-bronchial growths, nodular formations, and diffuse lobular condensation, which generally start from the bronchus of the part (diffuse syphilitic infiltration).

The diagnosis of these changes during life may be made with a certain degree of probability at times, but can never be made with certainty. The shortness of breath, cough, scanty and sometimes bloody expectoration, and other signs, rational as well as physical, are so wanting in characteristic peculiarities that the syphilitic nature of the affection cannot be made out from them. The diagnosis is to be based rather on the history of the case, the presence of well-known symptoms of general syphilitic infection, and laryngoscopic examination, which will reveal in nearly all cases of pulmonary syphilis old lesions of the upper air-passages.

The tubercular and syphilitic bacilli may co-exist in the same lung, and both can be detected and isolated in the sputum.



Syphilitic bronchitis with myriads of germs at work forty eight hours after death. Magnified 50 diameters.



Transverse section of bronchial wall in syphilitic bronchitis with the venereal bacillus hard at work forty-eight hours after death.

The most common form in which the syphilitic germ appears in the lung is the gummata. These vary in size from a pea to an egg, and are either single or in groups, appearing in the lungs as well-defined rounded tumors, surrounded by a fibrous capsule, and usually deep seated. The microbe in its eating operations on the lung has fibrous tissue thrown out with it. The presence of the gummata in the lung causes it to be more weighty, larger, more dense. White, dry specks are seen on a section of it. There is also thickening of the alveolar walls, and minute bronchi, thickening and obliteration of pulmonary areas.

Any irritation in the lungs of a syphilitic patient may cause gummata to form, and abscesses are quite common. There may be masses, nests of the tubercle bacilli, right alongside of the gummata in the same lung.

There is also in syphilitic cases a deposit of the germ on the bronchial mucous membrane, which gives rise to the syphilitic asthma or bronchitis, or both. In some cases there is great ulceration, with copious expectoration, with the microbe in sputum.

Lung and bronchial syphilis resemble in their symptoms tubercular affections of the same organs.

Lung syphilis more generally follows inhalation of the germ by sleeping with an individual affected, or by berthing in a Pullman with germ-saturated persons, or by kissing, or from the use of drinking vessels, than when the germ enters through a pock on the genital organs. Still, if the lungs are weak, we may have bronchial and lung syphilis before the germ appears in any other location.

The weaker the affected individual or organ, the more virulent and active the germ. There are no stages—microbial infection calls for none. There is no protection from one or a dozen attacks; every time the germ enters, a fresh attack.

The Venereal Bacillus.
(*The Pathogenic Syphilitic
Microbe in the Lymphatics—
Syphilitic Bubo.*)

At whatever point the syphilitic microbe enters the body, whether it be by a hard chancre on the penis, or on the lip, or on the nipple, or through the endosmosis of a kiss, or contact by a drinking vessel or a towel, the lymphatics in the vicinity convey the microbe into the blood; in this process they themselves become contaminated by the deadly microbe, and suffer a partial death in the presence of the germ; inflammation of the lymphatics takes place; they become clogged up with germs and products of inflammation, and form what is termed buboes. The seat and virulence of the sore determines in a great measure the kind or quality of the bubo.

The Venereal Bacillus.
(*The Syphilitic Germ
Entering Muscular Structure—
Myositis Syphilitica.*)

All the muscles of the body may become the seat of the syphilitic germ. The muscle most frequently affected is the sphincter ani. The localizing of the germ on this muscle gives rise to great pain, tenesmus before and after

defecation, which often lasts for hours. The pain is aggravated by pressure from without. Women are more subject to it than men. The whole muscle is not affected; sound bundles of fibres may be found among the diseased ones.

Both the blood vessels of the perimysium and the nuclei of the sarcolemma are involved in the inflammatory process. As the affection of the sphincter may last long after the other symptoms of syphilis have disappeared, we may have to treat the contraction of the muscle and the consequent pain by sphincterotomy.

The Venereal Bacillus.

(*The Pathogenic Microbe of Syphilis in the Male Urethra; or the Female Vagina.*)

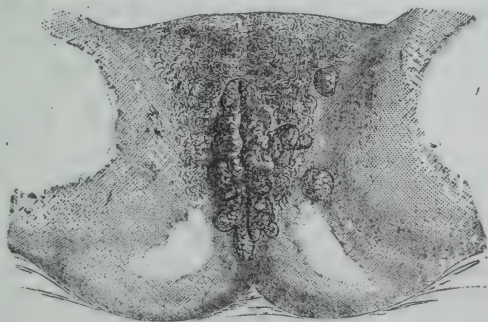
their destruction. In the male, gelatinized bougies of iodol can be introduced, and the germ colony gradually killed off. In the female, the task is much easier, as the capacity of the vagina will admit of copious vaginal injections of either boroglyceride or resorcin, or creolin, or even packing the vagina with boroglyceride, are usually successful in wiping out the sore, together with bactericides internally.

Another form of location, but much less frequent, is the appearance in the form of papillomata, or warts, or condylomata.

In the male urethra these are not infrequently mistaken for organic strictures, and very foolishly dilated, curetted, even burned out with electrolysis with no result whatever but a return of the affection. In the vagina of the female, they also appear as papilloma, warts, condylomata, and unless a very careful examination is made, the leucorrhœal discharge is often mistaken for some other affection.

In all cases of supposed stricture of the urethra, the endoscope should be used for the purpose of making a diagnosis. If warts are present they are readily seen in the form of gelatinous

Hard, indurated infecting chancres are met with in both locations, and require tact and good judgment, with reliable remedies, to effect



Vegetating condylomata of the vulva.

growths of various sizes, studded over the canal. In the female the same procedure should be adopted, although here they can be readily felt.

In the form of papilloma, either in the male urethra or the female vagina, the introduction of the oil of thuja speedily sterilizes the germs and causes them in all cases to peel off—effects a cure.

Frequently around the corona glandis, on the penis, or on the vulva, orifice of the urethra, or on the internal labia, these papilloma make their appearance, and are most annoying.

It is well to bear in mind that cleansing off by a lotion of peroxide of hydrogen, and subsequently applying oil of thuja several times, they readily disappear.

The Venereal Bacillus.
*(The Pathogenic Syphilitic
 Microbe in the Nasal
 Cavity.)*

Chancres in and around the nose are rare. The slightest abrasion at the entrance of the nostrils and the application of the microbe by an infected towel, instrument, etc., may be the exciting cause. Later on, especially if mercury or debilitating treatment be used, the region of the nasal fossa is often the abode of the germ.

Symptoms vary according to the period of germ growth and number of spores and germs present; ulcers surrounded by a border of inflammatory tissue are seen on the anterior portion of the septum and inferior turbinated bone, while posteriorly they are localized behind the uvula and soft palate. The symptoms complained of by patients vary with the position of the lesions. Thus, if the latter be situated anteriorly there will be a sensation of heat and discomfort, with slight muco-purulent discharge; if posteriorly, the disturbances will affect swallowing and hearing, and impart a nasal twang to the voice. Examination reveals the characteristic patches on the mucous membrane, with, later on, ulcerations. Along with these appearances there will be the usual constitutional manifestations in other parts of the body. Syphilitic condylomata occasionally make their appearance on the border between the skin and nasal mucous membrane.

It is, however, in the later or tertiary stages that the ravages of nasal syphilis are most clearly manifest. The most widespread destruction of the nose, externally and internally, is by no means uncommon. Ulceration of the integuments may spread from without inwards, or from within outwards, destroying the tissues and forming ashy colored open sores, with the character-

istic indented edges and indurations. These ulcerations spread in depth and width and, unless arrested, permanently destroy the shape of the nose. Flattening and collapse of the bridge, and partial disappearance of the whole organ, are not unfrequently met with. The internal lesions are, however, the more common. The earliest symptom is a gummatous infiltration of the mucous membrane, which is at first apparently harmless, and may readily be mistaken for chronic rhinitis.

Obstruction of the nose, disturbances of smell, increased mucous discharge and a change in the *timbre* of the voice are at first the only diagnostic symptoms. Gradually, however, the discharge becomes thicker and more purulent, but not fetid. About this period examination will reveal ulcers on the septum and turbinated bones. The next stage is the presence of fetid discharge, sinking of the bridge of the nose, perforation of the septum, and caries and necrosis of the turbinated bones. The diseased bones can be seen as dark masses projecting into the nasal cavities and emitting a sickening stench (syphilitic ozæna). In these cases the discharge from the nose is generally abundant, and no amount of syringing with disinfectants can remove its fœtor. If the vomer be attacked the bridge of the nose will fall in and become characteristically flattened; on the contrary, if the cartilage of the septum only is destroyed the tip of the nose will collapse.

The ravages of the disease do not, however, in the worst cases stop here, for they may extend to the lachrymal canal, or the ethmoid and sphenoid bones, and large pieces of these may be thrown off. Even the brain has been occasionally laid bare, and this has been followed by meningeal inflammation and death. The odor from syphilitic ozæna is peculiarly repulsive and disgusting, and cannot be removed by disinfectants. In its character and obstinacy in this respect it differs very distinctly from true ozæna, and should not be confounded with it.

The diagnosis of nasal syphilis during the early stage of gummatous rhinitis, may be difficult; later on the collateral symptoms will be a good guide.

The prognosis, provided bactericides are pursued with vigor, is good.

General remedies.—Nose must be cleaned out with lotions of creolin, resorcin, permanganate potass, which are of a stimulating, detergent, deodorizing character.

Stimulating, antiseptic inhalation of distillation of the pine, eucalyptus, jequirity, are of great value.

Push general treatment, which will consist of iodide of potass in comp. saxifraga and phytolacca.

The Venereal Bacillus.

(*The Pathogenic Microbe on the Skin—Dermato-Syphilis.*)

The venereal bacillus is dualistic, consisting of two microbes, one immature, the other full-fledged. The *immature* gives rise to soft,

non-infecting sores (soft chancres), and a gonorrhœa, but the germ is too feeble to enter the blood, hence there are no blood or tissue lesions; the *mature* germ, if inoculated on any part of the body, gives us an indurated chancre, in which resides the true syphilitic germ, which enters the blood and produces the gravest form of blood changes. This, the true syphilitic germ, may appear in the urethra or vagina and give rise to some discharge. It is not at all necessary for this microbe to have an inoculation, a breeding place, a focus from which the blood can be saturated, hence the entire body, for it can be communicated from individual to individual by breath, by close contact, by kissing, drinking cups, towels, seats, cars, etc.

This is the pathogenic germ of syphilis; the immature germ of a soft chancre can do no more harm than excite local inflammation; it has not advanced in the scale of microbial existence to enter the blood.

The true microbe syphilitica, once in the blood, seeks the weakest part, and there either grows, or if vital force is moderately good, may remain latent.

Suppose a depreciation has occurred and the cutaneous surface weakened, then the microbe will make his appearance in any or all of the numerous forms of skin affections.

The diagnosis of these are important, that is, the difference between simple skin eruptions and those that contain the pathogenic microbe of syphilis. In making this, the history of the case is fallacious, as the germ can effect an entrance without a pock or primary sore; the history of the case has no bearing in diagnosis, neither have such terms as primary, secondary or tertiary; the germ will, if present, show itself microscopically and the appearance of the syphilitic eruption must be taken as it exists; without a history of the case.

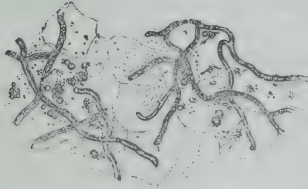
The appearance of the complexion of a microbe-syphilitic patient is remarkable. More prevalent in a chronic case than in one which the microbe has recently effected an entrance; also influenced by the number of germs present in the blood and the constitution of the individual.

We must not, for example, expect to meet with it at the beginning of an outbreak of secondary specific roseola; but if the disease has lasted for some months, we shall almost surely find that it has produced a peculiar change in complexion, which is best

described as a *pale* and *dirty opaque* appearance. This change in color is due to two causes. (1) The paleness is the result of general anæmia from an impoverished condition of the blood, which may often be demonstrated by placing a little blood under



The venereal bacillus on the skin in the form of a lichenous rash, associated with groups of the micrococcus furfur. A splendid photograph of a living case.



Micrococcus furfur—with groups of spores—taken from the same case.

the microscope, when many pale corpuscles will be seen. (2) The muddy, opaque or dirty look is due to an abnormal increase in the pigmentation of the skin. I know of no disease that produces an exactly similar appearance. It is scarcely necessary to add that it is general and quite independent of the "coppery hue" of syphilitic eruptions.

The bacillus of tubercle and the microbe of syphilis united on the face, forming indolent, circular or crescentic losses of skin substance, covered with crusts. The floor of each is a granulating, pale reddish surface, with a copper-colored ring around, in which the syphilitic microbe is found; the edges are notched from the occurrence of successive crops of the two bacilli. Those microbes grow slowly, coalesce, but isolate themselves in nutrient fluid.



The bacillus of tubercle and the microbe of syphilis.

We note that the syphilitic eruptions *develop with remarkable*

slowness and run a protracted course as compared with the simple inflammatory diseases of the skin which they closely resemble. They also have an especial tendency to recur. This rule does not apply to syphilitic *ulcers*, which, compared with non-syphilitic ones, often run a rapid course, but nevertheless, taking a general view, the rule holds good, and is especially applicable in distinguishing syphilitic eruptions resembling varicella or varioloid from those diseases, and syphilitic rose rashes from urticaria, erythema and measles.

The *color of syphilitic eruptions* is often remarkable and highly characteristic; it is described as coppery. This peculiarity of color varies with the age of the eruption and other attendant circumstances. It is of the first importance to recollect that the typical color is rarely met with in recent syphilitic roseola, which follows closely on the primary sore; on the contrary, this rose



Tenia Tonsurans in a syphilitic patient—the vegetable fungus greatly modified by the action of the pathogenic microbe.

rash is at first quite bright, and of a clear red or pink, and without the slightest trace of anything syphilitic in its appearance; when, however, it has lasted for some time, an irregular increase in the pigment of the skin occurs, and then we have the dirty brown maculæ characteristic of the disease. In practice we meet with various shades of color, from the pale dirty brown to the typical copper-colored blotch, and from this again to the deep purplish-brown,

or almost black pigment stain, which is sometimes left after a syphilitic sore has healed. Indeed there is no other disease of the skin which leads to more remarkable changes in the rete Malpighii.

Of all the characters which distinguish dermato-syphilis, perhaps *polymorphism*, or the appearance of several forms of eruption at the same time, is most important, because in no simple disease is this peculiarity developed to anything like the same extent or with equal frequency. It is, in fact, the exception to find a syphilitic eruption assuming a uniform appearance in different parts of the body. For example, we may find maculæ in one part, and mucous tubercles in another, or ulcers in one part, and nodes in another; or we may even find four or five different forms of eruption on one and the same individual. Hence the great importance of examining *every part* of the eruption in doubtful cases. A red patch on the chest may present none of the characters of syphilis, but if we find also a typical ulcer on the arm, there will be no difficulty in arriving at a diagnosis.

Locality, as a means of diagnosis, is sometimes of value.

Secondary eruptions which follow closely on the sore, are commonly *symmetrical*; but remote eruptions are, on the contrary, generally *unsymmetrical, though frequently both-sided*. The reason of this difference is, that recent eruptions occur while the microbe is still in the blood, while remote eruptions occur after the germ has migrated everywhere, when all the tissues of the body have probably undergone some obscure change, which is manifest by the development of syphilitic growths. Ulcers often appear on the arm, abdomen, without any apparent cause. Certain forms of alopecia, seborrhœa, appear on the scalp, and sometimes on the pubis; syphilitica roseola, maculæ, pemphigus, on the palms of the hands and soles of the feet. In all forms there is a perfect lack of sensibility and copper-colored appearance of the eruption.

If the affected individual be tubercular, or acquire that condition during the progress of syphilitic germ life, all forms of the eruptions will be either round, crescentic, or serpiginous, but copper-colored, with lack of sensibility.

Irritation, pain, itching, are at a minimum in all syphilitic eruptions.

The microbe can be found in the crusts of the sores, hence they are typical syphilitic.

The frequent development of tubercles in the skin, in conjunction with other changes, is extremely characteristic, as those are never found in any other skin affection. Gummata and tubercles never can be confounded with any other affection.

The occurrence of ulcers of a round, serpiginous, crescentic, or horseshoe shape, with sharply cut edges, and of the characteristic copper-color, or ash-gray, is an important sign of the presence of the microbe.

The presence of white, flattish scars on different parts of the body is sometimes an aid to diagnosis. It will generally be possible to obtain a history of these scars, and if they have been produced by sores which occurred without any such apparent cause as burns, injuries, or bed-sores, there will be presumptive evidence of a former attack of syphilis, and this will be all the stronger if they are pretty numerous, and found on the trunk, thighs, arms, or scalp. We must be very careful, however, in drawing conclusions with regard to a single scar found on the face or shin.

The chronic indurated enlargement of the lymphatic glands in different parts of the body, without any apparent local cause, is a diagnostic sign of syphilis of the first importance.

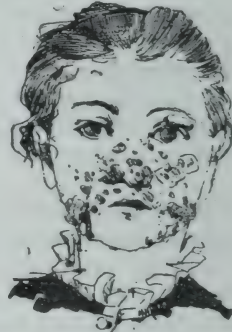
The foregoing remarks apply more or less to dermato-syphilis generally. It will now be necessary to enumerate in detail the

principal forms assumed by syphilitic eruptions, and also to point out briefly the peculiarities that distinguish each variety.

The common *recent* secondary eruption are the following: (1) Roseola, or rose rash. (2) Maculæ. (3) Papular eruptions (syphilitic lichen, so called). (4) Mucous tubercles and patches. We also meet with alopecia, pustules and ulcers, but of these the



The venereal bacillus. Most syphilitic eczema of the face. Painless, copper colored.

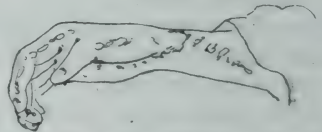


The venereal bacillus. Dry syphilitic eczema. Devoid of pain, and copper colored.

two latter are less common on the skin as recent secondary forms, and usually occur only in severe cases. There is no well-defined line of demarcation between the *recent* and the *remote* secondary eruptions, of which latter the following are the most



The venereal bacillus. Syphilitic Lepra. Scattered sparsely over the fore-arms. Painless, copper colored.



The venereal bacillus. Lepra syphilitica, with paralysis of the extensor muscles of the fingers.

common: (5) Pustules, particularly ecthymatous and acne-form. (6) Seborrhœa and alopecia. (7) Squamous patches. (8) Tubercles. (9) Ulcers. (10) Rupia. (11) Onychia. There are many other varieties of syphilitic eruptions, but they hardly require any special description.

Congenital syphilides correspond very closely with secondary eruptions, but coppery blotches and mucous tubercles are the prevailing forms. Bullæ, though rare, are more common in congenital syphilis than in the acquired disease.

Rose rash or *roseola syphilitica*, when it first appears, may be *very easily* mistaken for other red rashes if we trust alone to its

appearance, which is often identical with simple erythema. It is in this form of the disease that the *history of a primary sore and other symptoms* are of the greatest value for the purposes of differential diagnosis. Syphilitic roseola always *follows closely* on the primary disease (inoculation); indeed it often develops before that has disappeared. It is frequently accompanied by the characteristic sore-throat, and other well-known symptoms, and at the outset of the eruption, these general symptoms are our chief means of diagnosis. A little later on, when pigmentation occurs, the diagnosis is easy. Syphilitic roseola may, in the first instance, be readily distinguished from measles and German measles, by the *febrile* and *catarrhal* symptoms of those maladies. Pigmented syphilitic rose-spots become *more defined by exposure to cold*; the reverse is the case with the simple red rashes. Again, the *subjective sensations* are more marked in the latter than in the former.

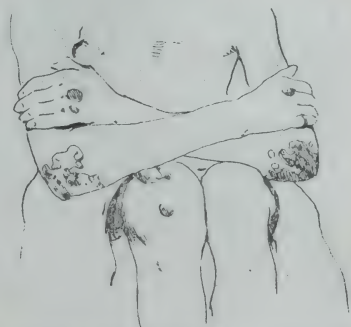
Syphilitic maculæ are among the commonest manifestations of the disease. They may be red, livid, copper-colored, dirty brown, purple, or almost black, the tint of color being produced by the varying combinations of local hyperæmia and abnormal pigmentation. They may occur as recent or remote secondary eruptions; in the former, the hyperæmia usually preponderates

over the pigmentation, and therefore the red or bright copper-colored maculæ are the most common. The yellowish syphilitic pigment spots, especially about the forehead, may be easily mistaken for chloasma or freckles. The pigmentary syphilide which is sometimes met with on the back of the neck in women, is generally a remote secondary eruption.

Papular dermatosyphilis for the most part follows quickly on roseola; mucous tubercles, and patches, are the most characteristic evidence of the germ.

Pustular-dermatosyphilis may assume many forms. It may closely resemble acne, variola, ecthyma.

Pustular-syphilitic rash on face, back and body, very common in broken-down subjects. Syphilitic alopecia very common. It takes the form of a thinning of the hair of the whole of the head, and is not at all confined to the parts usually affected with baldness. It commonly occurs as a secondary affection, and is often



Syphilitic microbe attacking the tuberosities of various bones. The nodules of germs on the elbows and knees were thick y set.

associated with *seborrhœa*. The head becomes covered with dirty yellow scales, and the hair harsh and brittle, so that it breaks off and also combs out easily. Sometimes alopecia is associated with a distinct active syphilitic inflammation of the



Syphilitic papulæ, with germ-laden blood. The genuine syphilitic microbe appearing in the form of copper-colored papulæ on the face. There was no original pock—the system was saturated with the microbe through washing the clothes of an infected brother.



Syphilitic psoriasis, covering chest and back. The dead venereal bacillus could be isolated from the scales; spore could bear cultivation.

scalp resembling eczema, and producing a discharge which forms dirty unhealthy-looking crusts; as these are removed the hairs come out. It may be distinguished from simple eczema by the absence of itching and irritation, by the character of the crusts,



Syphilitic Rupia and Ichthyosis.

the rapid loss of hair, and by the peculiar and very disagreeable smell and the presence of specific symptoms in other parts of the body.

Squamous syphilides are either diffuse or circumscribed. The former are usually a

later stage of some papular, macular or rose ash, and as such are not difficult to recognize; the scales are thin, there is on itching, and the skin is more or less abnormally pigmented, which gives it the peculiar dirty look to which I have so often referred. In short, scaly affections of this kind are little more than a chronic desquamative stage of previous eruptions.

The *circumscribed forms* of scaly dermato-syphilis are more important, and may be easily confounded with *dry eczema* or *psoriasis vulgaris*, particularly the latter, which often leaves behind brown pigment-spots. The syphilitic scaly eruptions, how-

ever, do not *especially* attack the point of the elbow and the skin below the knee-pan, though they may occasionally appear there as elsewhere. The scales are thinner and dirtier than those of psoriasis and more difficult to remove, and the corium does not blend readily on their removal, as is the case in psoriasis; pigmentation is usually well marked and of typical color. Itching is rarely present. Moreover the scalp is often affected, and this is invariably attended with *loss of hair*, whereas simple psoriasis, when it attacks the scalp, has but little effect on the hair. Lastly, the *complexion* of those who suffer from the latter disease is clear and fresh, and contrasts remarkably with that of the constitutionally syphilitic patient.

Psoriasis palmaris and *plantaris*, as it is miscalled, is always either of syphilitic origin or a dry eczema of the palm. It differs in appearance and nature from true psoriasis, which, moreover, never occurs as simply a palmar eruption. It usually shows itself as a small copper-colored spot; this gradually becomes scaly, with a desquamation of epithelium, leaving a somewhat thickened, raised, or dirty ragged edge. The tendency of these patches is to spread at the circumference. Sometimes the cuticle becomes thickened, brittle, and fissured. The affection is very chronic, and often very inveterate. It may be confounded with dry cracked abortive eczema of the palm, but the appearance is different, the itching and pain are much less, the history of the commencement is also different, and lastly, eczema rarely occurs on the palm without being, or having been also present elsewhere.



Syphilitic gummy papules (lichen), has the diagnostic characteristics—copper-colored, lack of sensibility.

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Syphilitic squamous patches are not uncommon about the perinæum, scrotum, and penis. They usually present a rounded, well-defined border, and from their situation are apt to become red, inflamed, and very chronic. They may be easily mistaken for old patches of psoriasis or eczema; the latter disease, however, especially in this region, is attended with intolerable itching, and although this form of syphilis is also often irritable, yet the



Syphilitic rupia almost covering the entire body.



Molluscum epithelium, associated with inherited syphilis, showing the copper-colored eruption on neck.

itching is far less than in simple eczema. The previous general history is here a valuable guide, but it must be admitted that the diagnosis is sometimes difficult.

Syphilitic tubercles.—I have already referred to tubercles, and therefore will only add that the *remote* ones are of two kinds, gummy tubercles and tubercles of the connective tissue.

Rupia is a rare eruption, typical of syphilis. It consists of peculiar hard, conical, laminated crusts of a limpet-shell shape. The removal of the crust exposes a specific sore.

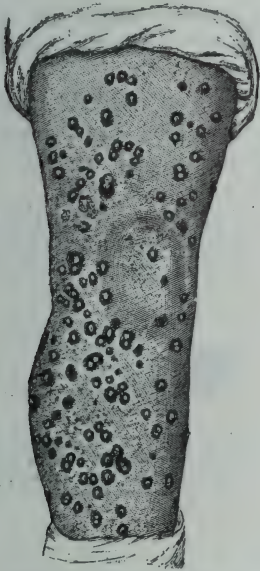
Onychia maligna is also frequently met with, which give rise to a brittle or rotten condition of the nails.

The syphilitic germ modifies all cutaneous diseases, by the microbe altering the nutrition of the tissues; the normal resisting power is weakened, so that the change in the tissues usually produced by syphilis is impressed upon it; it is altered by being made more chronic, there is greater pigmentary deposit, less scaling, more crusting, and more infiltration, especially at the margin of the lesion.

In the treatment of all forms of cutaneous syphilis, there should be no deviation from the general line of remedies. Anni-

hilate the microbe and build up the vital forces of the patient. Saxifraga and phytolacca are the remedies. If mercury is deemed advisable, let it be the proto-iodide, in pill form, with one grain of opium. If this is administered, it is a good plan not to exceed one twelfth of a grain, and to follow it up with larger doses of iodide of potass than what is contained in the saxifraga syrup.

The special indications for the administration of this salt in dermato-syphilis are (1) the existence of periosteal affections; (2) a low constitutional condition; (3) the co-existence of albuminuria, other than that due to syphilis, in which case mercury is generally contra-indicated. The most important point in connection with



Syphilitic microbe in pustules (rupia).



The venereal bacillus. The germ syphilitica in pustules on the hand, with moist gangrene of the fingers.

the use of iodide of potassium is the fact that it soon loses its effect unless the dose be from time to time steadily increased. This should be done about once a week, otherwise the result of the treatment will be often disappointing. In those cases in which the constitutional condition is low, iodide of potassium should be given in combination with carbonate of ammonia and cinchona, and the dose gradually increased from five grains up to half a drachm (or more if required) three times a day. Under these circumstances, if there is no indication to the contrary, a

dose of opium every night is of the greatest possible value. When there is much anæmia or albuminuria, the iodide of potassium should be combined with iron,



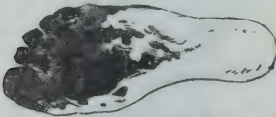
Syphilitic Ichthyosis

or with the citrate of iron and quinine. The great use of opium in the treatment of all syphilitic sores is too much forgotten. I have seen cases in which all remedies seemed to irritate, and had little or no effect until the nervous system was soothed by the action of opium.

The use of sulphur, iodine, and ozone baths is attended with good results in the severest forms of syphilitic eruption. They are especially useful to aid the action of internal remedies, and used about twice a week.

Local treatment of syphilitic eruption is not of much utility, but they should be covered with ozone ointment, or sprinkled with iodol or iodide of starch, or the anti-microbe powder.

Sozoiolol is the best remedy for indolent ulcers; the ulcers should first be washed with a solution of boroglyceride, then



Dry gangrene, one of the effects of the venereal bacillus. This state is usually ushered in with intense nocturnal pain in the ball of the great toe. After this lasts a few weeks the tuberosity becomes of a bluish color, gradually black, dry, cold, and spreads up the foot.



Dry gangrene of the toes, the venereal bacillus first attacking the matrix of the nails, and gradually eating up the parts. This also ascends.

dried and the sozoiolol sprinkled or painted on, once a day. The ulcer covered with a piece of dried lint.

The sozoiolol can be either used full strength or diluted, or put into ozone ointment. Being devoid of all odor, it is an elegant dressing.

Localized patches of syphilitic papulæ, tubercle, serpiginous eruptions, should either be dusted with the anti-microbe powder, or dressed with ozone ointment, and covered with lint.

Syphilitic maculæ and scaly eruptions, covering a considerable extent of surface, are best treated with a lotion containing iodide of potassium and chloride of gold. This should be applied two or three times a day, and allowed to dry on. Syphilitic scaly

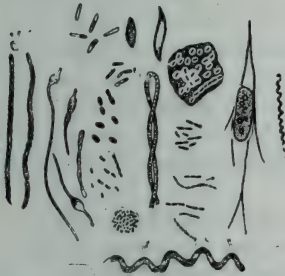
eruptions of the palm are well treated in this way when it is inconvenient to apply ointments. Syphilitic sores and fissures about the mucous membrane of the tongue and mouth should be painted with sozoi-dol.

The Venereal Bacillus.
(*The Pathogenic Microbe of Syphilis in the Trachea.*)

The microbe of syphilis sometimes localizes itself on the trachea; true, it is a rare form, but it exists, both in the hereditary and acquired form.

In the earlier stage of syphilis we meet chiefly with tracheitis, condylomata and mucous plaques. These affections give rise to no grave symptoms, and yield soon to treatment. The lesions which are found associated with the later stages of syphilis, are, however, much more serious, and often lead to death. These lesions are either gummous tumors or, much more commonly,

syphilitic ulcers with surrounding infiltration, which by their cicatrization lead to stenosis of the trachea; or, by an extension of the ulceration, there may be perichondritis, necrosis of the cartilage rings of the trachea, with contraction and displacement of the trachea or perforation of the tracheal wall, with abscess formation in the mediastinum; or again, especially if the ulcer is situated in or near the bifurcation and involves also the large bronchi, there may be rupture into the pulmonary artery or into the arch of aorta. In most cases, however, death has resulted



Different forms of microbes, or bacteria—micrococci of various forms—found in the mouth of all syphilitic patients on awakening in the morning. Magnified 750 diameters.

suddenly after the symptoms of tracheo-stenosis had existed for some time.

The symptoms produced by syphilitic disease of the trachea vary with the situation and extent of the ulcerations, and with the presence of syphilitic disease in other portions of the respiratory tract, especially in the larynx. In an analysis by Vierling there was an affection of the larynx in thirty out of forty-six cases reported; in sixteen, the trachea, with or without the bronchi, was found affected; while in five the bronchial mucous membrane was the only part attacked.

The diagnosis of tracheal syphilis presents no difficulty when the larynx is also affected, and when there are other syphilitic symptoms. If, however, the trachea, alone, or the trachea

and the bronchi, are affected, the symptoms are those of stenosis, and the differential diagnosis, between syphilis of the trachea and some mechanical compression of the trachea, either from an enlarged gland, a small intra-thoracic tumor, or an aneurism of the arch of the aorta, is not always easy.

The most prominent symptoms of tracheal stenosis are :

Dyspnœa, most marked during inspiration, and especially so on any exertion of the patient. This, though a most prominent symptom, may occasionally be absent, though the obstruction to the entrance of air into the lungs may be very great, as in a case reported by Beger, where there was most marked narrowing of the bifurcation and of the bronchi by a gumous tumor.

A hoarse, weak, or croupy voice, even if the larynx be free from disease due to the weak air-current.

Swelling of the jugulars with every expiration, due to the abnormally increased pressure in the large veins within the thorax during expiration.

Slight downward movement of the larynx with every inspiration. This movement is much more considerable in stenosis of the larynx.

The patient breathes easier with his chin depressed, as this causes relaxation and dilatation of the trachœa. In laryngeal stenosis, on the other hand, the head is thrown back to facilitate the breathing.

Retraction of the lower part of chest with every inspiration.

Loud inspiratory stridor heard best over the sternum, occasionally accompanied by a thrill to be distinctly felt over the place of constriction. Auscultation of the lungs reveals weak breathing and loud rhonchi, unless there be some lung complication. It often happens that the stricture is at the bifurcation of the trachea, and extends to one bronchus rather than to both. In such cases we have the characteristic symptoms of stricture of a bronchus (diminished fremitus, diminished breathing, and more marked inspiratory retraction of the ribs) on that side.

The laryngoscopic examination may enable us to see the affected part, especially if stricture is high up in the trachea or if the ulceration is tensive; and the introduction of a sound through the larynx, recommended first by Demme, may in doubtful cases assist us in our diagnosis. In spite of these definite symptoms, the diagnosis between syphilitic stricture of and pressure on the trachea is sometimes a matter of great difficulty.

The most energetic treatment should be carried out, saxifraga, phytolacca, manaca, iodide potass internally; inhaling creosote, chlorinated soda; naphthaline, pinol; locally to nape of neck, repeated blisters, until two small sores are established.

The Venereal Bacillus.

(*The Pathogenic Microbe Syphilitica on the Tongue.*)

The syphilitica bacillus may find ingress into the blood through the mucous membrane of the mouth; with or without

a primary sore, or the germ may migrate to the mouth from the blood, giving rise to every variety of ulcer, from the simple round, scooped-out ulcer, to that of phagedena, with the characteristic copper-colored mucous membrane, and lack of sensibility which we see in the gravest form of syphilitic skin affections.

The most common form which the microbe assumes is a sort of glossitis, with cracks and fissures. Deep cracks running far into the tongue are very characteristic. These tongues do well, once they are pickled down in an eight-volume solution of peroxide of hydrogen. This solution should be held in the mouth for ten minutes at a time, and repeated twice or thrice daily. Under this remedy the ulcers will heal, and cicatrization take place.

Ichthyosis Linguae Syphilitica.—*Scraping.*—The syphilitic affection of the tongue and mouth known as keratosis or ichthyosis linguae, or as leukoplakia specifica, which is due to unequal development of epithelium over different papillae, and which is by no means a very easy affection to treat successfully, caustic, astringent and disinfecting applications having but very little effect upon it, is, according to Dr. Horovitz, best managed by mechanical scraping. He uses a sharp spoon, with which he removes the thickened epithelium; in order to accomplish this, several sittings may be required. He scrapes away the indurated tissue until the surface presents the appearance of a multitude of minute bleeding points, showing that the vascular loops in the papillae of the dermis have been reached. Iodo-glycerine, glycerine of borax, or a ten-per-cent. solution of sulphate of copper is applied to the raw surface. The pain is usually not severe, but in the case of sensitive persons, cocaine can be used.

Resorcin, or thymol jelly, either make an elegant agent when the germ syphilitica has imbedded itself in the follicles of the tongue. A piece of this jelly frequently introduced into the mouth has a most marked effect in annihilating microbial growth, simply allowing it to dissolve in the mouth, and the days of the microbe are ended.

or giddiness, is that peculiar sensation wherein we seem to be standing quite still, and objects running round us. This commonly causes loss of balance, and the individual may fall down. In a good many cases he is able to recover himself without falling, especially if he can lay

hold of anything to steady himself with for a moment. In most cases, giddiness depends on an insufficient or improper supply of blood to the brain. Thus, in giddiness after a severe illness, in attempting to stand upright, we have imperfect blood supply. In other instances the blood supply is impure from containing too much alcohol, or the products of imperfect food-metamorphosis. In old people, when the vessels become hardened and unyielding, as well as incapable of due resilience, we often find giddiness a permanent symptom.

Thus it is seen that vertigo is rather a symptom than a malady, and a symptom, too, of very varying significance, for sometimes apparently over-fulness of the vessels gives rise to a kind of giddiness. If, for instance, the face is flushed and the head hot, it may be desirable to give some purgative medicine, whereas, the kind referred to first of all as occurring in convalescence, is best remedied by a glass of wine. The subsequent management depends on the same principle. Where there is weakness, good food and exercise are the best remedies; in the other, saline purgatives, with some diuretic.

Not infrequently vertigo depends on brain disease, and such brain disease may be very intractable in character. Headache is commonly associated with such vertigo. Thus the symptom of giddiness, taken by itself, may teach us nothing beyond directing attention to the case which, if carefully studied, will gradually reveal itself to the skilful practitioner.

When vertigo is due either to anæmic states of the brain, cardiac insufficiency, or obstructed kidneys, nitro-glycerine is the remedy. Its effects are immediate.

If due to congestion, free secretions and the use of small doses of strophanthus affords speedy relief.

Essential vertigo, an impairment of equilibrium, accompanied by strange sensations of varying kinds and degrees, is met with as a symptom, not only of cerebral, but of a great many other diseases, especially those of an exhausting and debilitating character. In fact, there is scarcely an adult but has not, at one or the other period of his life, experienced vertigo of some kind. Whereas, then, vertiginous sensations may be said to fall within the boundary lines of health, they may constitute a well-marked disease.

Etiology.—Essential vertigo is pre-eminently a disease of the middle period of life; it generally occurs between thirty-five and fifty, *i. e.*, that period in which most of the nervous affections are developed. The remote and most important cause of vertigo is a neurotic disposition, and a general defective nutrition of the brain. In short, the victims of vertigo are recruited from among

that ever-increasing class of neurasthenics who have been so graphically depicted by the master hand of Geo. M. Beard, in his classical treatise on "Nervous Exhaustion."

Among the immediate causes, exhausting diseases and excesses of all kinds, exposure to the rays of the sun, overheated, and badly ventilated rooms, indigestion, mental emotions, and malaria may be mentioned. The latter is, at least in our section of the country, responsible for the often observed recurrence of vertigo in predisposed individuals, and occasionally an attack of intermittent fever may be ushered in or substituted by a spell of vertigo. Next to hereditary predisposition, there is no more fertile soil for the neuroses to grow and develop upon, than malarial cachexia.

Vertigo, a swimming in the head; *muscae volitantes*, specks or spots before the eyes; and *tinnitus aurium*, noises or ringing in the ears, are respectively due to exhaustion of the cerebral pulp associated either with congestion or anæmia. Vertigo, a transitory state of giddiness, a whirling or falling, surrounding objects appearing to be in motion, is often followed by headache, nausea. It is a symptom of a devitalized state of the brain, weakness or general disease of the blood, or it may be due to a poison, as opium or tobacco, or alcohol; or of some auditory, cardiac, gastric, intestinal or hepatic affection. Any want of equilibrium will give rise to it. It is often a precursor of apoplexy and paralysis. In aged persons it is often due to disease of the cerebral arteries. Vertigo is the most common of all morbid states of the brain, and its great frequency must be accounted for irrespective of disease or poison.

It has long been known that the nervo-vital fluid within the skull forms a bed-plate upon which the brain rests; that this watery fluid within the ventricles finds entry and exit from the brain into the spinal column, so that it comes and goes from spine to brain according as the pressure of blood is less or more.

The mechanism by which the human frame is adapted to go upright is unnecessary to discuss. It will not do to say that it was the size of his brain and ambition that gave him this nervous energy to brace up or take the trouble to be upright. True, the increased size of man's brain and its peculiar richness in gray matter necessitates an increased supply of rich blood. The erect posture placed the brain aloft, so that blood supply is difficult, but this is guarded against and regulated by the cerebral-spinal fluid. Three ounces of fluid is a small quantity; still, the circulation of blood in the cranium is subject to small changes. In extravasation in apoplexy the amount of blood seldom exceeds

three ounces; there is no room for more, for that corresponds with the amount of cerebro-spinal fluid.

In the recumbent posture, the entire spinal fluid is within the skull, which slows the heart ten to fourteen beats per minute. When the body is raised and the venous blood flows away readily from the brain, the cerebro-spinal fluid may outstrip the arterial blood in the race to supply its place, and thus the ventricles of the brain may fill up with water more quickly than its substance with blood, and so the brain blanches and the person feels giddy. In the anæmia of exhaustion the ventricles have an increased capacity, and many persons, with feeble circulation, experience giddiness, a sense of insecurity. Besides these there are numerous other conditions that render vertigo more common than the other two symptoms.

The immense size of the human brain, and its extreme richness in gray matter (weighing from forty-five to sixty-five ounces,) necessitates a great demand for phosphates, which, if not very abundant in human food, gives rise to a condition of starved brain, of which vertigo is the only symptom. This is common in brain-workers who neglect a phosphatic diet.

Stomach derangements operate reflexly and give rise to vertigo.

Auditory Vertigo.—A condition of giddiness dependent on disease of the ear. There is associated with it, vomiting and physical debility; a pale, haggard expression of the features, and it comes on in fits, or paroxysms.

The ear, in some way or other, is at fault, and the centres suffer; usually a lowering of health, which is the great factor in causing the disease; when neither stomach nor liver is at fault. True, stomach vertigo is very common. Auditory vertigo is present in ear diseases, and is liable to attack persons, already deaf, in a variety of forms. The pneumogastric nerve sends a branch to the membrana tympani, so as to enable us to hear the dinner-bell; and irritation from the ear can be carried back so as to cause the gastric symptoms. The fifth nerve is also carried to the membrana tympani.

The vast majority of cases in which vertigo of definite and uniform character is apparently excited by gastric disturbance, an auditory defect, will be discovered on careful examination.

Very common among locomotive engineers, who all suffer with irritability of the urethra, with loss of power in the bladder. It is, so to speak, a special disease among this class of mechanics.

Vesico-Urethral Erethism. The erethism, with impaired power about the bladder referred to, is occasioned by the series of vibrations, imparted by the

action of the engine in motion, intensified by the character of the seat used by the engineers. Ordinarily the engineer sits astride of a narrow seat, which presses solely on the perinæum. Such a seat gives rise most promptly to the symptoms complained of, as it transmits directly to the perineal portion of the urethra, as well as to the neck of the bladder, a constant series of sudden shocks or successions, soon establishing an erethistic state of the sphincter, vesicle accelerator and ejaculator urinæ muscles, resulting in a frequent desire to micturate. In many cases this symptom is so very urgent and persistent that a painful incontinence of urine ensues.

Many of the symptoms presented by this class of cases are similar to those of organic stricture, except that there is seldom a sensitiveness induced by instrumental measures, for purposes of diagnosis, as it is the case in the latter condition. A spasmodic resistance to the introduction of a sound is sometimes observed, but when this symptom is present, a stricture of large calibre in the penile urethra may be expected as a complication; and located without doubt, if a careful investigation is made with bulbous sounds. It is difficult to establish a correct diagnosis in these cases, except by the method of exclusion, because urethral erethism without central lesion is a constant symptom of organic stricture, which sometimes co-exists with the type of urethral irritability under consideration.

It is important to differentiate between these conditions of urethral irritability, because the treatment would be necessarily different. When stricture is present, dilatation often relieves the irritation, in a measure, while it is not an advisable procedure in the uncomplicated type of urethral erethism which we have been describing, and seldom proves advantageous in the form which is due to central lesion. When due to the latter cause, complete mental and physical rest should be enjoined, but in the engineer's form of erethismus, relief can be obtained without necessarily causing the patients to cease work, provided attention be given to diminishing the vibratory shocks sustained by the perineo-urethral cushion. As the cause is mechanical, this can be effected by providing a seat with a soft, elastic cushion, supported by easy springs, arranged so that the weight of the body will be mainly supported by the gluteal muscles, the seat itself thus being made to yield to the jarring and vibration of the iron horse.

Most decided benefit is derived from the nightly use of the cocaine suppository; the internal administration of the ozonized uric acid solvent, alternated with glycerite of kephaline, four ounces; sulphate quinine, two drachms; nuxvomica, fluid extract, one and one-half drachms. Mix. Dose, thirty drops every three hours, added to a little water.

The warm sitz bath, medicated with kreuznack salt, effectual in some cases. The bath particularly lessens irritability about the pelvic viscera, and when used adds undoubted tone to the urinary organs.

Strictures of large calibre, I find, are frequent complications, and unless these receive due attention the symptoms are decidedly aggravated.

Enlarged prostate is sometimes a complication, and I am inclined to believe, is not infrequently occasioned by the continual irritation set up in the urethra and bladder by causes which have been already mentioned.

When this condition is present the warm sitz bath will prove a valuable resource, and the patient should, at least once daily, void his urine while in the bath. Internally, benefit will follow the use of pichi, belladonna, and strychnia.

Shrinking of the vulva is a peculiar form

Vulva, Shrinking. of atrophy of the muco-cutaneous covering of the female pudendum. The affection is due to a pathogenic microbe.

We reproduce the article from the treatise *Diseases of Women* :

“The nymphæ are the subject to a peculiar degenerative and atrophic change, which occurs only at or after the climacteric period. It is a very distressing complaint, and one of the most intractable with which we ever have to deal. It is very often, but by no means always, associated with vascular caruncle of the urethra, of which I shall speak further on. This affection has been alluded to by various other authors, but no description which I have seen includes all the facts that may be observed in connection with it. It is always confined, in my experience, to the mucous membrane of the inner surfaces of the nymphæ, and it is never met with in the labia majora, or in the vagina higher than the vestibule. It is a very frequent cause of the total suspension of marital intercourse, and is the real disease existing in a large number of cases of so-called vaginismus, a term which is widely used as a cloak to cover ignorance and carelessness. A patient suffering from this disease will nearly always be found to be over forty years of age, and she will state that she has a slight yellow discharge, a good deal of scalding when she passes water, and that she suffers excruciating agony on any attempt at intercourse. This latter is always the first symptom in date; and when a case comes under the notice of the gynecologist it will generally be found that intercourse has been discontinued for many months, if not for several years. The misery is very great, a great deal of the climacteric drunkenness, too common among

women, is due to this disease. When the labia are separated and an inspection made, one or two spots of redness on the mucous surface of the nymphæ will be observed, varying in color from a palish black-red to a bright purple; and if these be touched they will be found to be exquisitely tender.

The disease is a progressive atrophy of the mucous membrane, the last textures affected being the blood-vessels and nerves; for, when the process has been completed, the pain ceases, the redness disappears, and nothing remains but a vestibulum vaginæ, so narrow that incredulity may be excused when the patient states that she has borne children. Great relief is obtained, though only temporary, by the application of strong lactic acid to the red spots. The acid is a powerful local anesthetic, and it never fails to mitigate the tenderness for a time. Following this vaginal injection of boroglyceride daily, packing vagina with the solid paste over night has a marked effect in wiping out the germ.

or, as they are scientifically termed, verrucæ, are
Warts, papillary tumors, the varieties of which depend upon their locality. The most common are those situated about the hands or fingers, or sometimes on the face, and more rarely on other parts of the body; they chiefly affect young persons, and their structure is hypertrophied papillæ, closely adherent to each other, and covered with thick cuticle. A somewhat scarce variety occurs upon the scalp occasionally, and almost invariably in women after adult age, although it has been met with in males, and from its presence and form gives great pain and inconvenience in brushing the hair. A third variety is occasionally met with beneath or at the side of the finger or toe nails. These originate beneath the skin and protrude beyond the free margin of the nail. They are generally very painful and troublesome. Warts of a peculiar nature, arising from venereal causes, are met with under the foreskin and between the labia, and are liable to rapid propagation from their close contact with neighboring parts. All warts are undoubtedly contagious.

Bacterium porri.—The microbe of all warts, *contagium vivum*, a minute germ.

Bears culture well in any warm nutrient liquid (is pathogenic), injected into any animal it invariably causes an abundant crop of warts to appear over the entire body.

The isolation of the microbe of warts, whether they be on the hands, on the labia, vagina, urethra, opens up an immense field of scientific investigation. (See *Papilloma*.)

Microbe is at first sterilized, subsequently annihilated, in the presence of *thuja occidentalis*. Washing them over with salt water twice daily, and then sprinkling them with calomel. The reaction of the residual sodium chloride and calomel produces mercuric chloride, which speedily annihilates the microbe without the slightest pain. Lactic or acetic acid efficacious.

Warts are cutaneous excrescences; sessile or pedunculated; pointed or flat; smooth, rugous, or having a cauliflower appearance; pigmented in various shades, or of the natural color of the skin; congenital or developing after birth. They may be single or multiple, and occur upon the hands, feet, face, scalp, neck, genitals, and other parts of the body. They may develop slowly or rapidly, and persist for years, or disappear without apparent cause. They may be soft, dense, or even corneous to the touch.



Vertical section of a wart, showing the nest or cavity in which the *bacterium porri* evolves its spores.

The several names given to the various forms of warts have no clinical import whatever, as it matters little whether they are the size of a pin's head or bean; whether they are hard or soft. Each one is due to irritation, with microbic evolution, which is pathogenic; bears cultivation well in any warm nutrient fluid. The cultures injected into any mammal is invariably attended with a copious crop of warts.

Their removal by ligature, excision, or caustic is barbarous, for each species of microbe is more or less sensitive to the action of a special therapeutic agent, one that will either sterilize or destroy it. Either internally or locally, or both, use the oil of *thuja occidentalis*, which promptly kills the *bacterium porri*, the minute germ, the *contagium vivum* of all warts.

The oil of *thuja occidentalis*. This is decidedly our best remedy.

The following are esteemed by some as local germicides.

Salicylic acid, thirty grains; solid extract *cannabis indica*, five grains; collodion, one-half ounce. Mix. Paint it over the wart every morning and night with camel's-hair brush, or

Arsenious acid, pulv., six grains; hydrargyrum bichloride, five grains; solid extract belladonna, thirty grains. Mix. Apply.

Acetic or lactic acid, or chromic acid, are all good.

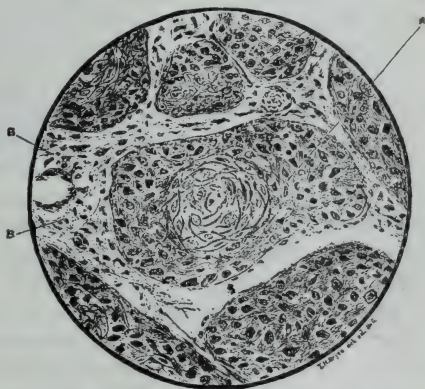
The internal administration of *thuja* completely sterilizes and annihilates the *bacterium porri* in the blood; the drug has a special affinity for the germ.

Wasting, either a symptom of microbial evolution, or parasite growth.

Wasting Disease. In children, wasting indicates the evolution and growth of microbes. It may arise from insufficient nourishment, or from unsuitable food, or from diarrhea. The bacillus tuberculosis, as a rule, is the great factor of nearly all wasting diseases; closely allied to it is the microbe syphilitica. Wasting in the adult may be due to the same and numerous other causes, as degeneration of all kinds. A portion of the body may waste for want of use.

This very rare form of skin disease seems to attack males and females with equal frequency. It has a tendency to set in in the spring and summer, and develops itself into four sets of lesions.

The first is characterized by the development of little pigment spots, identical in appearance with, and sure to be mistaken for, ordinary freckles, all the more as they are found upon the uncovered parts, namely: face, neck, hands, arms and legs, although the trunk of the body occasionally suffers later on. In some cases the pigment-spots are preceded for a few days by the development of little congested spots, somewhat like those of measles, although this is the exception. By degrees the pigment-spots tend to become much darker in color, and sometimes by aggregation, they may become irregular in shape, and attain the diameter of an inch or more.

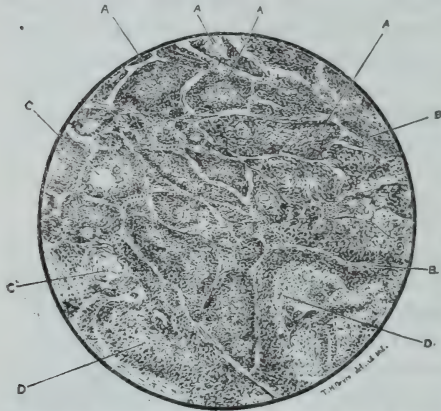


Xeroderma pigmentosa x 250; tumor from beneath outer canthus. A, "cell nest," highly magnified. B, fibrous stroma.

Sooner or later, it may not be for months or even for years, the second stage is reached, which consists of the formation of little congeries of dilated capillary vessels (telangiectases) between the pigment-spots, and about the same size as they, though they are not nearly so plentiful; occasionally they are slightly elevated.

In the third stage, many of these telangiectases are replaced by an atrophic condition of the skin, although some hold that the telangiectases succeed, and are consequent upon, obliteration of

vessels in the atrophic areas. The latter are, for the most part, from the size of pin-heads to lentils; but they may assume various shapes and sizes, and the skin of these parts is very white, and either smooth and cicatricial in appearance, or thin, dry and wrinkled.



Xeroderma pigmentosa x 35; tumor from beneath outer canthus. A A, cell nests—peripheral, irregular, epithelial cells with large nuclei. Central cells—cornified and arranged round centre in a laminated fashion. B, B, fibrous stroma—here and there between epithelial masses in stroma collections of round cells. C, C, cell-nests, from which central cornified masses have fallen out. D, D, epithelial masses of large size, central cells of which have become, to a certain extent, cornified, the nuclei being indistinct. Peripheral zone of irregular, epithelial cells with large, deeply stained nuclei.

In the last stage, which may not appear for a good many years (in one case, not for thirty), at some parts, especially on the right side of the face, the vascular or pigment-spots become warty and ulcerate; and fungoid growths develop, which, sooner or later, terminate the life of the patient. Some hold that these are papillomatous, while others consider them to be epitheliomatous in character, as they certainly are in my case. Probably, they are sometimes the one

and sometimes the other. It is only in this last stage that the general health suffers. The ultimate prognosis is therefore grave, although, in some instances recorded, the last stage was not reached when they were reported.

The best plan in all such cases is to place the patient upon a tonic and alterative course, precisely the same as for cancer; locally lotion of bichloride of mercury, alternated with the boroglyceride, is the most efficient treatment.

More recently, the introduction of dermato-bactericides into gelatine-glycerine compounds, has been attended with brilliant success in xeroderma.

Simply brushing them over the affected parts.

In these compounds, a large number of them can be introduced.

BACTERICIDES.

Abrus Precatorius. Jequrity seeds or beans. Infusion of seeds produces a shedding or peeling off lymph infiltrations on the conjunctiva and cornea. In effecting this exfoliation of morbid tissue, an artificial purulent ophthalmia is produced, which speedily subsides, leaving a healthy eye; free from opacities and granulations. Freshly powdered seeds, three parts; cold water, 500 parts; with hot water 500 afterwards added, filtered. When cold, dropped into the eye three times in one day; and repeat the next day if exfoliation has not taken place.

Ozonized distillation of the jequrity bean annihilates the microbe of diphtheria, and causes it to shrivel up and exfoliate from the mucous membrane; it can be brushed over the microbial patch in full strength or diluted, or used in a hot steam atomizer. Paint thrice daily, if by atomizer every one or two hours.

Uterine wafers from powdered jequrity bean specially prepared by both positive and negative ozone. This powder, ten to thirty grains blown through a speculum on a diseased or ulcerated, or gangrenous os uteri or neck, or better still, one or two capsules inserted against the diseased parts on retiring will cause a most complete desiccation, shedding or peeling off of morbid tissue, leaving the recently diseased parts in a most healthy state. This it effects if perfectly applied or inserted in eight hours.

The method supersedes all caustic applications and old procedures. Boroglyceride and slippery-elm injections complete the cure.

The distillation of the jequrity bean is the best local remedy for diphtheria. Invariable success attends its use, by painting it on over the germinal mass, with a camel's hair brush, followed by a spray of the pure distillation, and then continuing at longer intervals. In the case of very young children its strength should be reduced considerably; just sufficient not to irritate the mucous membrane. Under the use of this distillation, even sparingly applied, the diphtheric membrane speedily undergoes a change; temperature diminishes, and a general improvement takes place. If the false membrane has developed rapidly, and

the case even seems hopeless, apply the remedy, and the germinal mass will soon detach itself.

I. B. Kleckner, M. D., Lynchburg, Ohio, the most eminent bacteriologist in that State, thus speaks of the bacillus of the jequirity :

"The bacillus occurs in the toxic juice infusions of the beans of *abrus precatorius* or jequirity. Infusions containing the bacilli, dropped into the eye, cause a complete exfoliation of the mucous membrane ; in doing this, if either granulations or opacities are present, they are removed completely when this peeling process sets in.

The beans reduced to an impalpable powder, and submitted to the action of ozone, form what is known as the ozonized uterine wafers. Either the application of this powder to the uterine os or neck ; or the same powder contained in a capsule or wafer, causes a complete exfoliation of the mucous membrane where it is applied, with all the indurations, ulcers, excrescences, leaving a perfectly healthy tissue beneath.

Boiling or distillation does not destroy the spores of the bacillus, but it kills the ferment, and when peroxide of hydrogen is added, we have in the ozonized distillation of the beans the most powerful remedial agent known to kill the microbe of diphtheria. This it will accomplish either by gargle, swallowing or atomized spray.

The clinical results of the Massachusetts Ophthalmic Hospital, last year, gave 197 cases in all of granular conjunctivitis ; various forms of opacity of the cornea ; and a dozen cases of lenticular cataract, cured by the repeated application of an infusion of the beans.

Eminent gynecologists throughout the country report cases of uterine polypus, induration of the neck, various forms of ulceration of the os uteri, etc., in which the jequirity capsules were used with marvellous success, in every case causing a complete exfoliation or peeling off of the diseased tissues, leaving in all cases the parts in a normal condition. The use of these wafers is producing a complete revolution in gynecological procedure.

The most powerful action of the drug is obtained from the distillation of the jequirity in the gravest forms of diphtheria. Used either as a gargle, or by painting or swabbing the parts, or better still by inhalation, which is adapted to the youngest child.

Introduce the remedy pure into the boiler of the atomizer, and as soon as the vapor or spray forms, permit the patient to breathe it. The instant the spray strikes the germ-laden mucous membrane, the microbial mass withers, shrivels up and dies ; it can

be repeated several times daily, as often as the bacilli exosmose from the blood—the glycerite of sulphur ozonized being administered internally to annihilate the germ in the blood and sterilize that fluid.

This treatment entirely obviates all surgical procedure, which is a mockery of science. It cuts off the possibility of the formation of ptomaines, which are so toxic to the blood in causing embolism and heart-rupture—to the nerve cell, in the production of paralysis.

The gum Acacia is procured from various species of the Acacia tribe, growing in the desert parts of Africa, where it is sometimes used as food. In this country the gums commonly employed for domestic, commercial and other purposes, are called gum Acacia, but, in reality, are the product of many other trees; cherry gum being largely used.

An excellent demulcent, useful for suspending balsams or oils. It blends, dilutes or covers their acrimony. Incorporated in water it is of great utility in inflammation of the stomach and bowels; also in irritated or inflamed bronchial, urinary, mucous membranes. We have found the following most efficacious in old bronchial affections:

Mucilage gum arabic: syrup simplex, of each, 4 ounces; chloride potassa, pulverized alum, of each, 3 ounces; tincture sanguinaria canad., 1 ounce.

Mix. One teaspoonful every three hours.



Gum Arabic.

may be prepared in various ways, but that Acetic Acid commonly used is obtained from the distillation of wood in appropriate retorts, whence it is also called pyroligneous acid. It is used in medicine in two forms, the strong or glacial, and the dilute. The glacial acetic acid, so called from being normally solid or in the condition of ice, is chiefly used for external applications, the most frequent being the destruction of the microbe of warts. The skin round the wart must be protected by a layer of grease or oil, and the acid applied to the body to be removed by a bit of stick or camel's hair pencil.

Achillea. A most valuable remedy. In tincture form it is both an aromatic, hæmastatic, astringent and antiseptic, and is of great efficacy in promoting the healing wounds by first intention. The aromatic and germicidal properties are strongest in the flowers, while the leaves are most astringent. An oil may be obtained by distillation with water and an alkaloid extracted in the usual manner. Take it all in all, it is a most invaluable remedy, and too little used. For the suppression of hemorrhages and profuse mucous discharges an infusion of one ounce to the pint, made without boiling; wine-glassful doses; or the tincture of volatile oil in thirty-drop doses.

Yarrow is used by the Swedes instead of hops in the manufacturing of beer, so as to render it more intoxicating.



Yarrow.

This alkaloid is obtained from both roots and leaves of the aconite napellus, the roots yielding it in great abundance.

Aconitine. This crystallized aconitine differs widely from what is offered by different manufacturers, being one hundred times stronger. Preparations much inferior to this, and termed aconitin, should be banished from all stores as they are liable to deceive. This alkaloid is best administered in $\frac{1}{10000}$, $\frac{1}{2000}$, $\frac{1}{1000}$ and $\frac{1}{500}$ of a grain in the form of a tablet.

Its administration at once promotes diaphoresis and diuresis, increasing the secretion from serous, mucous and synovial membranes.

It is a powerful sedative to the nervous and vascular systems; very valuable in all fevers and inflammation.

It makes excellent liniment, thus: Tincture of aconite, belladonna and chloroform.

The tincture of leaves is the best form of administration.

It should be given highly diluted in water, in small doses, frequently repeated, until it produces a soothing sedative action, which is usually manifest in diminished temperature and in moisture on the skin.



Aconite.

**Acta
Racemosa.**

Receives various names, as *cimicifuga racemosa*, *macrotys*, black cohosh, black snake-root. Medicinal properties resides chiefly in the root.

In decoction, tincture, fluid extract, it is an unexcelled bactericide, makes an excellent gargle; in sewer-gas sore throat, putrid, tubercular, or syphilitic ulceration of mouth and throat.

An ointment prepared from the fresh dug root is useful in parasite skin affections.

It is a valuable microbicide, effectually sterilizing and destroying the *bacillus amylobacta* and that of hooping-cough.

It has strong acro-narcotic properties, allays nervous excitability; passive congestion of the brain and cord; active cerebral stimulant in variola, in which it drives the micrococci into the papulæ. A fluid extract by re-percolation is the best form for general use.

1. *Cimicifuga* has a positive sedative effect upon the parturient woman, quieting reflex irritability, nausea, pruritis, and insomnia, so common in the last six weeks of pregnancy; it always renders them less distressing, and they often disappear under its administration.

2. *Cimicifuga* has a positive antispasmodic effect upon the parturient woman. The neuralgic cramps and irregular pains of the first stage of labor are ameliorated, and often altogether abolished. In fact during the first indiscriminate use of the drug in all cases, I had the mortification with a few women of terminating the labor so precipitately, and without prodromic symptoms, as to be unable to reach the bedside before birth.

3. *Cimicifuga* relaxes uterine muscular fibre, and the soft parts of the parturient canal, by controlling muscular irritability, thus facilitating labor and diminishing risks of laceration.

4. *Cimicifuga* increases the energy and rhythm of the pains in the second stage of labor.

5. It is my belief that *cimicifuga*, like ergot, maintains a better contraction of the uterus after delivery.

6. The special physiological action of the black cohosh is a powerful cerebral and spinal stimulant, and vitaliser.

It owes much of germicide properties to that action.



Black Cohosh.

Adahatoda Vasica. A bactericide of the highest order. Unlike all other germicides, it is death to all the lower organisms, and the lower we descend in the scale of microscopic life, even to spores and protozoans, the more active this remedy becomes; whereas, it is entirely innocuous and without any toxic effect on high-graded living tissue, such as man, and animals near to him in the scale of existence. All germicides of recent origin which would kill the bacteria of any given malady, except this, are liable in large doses to affect normal tissue deleteriously.

Besides, it is of some value in ordinary doses in bronchitis; and smoking the leaves is of utility in asthma. A decoction of the leaves rapidly destroys animalculæ and insects, but upon higher grades of existence has no effect whatever.

Adonidin.

This glucoside is extracted from the *adonis vernalis*. It appears as a yellow powder, having an intensely bitter taste; slightly soluble in ether and water, but much more soluble in alcohol. It is largely used by all progressive physicians as a substitute for digitalin. Its properties are identical with that drug, but lack the cumulative effect. It is an excellent cardiac tonic, diminishing the frequency while increasing the force of the heart. It is a diuretic, unlocks the absorbents, but never causes diarrhea or vomiting. The ordinary dose of one-third of a grain several times a day.



Adonis Flower.

In heart affections, where *digitalis* and *strophanthus* fail. This drug often proves efficacious.

**Agaric Acid—
For Night Sweating.**

Some years ago a substance derived from the well-known *Agaricus albus* was introduced as a sweat-checking agent in phthisis. It was looked upon as an alkaloid body, and received the name of agaricine. This, however, has now been found to be an impure substance; we have recently extracted from it a triatomic dibasic acid, to which the name of agaric acid has been applied. This is a white silky crystalline substance, scarcely soluble in cold, but readily so in boiling water. We have recently investigated its physiological

effects, and shown that its action is upon the centres in the medulla, especially the vagus and vasomotor. It possesses no mydriatic action: on the contrary, instillation of the sodium salt of the acid produces slight narrowing of the pupils, probably from mechanical irritation. The influence of the substance on the secretion of sweat is not a central one; but the result of an action; on the secretory structures. We have tried it in very many cases of profuse sweating. The dose given was usually $\frac{1}{6}$ grain in pill, administered in the evening about six o'clock. If the action was insufficient, as many as five pills were given. In most cases the result was very satisfactory, even in those cases where atropine failed, and it was unaccompanied by any unpleasant symptoms.

The efficacy of this substance in relieving the sweat of consumptives has been demonstrated by *Prof. James A. Davis, M. D.* It is given in doses of 1-12th to 1-6th grain in pills, to which some Dover's Powder is usually added, as agaricin often produces diarrhea, sometimes accompanied by violent abdominal pains.

Agaricini, 8 grains; pulverized ipecac. and opium, 120 grains; althææ pulverized, mucilag. acaciæ, of each, 60 grains.

To be made into one hundred pills; one or two pills to be taken at night.

Considerable quantities of agaricin have been used in all city hospitals for relieving night sweats of consumptives and other patients with uniform success. It is usually given in combination with atropin and aromatic sulphuric acid:

Agaricini (Merck), 10 grains; atropinæ sulphatis, 1 grain; acidî sulph. arom., 1200 drops.

Dissolve and filter. Dose: 10 minims, containing 1-10th grain of agaricin, 1-120th grain of atropine sulphate, and 10 minims of aromatic sulphuric acid. To be administered in syrup or simple elixir.

(*Eupatorium cannabinum*), a
Agrimony. bactericide of the highest order,
 a sudorific, very beneficial in
 catarrh and influenza. In large doses, emetic and
 purgative, and in small doses tonic and diuretic.

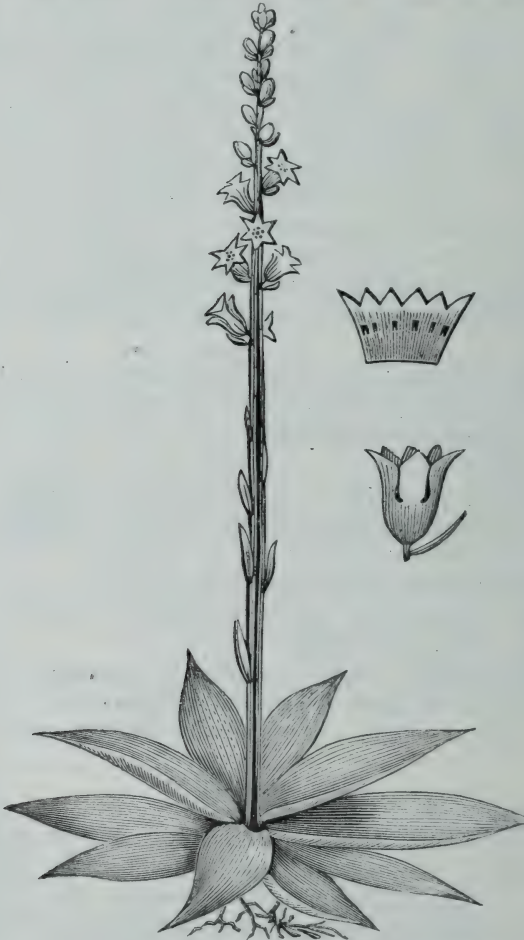
The whole plant is a bitter tonic of the most active kind, and has a most energetic action upon the liver, very valuable in jaundice.



Agrimony.

Aleteris Farinosa.*(Distillation of the Aleteris.)*

This entirely supersedes both the farinosa cordial and wine, being at least twenty times more active; being a powerful uterine tonic and restorative, composed of aleteris farinosa, black haw, mitchella repens, helonias, elecampane, spikenard, hydrangea,



Aleteris Farinosa.

caulophyllum, etc. This perfect and elegant compound is indicated in the cure of all female disorders, as amenorrhœa, dysmenorrhœa, menorrhagia, leucorrhœa, subinvolution, puerperal convulsions, relaxed condition of uterus and appendages, and

threatened abortion; directing its action in a most remarkable manner to the entire uterine system as a general tonic and anti-spasmodic, and in cases of impaired vitality; complete restoration follows its use.

This remarkable preparation is used with great success in all cases of female weakness. It has no equal as a tonic and anti-spasmodic, sedative, prevents abortion and puerperal convulsions, imparts tone and vigor to the female reproductive organs, capable of facilitating fecundation and rendering parturition easy.

It is one of our very best remedies to tide a patient comfortably over the change of life, relieve her aches, burnings and reflex sensations.

In the words of the eminent *Prof. Rutledge*, of St. Louis, Mo., it is unrivalled as a uterine tonic in irregular, painful, suppressed, and excessive menstruation. It restores normal action to the uterus, and imparts vigor to the entire uterine system.

The cortical portion of the root of this plant contains a coloring principle, of a beautiful deep-red, which is very generally employed for coloring tinctures, wines, oils, ointments, plasters, which are beautifully reddened and rendered antiseptic by it. The best method to introduce it into those bodies, is to suspend a piece of it in them while being melted or otherwise prepared. This coloring principle is soluble in alcohol, ether, and the oils, to which it imparts a deep red, but is insoluble in water.



Alkanet.
(*Anchusa officinalis*)



Alder.

Alnus Nigra. An active bactericide and efficient alterative; decoction, fluid extract, and comp. syrup, operate well in syphilis, cancer, rheumatism, dropsy.

A cerate prepared from the bark and leaves, kills all vegetable and animal parasite skin affections.

It is still more efficient by the addition of rue.

A succus or expressed juice of the green plant arrests the secretion of milk in the female breast.

Althæa.
(*Marsh-mallow.*)



Marsh-Mallow (*Althæa officinalis*).

The virtues of this plant are those of a demulcent to all mucous membranes. The decoction of the root is much used in all irritations and inflammations of that tissue. Its great therapeutic value is, it is not only extremely soothing, aromatic, but it readily holds five volumes of the peroxide of hydrogen, without causing decomposition.

Thus saturated with this very powerful germicide it becomes a most invaluable remedy in nasal and bronchial catarrh, and in all catarrhal affections of the stomach and bowels.

To obtain its antiseptic properties, the green root should be sliced up and digested in four times its weight of olive oil, at a temperature of about 300° F., for several days, until they become dry or crisp. As soon as the process is complete, the oil is drained off, and is completely charged with the entire germicidal properties of the plant.

A genus of succulent plants or trees, which vary considerably in size from six to ten feet. The medicinal property of the tree is the hardened juice, which runs spontaneously from the leaves when wounded.

The best extract is from the aloe socotrina, which abounds and gives a character to the small island of Socotra, at the mouth of the Red Sea.

If needed, to overcome constipation, use it prepared as follows:

Aloes, two ounces; soda bicarb., two ounces; number six, two ounces; hot water q. s. to make six ounces; dose, twenty to thirty minims in water night and morning. By care, the dose can be determined that will produce one evacuation daily, and not irritate the rectum. We regard aloes a true tonic to the rectum and colon, in appropriate doses. As a local application, use a salve made of vaseline, boric acid and belladonna.



Aloes.

Alum is a compound crystalline body having as its essentials alumina and sulphuric acid with potass or ammonia. It is an *astringent* substance, and is used to lessen discharges of many kinds, and as a gargle in sore throat. When heated, it melts and becomes powdery; this, which is called burnt alum, is often used for ulcers when they become flabby. Two or three grains along with an ounce of decoction of oak bark, constitute a safe local application for ordinary discharges.

Alum with all its compounds is an excellent bactericide.

Aluminum. An antiseptic of great value, and the remedy occupies a prominent position in the cure of ozæna. A weak solution for syringing the nose. Its action is rapid and safe. In laryngeal phthisis it may be used by a vaporizer with great success. Dose: Local; a teaspoonful of a fifty per cent. solution to teacupful of water once and repeat.

Solution of Acetate of Aluminum. A three-per-cent. solution of acetate of alumina is a powerful germicide and disinfectant. It is greatly to be preferred to any other agent in surgical practice as it is efficient and free from all objections. It is inodorous, and it should be diluted with from two to five times its volume of water when used as an injection or by irrigation. It promptly destroys all disease germs on foul or gangrenous sores, and is one of the best of all antiseptic injections in puerperal septicæmia. Useful in some skin affections. Local use; applied daily or more frequently.

Alvelos Milk. A miserable caustic, much inferior, more irritating than nitric acid, used by a number of medical impostors as a barbarous counter-irritant for cancers, ulcers, chancres, tumors. It is applied by painting on and repeating.

The drug has no redeeming property whatever, and should be excluded from the materia medica of all nations.

All parts of this plant but especially the **Amaranthus**. leaves yield a glucoside, amarantha, which is highly astringent and antiseptic. It is of especial value in uterine hemorrhage, more efficient than erigeron or ergot. It resembles matico, or alum, and if the remedy is fresh seldom fails in its action. It is also of great utility in gastric and rectal hemorrhages.

The tincture forms an admirable dressing to bleeding wounds.



Amaranthus

is used both by itself and combined with other chemical agents for a variety of purposes. It is nowadays got from gas-house refuse, but used to be obtained by burning hartshorn, whence it got the same name. Pure ammonia, or, as it is called by chemists, caustic ammonia, is rarely used. When ammonia is given internally

for its stimulant virtues, its carbonate is used—sal-volatile, or smelling salts. It is used as aromatic spirit of ammonia in doses of from a few drops on sugar to a teaspoonful or more (five drops to one drachm), to relieve flatulence, to remove the feeling of sinking, and to get rid of acidity and heartburn. It is also useful in some forms of headache, and in the chronic bronchitis of old people, when their winter cough is complicated with copious tenacious expectoration. Liquid ammonia has been of late used with much success as a remedy for snake bite. It has been given internally in considerable quantity along with brandy or whisky. In Australia it has been repeatedly injected into veins for snake bite, and the treatment has proved there quite successful, but has failed in India. The old remedy hartshorn and oil (*freshly prepared*) will be found very useful for the stings of bees and wasps, the bites of mosquitoes, gnats, and such like.

Acetate of Ammonia. This substance has been a good deal used in practice as liquor of acetate of ammonia, commonly called Mindererus' Spirit. Its dose is from two to six teaspoonfuls (two to six drachms,) and it has commonly been given to relieve feverishness, destroy germs, as in ordinary fevers, colds, etc. It is supposed to cool the skin by promoting perspiration,

neutralizing ptomaines. It may be given along with sweet spirits of nitre, and a few drops (two or three) of antimonial wine, when the skin is hot and dry, and the pulse quick, or with salicylic acid.

Hydrochlorate of Ammonia, also known as chloride of ammonium, more commonly as sal ammoniac, is used in certain forms of headache. It often succeeds when everything else has failed. Five to twenty grains should be taken for a dose. It is also useful in certain female complaints, especially when the periods have been irregular or have prematurely ceased.

Its germicide action is substantiated in nearly all microbial diseases. For example: a lotion of chloride of ammonia is invaluable as a local application to destroy the micro-organisms of wasps, mosquitoes, ivy, sumach, erysipelas, when embedded in the skin; the same preparation, in five-grain doses every two hours in syrup, destroys the conferva of *bronchitis*; the same preparation in hepatic abscess destroys in a most mysterious manner the microbe of pus, with its ptomaine; either the chloride or carbonate, alternated with copious draughts of infusion of skullcap, has a marked action in sterilizing the bacillus of *rabies*; the liquor ammonia acetatis sterilizes the pneumococcus of *lung congestion*; and the acetate of ammonia, combined with salicylic acid, completely annihilates the amylobacta of *rheumatism*.

Amylene Hydrate. Tertiary amyl alcohol, or, as it is often called, amylene hydrate, recommended as a hypnotic, and it has lately been introduced into practice. It is said to be intermediate between chloral and paraldehyde, safer than either, and not likely to disturb the digestion. When we consider that the next number of the series above amyl, namely, hexyl, may yield thirty eight alcohols, and that thirteen of those are actually known, we can readily see what a possible field there is for the introduction of new hypnotics.

Anagallis Arvensis. A most remarkable bactericide. A saturated tincture has an acid and bitter taste; when administered in any microbial disease it has the faculty of sterilizing the germ, besides it is an excellent local application to germ-laden ulcers.

It has succeeded in hydrophobia, tubercle, in epilepsy, causes great activity of the hepatic secretion, and thus becomes of value in hemorrhoids.



Pimpernel.

Andromeda Polyfolia
or
Sorrel Tree.



Andromeda Polyfolia.

This beautiful tree is indigenous in all the mountainous regions of our country, and its leaves afford a most grateful and refreshing drink to all fever patients. An infusion of the leaves is refrigerant and highly antiseptic, sufficiently so to destroy the germs of a large percentage of our fevers; its liberal use as a drink lowers heat, pulse, respirations.

It also makes an excellent wash or lotion to gangrenous sores and chronic ulcers, erysipelatous inflammation. It speedily destroys the germs of the disease and aids nature in repairing the local lesion.

It has been prepared in the form of a fluid extract, but it loses its best properties in that form. An infusion seems so far to be the only reliable preparation.

A species of pulsatilla which grows abundantly in the Western States, and contains the glucoside *anemonic*, which is a bactericide of most extraordinary power, being capable of destroying the bacillus of syphilis, leprosy, and phagedena.

If the herb is used, it should be fresh, carefully preserved, not older than one year, and collected after the flowers mature.

From an herb in that state either a decoction or fluid extract can be prepared possessing all the germicidal properties of the plant, which can be administered internally or locally in all microbial diseases. Makes an excellent cerate with ozone ointment for parasite skin affections.

The root is produced by the plant known as **Angelica**. *Gaudea Angelica*, the *Angelica Archangelica* of the botanist. It contains a pleasant volatile oil, and is used as a stimulant and carminative in medicine. Occasionally used as an emetic and purgative.

The whole plant belongs to the class of aromatics, which possess such decided germicidal powers.

It has quite a reputation in some parts of the country as a complete antidote to snake-bite.

For this purpose the fluid extract is generally used, administered internally and applied locally.

Some, for this purpose, combine it with the scutellaria, equal parts of each, freely administered.

Antifebrine

Antifebrine is a name selected for an antipyretic which affords most salutary results. It is identical with phenylacetanide or acetanilide, prepared by the action of aniline upon acetylchloride or anhydrous acetic acid. It occurs in the form of pure white odorless crystals or rhombic plates, producing a slight burning sensation on the tongue. It is insoluble in cold water, but more soluble in hot water, and freely soluble in alcohol, and alcoholic liquids, such as wines, etc. It possesses neither basic nor acid properties, and is not readily attacked by most reagents.

Extensive clinical experience clearly demonstrates that in all fevers due to the presence of a disease germ, four to fifteen grains enclosed in a wafer or dissolved in wine or suspended in water, administered not oftener than once in the twenty-four hours, will promptly reduce heat, respirations and pulse.

It has another recommendation, which is its comparative cheapness, which is offset however by the fact that, under certain circumstances, it dyes the whole body of the patient an intense blue, which, although said to have no serious consequences, and to last but a short time, must be extremely disagreeable to the patient. The blue color is said to be caused by its conversion into aniline in the system.

It is a matter of theoretical interest as well as practical import, that, while others of the recent antipyretics are either phenols (such as carbolic acid, hydroquinone, resorcin, and salicylic acid), or bases of the quinoline group (including quinoline, kairine, antipyrine, and thalline), in acetanilide we have a body of quite different chemical constitution, which exerts a similar effect.



Angelica.

This is prepared by the action of ozone gas on boracic acid, forming a rose red powder of extraordinary germicidal power.

Anti-Microbe Powder.

It was specially prepared for surgical practice for dusting on wounds, obtaining in all cases in which it was applied union by first intention.


Later on it has acquired quite a reputation in hospital and private practice, as a local germicide. It is especially adapted for the requirements of the nursery, as a dusting powder, and as a substitute for the villainous powders palmed off on mothers; here it has been used with signal success. As a toilet powder for ladies' use, it possesses great advantages over the poisonous cosmetic powders of zinc and bismuth so much in use, prepara-

tions which are very incautiously resorted to, and which cannot be too strongly condemned.

In the management of cases of incontinence of urine, and in all urinary complaints, as a dusting powder it has proved invaluable; by its use the urine is deodorized and the skin protected against bacteria with soreness and excoriation.

In *chafing*, in which bacteria are always evolved, its action is instantaneous, affording prompt relief.

In erythema, roseola, urticaria, in which the bacteria are on the skin in search of free oxygen, its application is instantaneous, in the removal of the burning,



A conglomeration of microbes often found in the human mouth—such as the microbe of dental caries; the *oidium albicans*; the *bacillus amylobacta*, etc.

tingling in the skin. In bed sores in which the *oidium albicans* are present, this powder instantly kills the entire colony, and cicatrization takes place.

These microbes are completely destroyed and the mouth kept aseptic by dissolving half a teaspoonful of the anti-microbe powder in four ounces of water, and used thrice daily as a mouth wash. This proceeding removes tartar, preserves and beautifies the teeth.

It annihilates disease germs wherever they exist and can be reached. As a snuff, it will destroy the amœba of nasal catarrh; as a dentifrice or tooth or mouth application, all germs in the oral cavity will disappear if applied there; it is inimical to all

forms of tinea, it will kill the cryptogamic growth of sycosis, if dusted on after the face is washed and dried.

Microbe powder differs from any and every pulverulent substance hitherto introduced for the skin. It contains no rice powder, starch, oxide of zinc, bismuth, fuller's earth, or violet powder, and is a most beautiful palpable substance, light, soft and of lovely flocculence (not lumpy), and is free from the slightest trace of grittiness. It does not exert the least irritating action, but is, on the other hand, the blandest and most grateful of powders.

It is perfectly neutral in reaction, and is freely soluble in water, so that it does not occlude the pores of the skin, or cake and form crusts thereon, to cause endless irritation, and aggravate instead of ameliorate unhealthy conditions. Microbe powder will adhere to the skin by gently dusting it on the face, as after shaving. The most delicate, transparent, snowy film may be thrown over the skin to protect it from wind, sun, dust, and irritating gases. It is antiseptic, quite innocuous, and may be used on weeping surfaces, on parts which chafe, and on the axillæ, feet, and hands. As a face powder, and for the nursery, it is all that could be desired.

It is suitable for a mouth wash, for vaginal injections, and will be found most convenient to replace during the day. It is in itself a sure cure for all skin affections.

Antipyretics. Antipyrine is a quinoline derivative. It is a white, crystalline powder, readily soluble in water, and of weak, easily disguised taste.

(*Antipyrine.*) According to close observers, it promptly lowers the temperature, in doses of fifteen grains, with an hour's interval between. The temperature falls gradually, usually without sweating, and reaches its limit in three or four hours. It remains low for seven or eight hours, as a rule, but twenty hours may elapse before the original temperature is reached again. The rise is not accompanied by shivering. The pulse is retarded, but not proportionately to the temperature. No unpleasant symptoms occur, except vomiting in some cases after large doses. The urine is always free from albumen, and is not darkened. Half the above dose (seven and one-quarter grains) is enough for children, in sugar and peppermint.

The use of antipyrine :

1. In all cases of cardiac weakness.
2. In diphtherial affections, in which there is evidence of myocardic lesion.

3. After exhaustive hemorrhages.
4. During menstruation and dysmenorrhœa.
5. In catarrhal pneumonia generally, and lobar pneumonia when there is œdema of the lungs—heart failure.
6. In the later stages of tuberculosis.
7. In all cases of great debility and exhaustion, and in the latter stages of long-continued fevers.

It is believed that the foregoing contra-indications with regard to the administration of antipyrine and similar medicaments, will receive the approval of physicians generally.

According to the testimony of *Wilder Q. Brooks, M. D.*, of Jacksonport, Wis., who has made a most careful study of this drug, exalgine, and antifebrine. He says, and he is authority on the subject, that antipyrine and exalgine are chemically and therapeutically identical; that the one is stronger than the other.

Antipyrine.

Antifebrine.

Lowers temperature in a half hour.	In an hour or more.
Effect lasts two hours.	Effect last six hours.
More diaphoretic.	More diuretic.
Depressing after-effects.	No after-effects.
Cerebral sedative.	Cerebral vaso-motor and muscular (?) stimulant.
Dose, 15 to 30 grains.	Dose, 5 to 15 grains.
Tolerance from continued use.	Tolerance from continued use.

This table, he says, will suggest the selective use of the two drugs. From the patient's point of view (which is really coincident with the physician's), antifebrine is much to be preferred in continued fevers, because the dose is one small capsule instead of three; the effect lasting so long requires one-third the number of doses; the tonic stimulation excels the depression and after malaise; and the cost is one-fourth that of antipyrine. The antipyretic effect of antefebrine is as strong or stronger than that of antipyrine, and its only objection is its slowness of action. In insolation and other cases where a quickly acting antipyretic is necessary, and when it has a specific action on the pathology of a disease, as is claimed in rheumatism, antipyrine is to be preferred. Whenever one can wait an hour for the antipyretic action to begin, he greatly prefers antifebrine, and so he believes will the patient also. He regards its stimulant or tonic effect as very valuable in weak patients.

The effects to be derived from the apocynum
Apocynum. are very variable, depending greatly upon the dose. It is an excellent drug in that debilitated, relaxed condition of the blood vessels which permits of effusion. In alternation with *strophanthus* or infusion of *digitalis*, it seldom fails in getting rid of dropsical effusions.

It is a germicide of no mean power, arresting the lactic and butyric changes in rheumatism, thus controlling that morbid condition.

It has a marked action in annihilating the *crypta syphilitica*.

Its true sphere of action is in all forms of dropsy; our most trustworthy agent in hydrothorax.



Apocynum.



Arnica Montana as it grows in Switzerland.

Apiol.

(From Parsley.)

Rouses up the lumbar plexus of nerves; salutary in damaged kidneys; of efficacy in amenorrhœa. Dose, five grains every three hours.

A distillation ozonized acts most energetically, and exhibits all the characteristics of ergot and quinine.

This ozonized distillation acts as a diuretic, emmenagogue, and bactericide. A poultice made of the green herb with vinegar neutralizes the bites of venomous reptiles.

It exerts a powerful action on the uterine secretions.

A perennial herb growing freely on the Alps and other parts of Central Europe. Its roots, stem, and leaves are powerfully acrid and antiseptic.

It is quite extensively prescribed in low fevers, conditions of extreme debility, and in paralysis. Externally, it is much used in the form of

tincture, applied to wounds, bruises, sprains. Some use it in full strength; others dilute. Its peculiar bactericide properties reside chiefly in a resinous substance called *arnicine*, and to a volatile oil. The latter makes an excellent cerate.

Arnotto. A tincture of the seeds of the fruit are equal, if not superior, to dioscorea, in colic. An extract prepared from the pulp surrounding the seeds is used for coloring butter and cheese. It is used to dye silks and cotton-cloth yellow, but the color it imparts to those are fugitive.



Arnotto. Bud of a branch with leaves and flowers.
Capsule.

Bixin, a crystallizable coloring, is extracted from it.

It has excellent microbicide properties, and its use as a coloring matter in dietetic articles is in no way injurious, but rather beneficial.

is the common term for what is more strictly called arsenious acid, or white arsenic. It is both a dangerous poison and a powerful

remedy. It is best given in the form of liquor arsenicalis or Fowler's solution, of which three, four or five drops may be given in water immediately after a meal. Notwithstanding the disastrous consequences of large doses, given in the small ones described it is very valuable in certain complaints. A preparation of arsenic was long used in England as a remedy for ague, under the name of the Tasteless Ague Drops. Even in tropical fevers of the same class in which quinine has been given and failed, arsenic will sometimes succeed.

There are some kinds of headache, especially one called brow-ague, in which arsenic does good, as it also does in others more distinctly neuralgic in character. It has also been given for some forms of nervous disorder. Of all remedies arsenic seems to be that which is of most use in skin diseases, especially those of a scaly or scurfy kind; where much purulent matter is produced it seldom does much good. Small doses should be given very regularly in the way indicated above, and if any smarting of the eyes comes

on, it should be discontinued for a time and again resumed in smaller quantity.

Arum Triphyllum. Dragon root is an invaluable remedy, being antiseptic and antispasmodic, of great efficacy in asthma and hooping-cough. A tincture or fluid extract is the best form for administration.

For asthma the following formula is used with decided advantage:

Fluid extract of dragon root and euphorbia pilulifera, of each, one ounce. Mix. Five to ten drops in hot water; repeated at intervals until spasm of the bronchi yield.

For Hooping-Cough: Compound syrup of tolu, three ounces; fluid extract dragon root and euphorbia pilulifera, of each, half an ounce.

Dose, from thirty to sixty drops, repeated as indicated.



Dragon Root.



Pleurisy Root.

Asclepias. Pleurisy root is alterative, antispasmodic, diuretic, expectorant, laxative, tonic and antiseptic.

It has a special vitalizing action upon all the serous membranes of the body, which aids greatly in promoting a renewal of life in catarrh, peritonitis, rheumatism, diarrhea and pre-eminently in pleurisy. It makes an excellent formula, as follows:

Opium and ipecac, thirty grains; nitrate potash, two drachms; pulverized asclepias, half ounce.

Mix. Make ten powders; give one every three hours, or more frequently; at the same time apply the great ozone generator, turpentine, over the damaged part.

There is another class of sulpho-compounds, the **Aseptol.** sulphonic compounds, in which the atom of sulphur, instead of being united by means of oxygen to the aromatic nucleus, is attached directly to one of the carbon atoms of that nucleus. One such compound, ortho-phenol-

sulphonic acid, sozolic acid, or aseptol, as it has been christened, has been introduced both as a local antiseptic and as an intestinal disinfectant. The commercial aseptol is a solution containing one part in three, and it is administered internally, in the same dose as salicylic acid, in cases both of gastric and intestinal catarrh, and apparently with good results.

An infusion of the tops of this plant is a most efficacious remedy in states or conditions in which the kidneys are blocked up with disease germs and cellular dropsy as a result. To open the flood-gates, so that the remedy will have a fair exhibit, its use should be preceded either with digitalis or strophanthus, or one-per-cent. solution of nitro-glycerine. Either of these remedies act well, probably the nitro-glycerine is the best. Indeed the two remedies act like a charm.

Nitro-glycerine is a stimulant, it acts promptly in all cases of interstitial nephritis, and being tasteless, colorless and odorless, and acting at once, deserves more attention than is accorded to it, in all kidney affections, and to check the tendency of the blood to hæmatolysis. As for the asparagus, it is a most efficient,

never-failing diuretic; its action upon the kidneys is of the highest vitalizing character; succeeds often when all other remedies fail, in washing out the kidneys. The tops when in season are the best, at other seasons the bark of the root answers equally. The sprouts contain a peculiar crystalline substance, *asparagin*, which has a specific action on the entire urinary apparatus. A persistent use of this remedy will disintegrate phosphatic calculi.



Conoveril Colossal Asparagus. The tops are more efficacious than the roots.

Aspidospermine.

(From *Quebracho*.) Valuable for the relief of difficult breathing attending asthma, bronchitis, emphysema, phthisis, and in deficient arterialization and oxygenation of the blood.

Dose: One-quarter of a grain every three hours.

The Wine of the American Ash.

assimilation. Indicated rhagia, leucorrhœa, premature cessation or delay of the menses, prolapsus uteri.

The wine of the American ash has acquired a reputation as a uterine tonic in the treatment of irregular, painful and excessive menstruation; as it restores normal action to the uterus, and imparts tone and energy to the entire utero-genital system.

It has also proved of much efficacy in all atonic conditions of the uterus, passive hemorrhage, vaginitis, urethritis, hysteria, and to relieve tendency to repeated and successive miscarriages, and it should be continuously administered during the entire gestation in those cases where abortion is feared.

The dose is one drachm diluted three or four times a day.

The new uterine tonic and restorative exerts its power principally over the kidneys, bladder, ureters, urethra, uterus and vagina, and stimulates the organs of in amenorrhœa, dysmenorrhœa, menor-



Ash American.

Balsam of Copaiba.



Balsam of Copaiba Tree.

A valuable germicide, consisting of a resin, and volatile oil. It flows from incision made into the stems of the trees. It has a rather disagreeable odor, acrid taste, but is a valuable stimulating diuretic. It has been used from time immemorial as a remedy to destroy the gonococcus. The remedy is not destroyed or impaired by digestion, enters the blood, destroys the glucose fungus and is eliminated by the kidneys, in a fine state of molecular division. These molecules coming in contact with the gonococcus in the urethra, kill

them, but it is a slow, barbarous method, as a fresh colony of

germs start into existence before the next call for micturition. When used, the following formula is most efficacious: Of high-graded comp. syrup stillingia, four ounces; balsam copaiba, one ounce; fluid extract of kalmia, half an ounce; tincture of iodine, two drachms. Flavor by adding a few drops of either oil of wintergreen or peppermint.

Balsam of Peru.

A valuable bactericide, excellent to apply to wounds and ulcers, and internally in the chronic bronchitis of the aged.



The microbe of epidemic influenza fully developed with perfect adult forms of the pneumococcus. Magnified 2000 diameters.

Balsam of Tolu.

Also a germicide of rare value. The compound syrup administered in tea-spoonful doses every three or four hours, completely annihilates the microbes of whooping-cough; the sarcinæ ventriculi; the microbe of green diarrhea, and malarial germ. It has also been used quite extensively in a recent epidemic of influenza with most brilliant success, completely annihilating the microbe every time it was administered.

A perennial herb of Balm Melissa the mint family.

Officinalis. This well-known plant is teeming with ozoniferous properties, and almost any preparation of it, from a simple infusion to a fluid extract, is germicidal, aromatic, diaphoretic.

A simple infusion, or the fluid extract added to hot water, sweetened, makes an excellent drink in fevers. It sterilizes germs, even destructive to the bacteria of mal-assimilation.

A simple remedy too much neglected by the profession.

A few drops of the fluid extract, added to warm water, and sweetened, make an excellent drink in fevers. An ointment also is of utility.



Balm.

is, without a doubt, one of the most valuable **Bayberry**, remedies in the materia medica, being a tonic, astringent, and germicide, yielding its properties either to alcohol or water.

Combined with an equal quantity by weight of either boroglyceride or anti-microbe powder, and added to boiling water, and permitted to cool, it forms an efficient agent to kill the entire brood of amoeba and other germs present in nasal catarrh.

It is equally efficacious as a gargle in ulcerated sore mouth and throat, whatever germ be present.

In catarrh of the stomach and bowels, it so astringes the mucous coat, the habitat of the *sarcinae ventriculi*, as to actually starve that microbe out.

It is also excellent in catarrh and ulceration of the bowels, but the Virginia stone crop has entirely superseded it, being more efficient in both catarrh and ulceration of the intestines.

It destroys the bacteria of ulcers, and thus promotes their rapid cicatrization. An alcoholic extract (solid) inappropriately named *myricin*, is comparatively inert.



Bayberry.

or gum benjamin, is a resinous exudation from a **Benzoin**, plant growing in the Eastern Archipelago. Combined with aloes, storax, and balsam of tolu dissolved in spirit, it used to have a great reputation as a vulnerary or application to cut surfaces. This compound was known as Friar's Balsam. It is rarely given internally.

It is a bactericide of no mean power, equal to tolu, thymol.

Benzoin.—*Indications*.—(Usually given in the form of benzoic acid). A strong, pungent, offensive odor of the urine, stiff joints, gouty pains, which are worse while at rest in bed, are the indications for benzoic acid. In the form of an ointment, this drug is very valuable in sore nipples, and should be applied after the child nurses.

It is also valuable for chapped skin, and chafing. It is also a very good protection to cuts and lacerated wounds. In enuresis of children, where the urine is strong, benzoic acid is a good remedy.

Benzoic Acid.—Indicated in the uric acid diathesis, or gravel. It combines with nitrogen, derived from nitrogenous substances contained in the blood, which would otherwise go to form uric acid, and is itself converted into hippuric acid, which is rich in oxygen. Dose: ten grains in syrup, thrice daily.

Benzoate of Sodium.—Indicated as an antiseptic in erysipelas. Drachm doses in Seltzer water, every three hours.

Benzoated chloroform is made by dissolving three drachms of pure benzoic acid in twelve ounces of chloroform, and filtering if necessary. This is a germicide of considerable value in the treatment of fetid wounds. The best method of applying this in cases of gangrenous ulcers of the limbs, is to apply a compress to bandage the parts carefully, and then pour about a drachm over the ulcer; the action is effective in the destruction of all microbes on its surface. It is not quite as efficient as the boro-glyceride in those troublesome cases of fetid exhalations of the feet. It is equal to a solution of resorcin, for the purpose of disinfecting the hands after a post-mortem examination.

Berberis Vulgaris.
(*Barberry*.)



Barberry.

It is an extremely useful remedy in jaundice, in any form, decoction, fluid extract, or otherwise. As it is an ever-active cholagogue, causing the bile to flow freely, it relieves constipation, has a tonic and germicidal action, hence it is tonic to the digestive organs, and cures all forms of rectal congestion, such as piles.

The berries (containing quite a percentage of various vegetable acids) are astringent; nevertheless, an infusion of them make an excellent drink in all bilious affections.

A combination of barberry and phosphate of soda forms an elegant preparation in all states of torpid liver, with biliary calculi.

Several interesting cases have been recently noticed of amyloid and fatty livers, in which it was administered with great success prolonging life many years. It is certainly worthy of more general

use. Dose: thirty to sixty drops of a fluid extract.

In doses of ten to fifteen drops, the *berberis vulgaris* is almost a specific for albuminuria, chyluria, nephritis, gravel of the bladder; while the gravel is small. It may be combined with *uva ursi* and *liatris spicata* in hyperæsthesia of the bladder. In chronic cystitis and nephritis, it is a very active remedy. In gravel it may be given in a strong decoction of *sarsaparilla*. In kidney colic (sand or gravel in the kidney), *berberis vulgaris* is our best remedy, in doses of five drops every five or ten minutes until relieved.

An invaluable drug to sterilize all germs and render them latent.

Belladonna. Its wonderful action upon the nerves of the mouth and throat, renders it an exceedingly efficacious remedy in diphtheria and scarlet fever, and in all inflammatory conditions.

It paralyzes the nerves of the mammary gland, and thus arrests secretion of milk.

In incontinence of urine, rigidity of the os uteri, nervous dysmenorrhœa, retention of urine, this remedy is of great efficacy.

It paralyzes the nerves that supply sphincter muscles, hence its value in rectal fissure.

It is especially valuable in nearly all forms of neuralgia.

Combined with a definite quantity of *nux vomica*, it is of great utility in constipation, due to inertia of the bowels.

It forms one of the constituents of that celebrated neuralgia liniment: Aconite, belladonna, and chloroform, equal parts. Mix. Apply over painful nerve.

In colic, alternated with the wild yam, is most efficacious; best in the form of hypodermic injections of atropia.

Invaluable in embolism, combined with alkalis.



Bella 'onna; *a*, part of a branch with leaves and flowers; *b*, fruit, with persistent calyx.

A failure of the menses from cold, nervous shock or in constitutional disease, as tuberculosis, cancer, chlorosis, is a bad omen, and their re-establishment in all cases is conducive in restoring the patient to health.

Emmenagogue remedies have been used empirically and erro-



American Red Beet.

neously, and in some cases disastrously. More rigid legal enactments are required — nay, imperatively demanded in the sale of santonine, permanganate potassæ, tansy, gunpowder, cotton-root and the like.

The annexed wood-cut by Crap gives an illustration of the American red beet, from which a peculiar resinoid, betin, is obtained. This is extracted from the tuber or root, after it has been thoroughly crushed and macerated in alcohol for a month.

The active principle, betin, is very volatile and must be either made into pills and sugar-coated, or else into capsules, so as to preserve its active medicinal properties.

It is therefore chiefly used in pill or capsule form.

The compound betin pill, according to the Dispensatory of Great Britain and North America, is composed of *betin*, the active principle of the red beet, the *tsa tsin* (*rhynchosia excavata*) the great Chinese emmenagogue and caulophyl-

lin. This is reliable. We would caution the profession in prescribing powdered betin, as it is entirely worthless.

The compound betin pill is our best form.

Bismuth is used in medicine in two forms, the sub-nitrate and carbonate. The former is the more commonly employed. It is exceedingly useful in certain kinds of irritation of the stomach; dose, five to twenty grains. As it is quite insoluble, it must be given in something which will

suspend it; gruel will do. Gum arabic is commonly used for the purpose. A useful liquid form of the remedy is known as liquor of bismuth. Some people prefer the carbonate to the nitrate; its effects are similar.

The salicylate of bismuth is destined to supersede all other preparations of this metal, being a tonic and bactericide.

The sub-iodide of bismuth has been employed successfully in gastric ulcer.

Bistort.

(*Polygonum Bistorta*.)

Yields excellent germicidal and astringent properties to either alcohol or water. The whole plant contains an abundance of polygonic acid; the leaves part with a crystallizable coloring principle, identical with the glucoside "*rutin*" from rue; bistort bears a close relationship to smart-weed or water-pepper. Its very active bactericide properties render it of great value in annihilating the microbe of green diarrhea and dysentery, and like rue valuable in amenorrhea. A tincture is the best form for administration; small doses frequently repeated succeed best.



Bistort.

Bittersweet.

An invaluable alterative, antiseptic and diaphoretic, especially useful in cutaneous affections. The dried twigs as found in the shops of various lengths but about the thickness of a goose quill, are the best part for use. Boiling water extracts all its virtues, and these depend upon an alkaloid called *solanine*. Two fluid ounces of the infusion can be taken with advantage three times a day.

Dose: Thirty to sixty drops. This is the remedy for catarrhal diarrhea, mucous stools, bloody slimy stools, catarrh of the nose, throat, chest, or bowels. It is the remedy in lepra, moist tetter, asthma from repelled eruptions or hives in children, for neuralgia from cold or from the suppression of eruptions. It is also a valuable remedy for erotomania. Alternated with lappa major (the seed) it is valuable in eczema.



Bittersweet.

Bladder Wrack. Sea-weed or *fucus vesiculosus*. The thal-
lus dried, reduced to a No. 40 powder,
prepared in the form of a fluid extract, is
an invaluable remedy to rid the body of any superabundance of
fat.

It is the safest and most efficient anti-fat remedy in the *Materia Medica*.

The dose is very variable, depending in a great measure upon
the effect desired. It is also a good alterative and germicide.

“Worthless as a weed” does not evidently
apply to sea-weeds. A hundred tons of air-
dried sea-weed will yield, besides its salts,
seventy tons of algin and fifteen tons of cellu-
lose. The algin is a glutinous substance,
with fourteen times the viscosity of starch,
and thirty-seven times that of gum arabic.
It is used for sizing, as a mordant in dyeing,
in cookery, and the making of confectionery,
the manufacture of paper, to prevent the in-
crustation in steam boilers, and many other
uses.

Besides the large amount of iodine it con-
tains *fucus vesiculosus*.

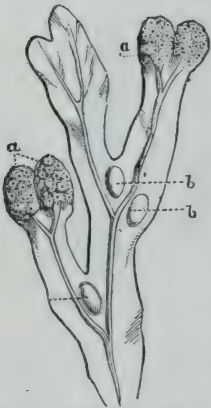
Whenever there is an excess of the non-
vital element, adipose tissue, this remedy is
indicated. It strips the human body of the
non-vital element, fat, without restriction of
diet. It is the only anti-fat remedy known.

Its chemical constituents being chiefly
iodine and ozone from nature's laboratory—the one from the sea;
the other from the atmosphere. The vitalizing properties of each
render it a remedy of inestimable value as an alterative.

Dose, from ten to thirty drops added to a little water every
three hours.

Bloodroot. *Sanguinaria canadensis*. The root is the part
used, and is emetic, sedative, germicide, tonic,
expectorant, emmenagogue, laxative.

The action of this remedy depends upon the dose given.
Small doses stimulate digestion and assimilation, and increase
the tone of the heart; larger doses are sedative. It is an inval-
uable remedy in croup, as it destroys the false membrane as soon
as formed. The following is the formula for the acetic tincture
of bloodroot.



Fucus vesiculosus; show-
ing the receptacles of the
fructification *a, a*, at the
ends of the branching
frond; *b, b, b*, large air-
cells which help to float
the plant.

Bloodroot, in fine powder; lobelia, in fine powder; skunk cabbage, in fine powder, of each, two ounces; distilled vinegar, two pints. Mix.

The dose will depend on the age and the effect desired. The same formula, made into a syrup by the addition of sugar, forms an invaluable remedy for all forms of bronchial irritation. In dyspepsia it is best given in small doses highly triturated.



Bloodroot.

The root of this **Blue Cohosh**. plant is emmenagogue, parturient, alterative, tonic, and a stimulant to the uterine motor nerves.

As a parturient it cannot be too highly prized; it allays cramps, false

pains, and hastens delivery in cases of debility, fatigue, or uterine inertia. Very beneficial in nervous dysmenorrhœa and after-pains. An infusion is the most active of all the preparations.

Distillation isolates the emmenagogue properties. A formula in very general use is the following:

Fluid extract of blue cohosh, three ounces; fluid extract ergot, one ounce; fluid extract water-pepper, one and one-half ounces; oil of sabina, ninety drops; alcohol, two ounces. Mix. Shake well. Dose, thirty drops, every three hours.



Blue Cohosh.

Fluid extract and glucoside; an invigorator and **Boldo**. appetizer.

Its exhibition insures prolonged natural sleep, and is a germicide to microbes on the mucous membrane.

As a bactericide it is especially destructive to the bacteria of dyspepsia, the micrococcus of cystitis, gonorrhœa, and bacillus of rheumatism.

The dose of the fluid extract is from five to twenty drops.

The glucoside boldine.—A powerful hypnotic ; of special benefit in the sleeplessness of the insane, in whom it produces sound, refreshing sleep. There is an entire absence of anæsthesia in its use ; less carbonic acid is exhaled than when awake ; the brain is less full of blood than during waking hours, and in certain forms of insanity this is an invaluable drug.

Dose, two, four, six to eight grains every three hours.

The physiological action of the new boldo glucoside has been investigated by *Dr. Miller*, Sugar Branch, Ind., who finds that either when administered internally, or introduced into the system by hypodermic injection, it produces at once and rapidly a tranquil sleep, lasting a longer or shorter time, according to the individual experimented upon. This sleep is of a healthy character, awaking from it without any appreciable change, with their usual health, habits, and appetite. In his more elaborate experiments, he found that this new substance stimulated and increased the secretory functions, especially the biliary secretion, the saliva, and urine. It would, therefore, appear to be peculiarly suited to cases of torpid action of the liver, accompanied with restlessness and sleeplessness, as is not infrequently the case.



Ozone ; Boric Acid ; C. P. Glycerine.

Boroglyceride A chemical compound, powerful germi-
Ozonized. cide, hemastatic, prevents and arrests fermentative and putrefactive changes.

Its use is indicated internally and locally in nearly all microbial diseases.

When the cutaneous surface becomes invaded with the microorganisms of erysipelas ; burns, eczema, lichen, prurigo and there is intense burning, tingling, itching, the greatest possible relief is immediately experienced, and the microbe killed, by the application of a lotion of two ounces of boroglyceride to the pint of tepid water, kept constantly moist, covered over with oiled silk ; so with parasite skin affections. Applied to wounds, if the ordinary indications are observed, union by first intention is promoted.

Ulcers, which resist the ordinary remedies are speedily cured by the application of a fifty per cent. solution.

It sterilizes the *microbe syphilitica*, hence in its pure state it is an invaluable application to chancres (superior to iodol) ; makes a splendid germicidal injection in female gonorrhœa, radically rooting out the gonococcus ; besides it is of great efficacy in metria, in washing out the uterine cavity, and rendering it aseptic ; of utility in metritis, endometritis, vaginitis, catarrhal

states of the neck, and undoubtedly our best remedy in all forms of leucorrhœa. To an indurated or hypertrophied uterine neck, packing the vagina, embedding the indurated parts into the boroglyceride paste for twelve hours at a times, effects a marked revolution in the parts.

As a mouth wash or gargle, it destroys all germs in the oral cavity; hence it is of value in all throat affections, in tonsillitis; laryngitis; in variable strengths it is very efficacious in nasal catarrh.

Its vitalizing action on the skin of the face is superb; here the boroglyceride oil, applied on retiring, removes all tan, freckles, rendering the skin soft, velvety.

In ocular affections, the boroglyceride excels all known germicides in the various forms of ophthalmia. Kills the microbes of the common, acute, the purulent, the gonorrhœal, and to the granular form it makes an excellent application. To this latter it is used thus: the lids being thoroughly

averted, the boroglyceride heated into an oily consistency, is spread all over the conjunctival surface with a camel's hair brush. It is generously applied, readily gains access to the cracks, crevices, and into the granulations themselves.

The immediate effect is to increase lachrymation, with a painful gritty sensation, which passes off in ten minutes, followed by an amelioration of all the symptoms, the granulations look pale, less prominent, and if applied three times a week for six weeks become imperceptible. This remedy is destined to supersede all caustic or astringent lotions in eye affections. Boroglyceride has a large range of action, as an internal remedy, useful in indigestion, and numerous other complaints, but of special utility in inflammation of the bladder. Its administration in all cases of cystitis is indicated, as it prevents the evolution of the *micrococcus urinæ*, a most important point. This micro-organism is the result of the decomposition of the urine, which increases the vesical irritation; augments the secretion of muco-purulent matter, and affords a better field for germ growth. The internal administration of boroglyceride has a most remarkable action in



Boric Acid Crystals.

all cases of irritable bladder, as it arrests decomposition and microbe growth. Acute cases that usually required several weeks to recover from, get well under this remedy in two or three days, with no germs whatever in the urine.

In its use, it should be given in small doses, five, ten or more grains every hour dissolved in water, until the crystals of boric acid appear persistently in the urine, when it should be administered at less frequent intervals.

Owing to insanitary states, want of shelter, deleterious or swill feeding and other causes which devitalize, nearly all our domestic animals are suffering from actinomyces, anthrax, tuberculosis, the embryonic germs of scarlet fever and variola; cows are the especial victims, and their lactiferous fluid is germ-laden.

That seventy-five per cent. of all cases of splenic fever, tuberculosis, scarlet fever, variola, cholera infantum in city children, is caused by the use of this microbial milk.

Those animal germs are of a giant form, neither boiling nor freezing causes their annihilation, certain temperatures may increase or retard their growth, but they are there, living, breeding, excreting their ptomaines, that poisonous alkaloid which is the cause of so much latent death among children.

We claim from most extensive experience that a small amount of boroglyceride introduced into milk will keep it fresh, its molecules unchanged in the hottest weather for from fourteen to twenty-one days, without the use of ice, and also that it will completely sterilize and annihilate every germ in that fluid.

In anthrax and after the incision of furuncles it acts well when applied directly to the parts. Forming furuncles should be painted several times daily with the following: Boroglyceride and water, of each equal parts.

In burns, when the flesh is exposed, it is necessary to be careful with poisonous antiseptics. Boracic acid possesses the advantage of being non-poisonous. Covering the burnt surfaces with a boracic vaseline ointment in the proportion of one to five: Boroglyceride, twenty parts; glycerine, fifteen parts; mix and add ozone ointment, eighty-five parts; apply twice daily.

In severe burns, with fever, the author combated the fever by the internal administration of the following: Boroglyceride, four parts; glycerine, ten parts; water, one hundred parts; syrup of poppies, twenty-five parts. A teaspoonful every two hours.

In skin diseases, such as pemphigus, eczema, rhagades, rupia, and scabies, the results obtained with boracic acid have been most favorable. The formula used was: boroglyceride, ten parts; glycerine, twenty parts; lanoline, thirty parts.

The treatment of scabies consists in first taking a warm bath

and then rubbing the affected parts with boracic-vaseline salve (first one to two; later equal parts). The duration of this treatment averaged six days. In a case of granular conjunctivitis a cure was effected within forty-five days; a like result was obtained in some cases of pannus. Chronic scrofulous otitis is improved by lukewarm injections of concentrated boracic acid solutions; the application of boracic acid glycerine (one to ten) to stomatitis, aphthæ, or tonsillitis is followed by a curative effect.

For coryza: boroglyceride, powdered coffee, equal parts. Use as a snuff.

In some cases of chronic endometritis with leucorrhœa and sterility, the uterus was filled with powdered boracic acid, and then a boracic acid tampon applied. After removing the tampon, the cavity was irrigated with a boracic acid solution. A cure was generally effected after a three or four month's treatment, in some cases conception following.

In cystitis the bladder was washed out (in acute cases) with a three-per-cent. boroglyceride solution, and in chronic cases this treatment was followed by the internal administration of from forty-five to ninety grains of boroglyceride.

The white and black varieties have germicidal

Bryonia. properties in common.

The *white* variety is of great efficacy as a stimulant to the eighth pair of nerves that supply the liver, and is destructive to the micro-organisms of cholera infantum. Its use speedily clears the intestinal tract of the *green germ-laden stools* in that very fatal affection. The *black variety* is a stimulant to all the white fibrous tissues of the body, as the synovial membrane of joints, the pleura, pericardium, peritoneum, periosteum, membranes of the brain, sclerotic coat of the eye, hence its value in rheumatism. It must ever be borne in mind that it has no



Bryonia.

true curative action in rheumatism, such as the glycerite of wintergreen, or salicylate soda. It simply raises the standard of vitality of a class of membranes for which the lactic, butyric, and germ of rheumatism have an affinity.

Burdock.*(Arctium Tappa.)*

Burdock.

A tincture prepared in the ordinary manner from the seeds exerts a tonic action in atonic dyspepsia, in doses of a tablespoonful after meals. It is also used with great success in all obstinate skin affections. More recently it has been found of great utility in epileptic seizures, used in alternation with ozonized sumbul.

It makes a valuable compound with scutellaria in other nervous affections.

Bursa Pastoris. An ozonized tincture of bursa pastoris is one of the most excellent

styptics and germicides in the *Materia Medica*.

The tincture must be made from the fresh plant, and administered in thirty-drop doses, every two or three hours, and then, without a doubt, it is the most reliable styptic in the *Materia Medica*.

Cadmium. Dose: From one-half to five grains to ounce of water; locally, every three hours. Whenever lymph has been effused, and we are desirous of absorbing it, as in opacities of the cornea, chronic ulcers, indurated glands, stiff joints; not so efficacious as the clay.

Calabar Bean. Tincture or fluid extract possesses remarkable germicidal properties.

It sterilizes the microbe of tetanus, and other disease germs, the factors of nervous disease.

Its alkaloid, *Eserine sulphate*, is a useful remedy in chorea, given in the form of an hypodermic injection, one-fourteenth of a grain being injected twice daily. In a number of cases a cure was effected in five or six days, but it was less successful with adults. It was also found beneficial in tetanus, paralysis agitans, spinal sclerosis, and in a case of hysteria in the male, accompanied by great excitability and a remarkable increase in reflex movements.

Cajeput Oil is an oil of a beautiful bluish green tint, obtained by distilling the leaves of a tree growing in the Moluccas. It is powerfully stimulant, bactericide in character, and is used both externally and inter-

nally. Externally, when mixed with olive oil, it may be used in certain forms of chronic rheumatism. Internally, a drop or two given on a lump of sugar acts as a powerfully stimulant germicide and antispasmodic. A drop on cotton wool applied to a carious tooth will often suffice to relieve toothache.

Calcium, in all its varied forms, is an invaluable germicide.

Carbonate of lime, 10 to 20 grains in milk, is very efficacious in tuberculosis, diarrhea, vomiting and teething of children.

Lime water added to milk prevents the casein of the milk from coagulating, and tends to neutralize the acidity of the system, antidotes the tyrotoxin.

Sulphide of lime, in small doses, frequently repeated, annihilates all disease germs, even the most malignant, and its administration so sterilizes the blood that no microbe could live in the body.

Phosphate of lime, valuable in neurasthenia and all broken down conditions of the nervous system. Better still are the compounds, hypophosphites.

Olive oil and lime water good in burns.

A most excellent form for spray is the following solution, prepared as follows:

Take, of lime, one part; sulphur, two parts; water, twenty parts. Slake the lime with some of the water, then add the remainder and the sulphur; boil to twelve parts and filter.

Under this the diphtheric membrane is immediately destroyed.

Chlorine and chlorinated lime may best be considered together, seeing that the latter is but a convenient form whereby the other is rendered portable. Chlorinated lime, commonly called chloride of lime, is prepared by pouring gaseous chlorine over quick lime, which absorbs the gas and acquires certain of its properties. It is mostly used as a disinfecting agent. It acts by virtue of the chlorine, which it slowly evolves when exposed to the atmosphere, or gives it more speedily when spread in a saucer or other flat vessel (non-metallic), and a little acid, such as hydrochloric, is added. For ordinary purposes, such as cleansing close rooms, there is nothing more effectual than chlorine generated from chlorinated lime. But as it attacks many things, being a powerful bleaching agent, readily destroys colors and affects metal-work, including gilding, it is somewhat at a discount; but in privies, workhouses, ships, etc., it is of much value. To keep

down ordinary smells, the powder need only be exposed in a flat dish, and renewed from time to time. For the purposes of active disinfection, it is better to add to the lime some acid, and shut up the doors, windows and chimneys for a time, taking care that the place has been well ventilated before re-entering. Chlorine is also used as a gargle, especially when there is much fetor from the throat, as scarlet fever, diphtheria, and the like. Here it is exceedingly useful.

Camphor Gum is a stimulant, diaphoretic, antispasmodic germicide; its action upon the brain and spine is direct, very soothing, at the same time exhilarating. When the nerve centres are irritated by the presence of alcohol, or damaged from sexual abuse or excess,



The Camphor Tree.

camphor has a most tranquillizing effect. It is of some utility in chordee and spermatorrhœa, combined with gelsemium, by allaying the irritability of the cord.

In combination with numerous drugs it modifies their action; for example, in combination with strychnine, it prevents twitching; incorporated into Dover's powder it greatly increases its diaphoretic and sedative action, etc. So with kaki in typhoid fever, it renders that drug still more efficient; combined with tincture ferri and nitrate potass, of great efficacy in dropsy.

Camphor can be freely dissolved in ozone ointment by heat; then it is of the greatest possible value in arresting the secretion of milk in the female breast, smearing cloths with it and applying; the same ointment applied on the face, in variola, prevents pitting; stimulates indolent ulcers.

It is a true bactericide; it is thus of value in either sterilizing or annihilating germs; three or four grains in the form of

emulsion have a most remarkable action on the comma-bacillus of cholera.

It has a strong affinity for ozone, and will take up pound for pound of the peroxide of hydrogen, and in this form constitutes "concentrated ozone." In this combination it instantly relieves the headache due to sewer gas; the toothache, due to a microbe, the excruciating pain of neuralgia; the prostrating effects of the cholera germ.

It is this same preparation which renders labor painless; promptly relieves the heart-pang of angina.

The mono-bromide of camphor is a most efficacious remedy, being both a sedative and stimulant, used with excellent results in insomnia, chronic alcoholism, chorea, dipsomania, sexual erethism, spermatorrhœa.

Camphor oil is a valuable parasiticide, destroys a large proportion of insect life, as moths; suitable for painting the interior of trunks and wardrobes, to ward off insects; a good application to bite of mosquitoes, wasps, etc., and, added to mucilage of gum arabic, makes quite an efficient remedy to kill the gonococcus of gonorrhœa.

Camphor acid is a powerful bactericide, valuable in cystitis and gonorrhœa.

An efficient germicide and antiseptic.

Campho-Phenique. A decided local anesthetic, non-poisonous; mixes readily with chloroform and glycerine; does not stain or discolor; mixes well with petrolina. It has a most energetic action in destroying the microbe of dental caries, allays the sensitiveness of dentine, and, when mixed with arsenious acid, makes an excellent nerve-killing paste.

Of utility in insomnia, low form of mania, incoherence of ideas, where the mind is lost in forgetfulness, or where it has magnified ideas of things, mental deception, depraved appetite. It is very valuable in neuralgia, where there is severe pain in the crown of the head.

Cannabis Sativa. Its germicidal action is best exhibited upon the genito-urinary organs of both sexes, it acts very promptly in sterilizing the gonococcus and destroying it.

In menorrhagia, membranous dysmenorrhœa, it acts well upon the bacteria, and promptly arrests the flow, after other remedies fail.

The dose is somewhat variable, from eight to ten drops of the fluid extract, repeated according to indications.



Hemp (*Cannabis sativa*): a, male inflorescence; b, female inflorescence.

The eminent *S. B. Bell, M. D.*, of Esom Hill, Ga., says that it grows extensively in the Southern States, and is collected while flowering.

A germicide of some power, especially in sterilizing the urethra, and killing the gonococcus; acts as a sedative to the urinary passages.

Besides its utility in insomnia, it is of great service in nervous affections.

The mode of administration should be small doses frequently repeated in water, until the system

is thoroughly brought under its influence.

The common names are, waxweed, flax weed, red pennyroyal. This medicament is claimed by bacteriologists to be a very valuable germicide in the treatment of cholera

Cuphea
Viscassissima. infantum. A tincture of fresh plant is used, in doses of five to ten drops according to age, every hour until relieved, then so often as need be. There are two classes of cases in which cuphea is specific. First, those arising from acidity of milk or food; vomiting of undigested food, or curdling milk, with frequent green, watery and acid stools, varying in number from five to thirty per day; child fretful and feverish; can retain nothing on stomach; food seems to pass right through the child. Second class, the stools are decidedly dysenteric, small, frequent, bloody, with tenesmus and great pain; high fever, restlessness and sleeplessness. In both the comma-bacillus is completely sterilized.

is in our opinion the purest stimulant in the
Capsicum *Materia Medica*. It possesses the properties of ergot and nux vomica combined. It is a pure stimulant to the ganglionic system of nerves, and acts on unstriped muscular tissue. It increases arterial tension by stimulating the vasomotor centre. It is at the same time a sedative and a stimulant to the stomach and intestines, one action is on the mucous membrane, the other on the unstriped muscular tissue, and the third on the glands of these organs.

Its action is both direct and reflex. Capsicum increases peristaltic action by stimulating the filaments of the sympathetic and the unstriped muscular fibres of the intestines. In this way it cures chronic constipation. We have cured many severe cases of this trouble, the atonic, with infusion of capsicum. We know of no medicament that can be any more relied on in atonic dyspepsia caused by catarrh of the stomach and duodenum, than infusion of capsicum. Its action is sure on the catarrhed mucous membrane and glands, on the nerve endings of the mucous membrane, acting on them as a tonic stimulant and thus controlling the secretion of the glands of the organ; it contracts the arterioles of the mucous membrane in virtue of its action on unstriped muscular tissue. In all probability it acts on the local vasomotor mechanism of the parts, stimulates them to a greater functional activity in virtue of which the nutrition of the tissue is enhanced.

In some cases of adynamic fever and inflammation, capsicum is the remedy to wake up the latent energies of the ganglionic nervous system and keep the forces of organic life jogging on until the crisis is passed. It slows the heart and firms the pulse and strengthens the respiratory centres, a failure of which is often a slow, yet certain decline to the grave. In delirium tremens, we have seen a very strong tea of capsicum steady the shattered nervous system, stop the delirium and restore the appetite.



Capsicum.



Amomum

In all cholera and cholera morbus formulæ, capsicum holds a conspicuous place. These are the words of one of the most brilliant savans in medicine, Prof. Jos. Adolphus, M. D., of Atlanta, Ga.: "It is an excellent drug in uterine hemorrhage."

The seeds of the *amomum*
Cardamom *repens* or cardamom are highly
Seed. germicidal, and a grateful
 aromatic, less heating and
 stimulating than others of the same class but
 more highly germicidal; it is a most useful
 adjuvant or corrective to all cordials, tonics and griping pur-

gatives. The use of all this class of aromatics increases the bactericide properties of every remedy into which they are incorporated.

Carbolic Acid
or
Phenic Acid.

Is obtained by careful distillation from coal-tar. It is met with in two forms, either in liquid or crystal. Very sparingly soluble in water, but it parts when mixed with water, just sufficient to be of value.

It is a powerful bactericide, and as such is extensively used to prevent and destroy microbes in wounds and disease-germs in the alimentary canal. Carbolic acid, twenty grains; syrup of tolu, four ounces. Mix. From a half to one teaspoonful every three hours. Locally for burns or compound fractures, six ounces of olive oil to one of carbolic acid. Mix and apply.

Locally. A ten-per-cent. solution or injection in the centre of a hemorrhoidal tumor or pile immediately causes it to wither and disappear. The following formula is esteemed excellent, and is used in the same manner: Glycerine, two and a half drachms; phenic acid, twenty drops; morphia, five grains. Mix. A few drops injected into any pile causes it to painlessly disappear.

Caraway.

This is quite extensively cultivated for its seeds, which contain on an average about four per cent. of a volatile oil, which when fresh is of a limpid brown color, becoming darker by age; it has the odor and chemical properties of thyme—thymol. Without distillation the seeds yield their oil to alcohol, more slowly and less sparingly to water. The seeds distilled with alcohol at forty-five gives us what is known as *kemmel*, a very favorite beverage of some European nations.

In all its forms, seeds, oil or essence, it is an invaluable germicide, killing bacteria and the oidium albicans. Its more general use should be encouraged, especially in food and medicine, among people denizens of overcrowded cities.



Caraway.

Carbonic Acid Gas In small quantities has a germicidal action, sterilizing bacteria on the stomach, causing the arrest of vomiting.

Carbonic acid is always present in the atmosphere in a small quantity, and it is partly an accumulation of this gas which makes a small, badly-ventilated room smell close and stuffy; languor and headache then come on, and unless fresh air is admitted injurious consequences may supervene. From this cause overcrowding is injurious, and those who work together in a room, as dressmakers, etc., are often liable to headache, anæmia, and general debility. Fresh air is of course the simple remedy for this condition of things, while in serious cases of poisoning by the gas, and when the patient is found insensible, removal of the individual into the open air is the first thing to be done, and then artificial modes of respiration must be resorted to. Carbonic acid is a gas, and in its pure state is poisonous when retained in the blood. It is at all times exhaled in the breath, and is one of the chief agents in inducing that languid state experienced in crowded apartments. It is the principal ingredient in the choke-damp, so fatal to miners after an explosion. It causes death by arresting all change in the lungs, so that the whole blood becomes black and impure. By itself it is not greatly used in medicine, but in the form of soda-water it is often exceedingly useful. It is this agent contained in effervescing liquids which gives them their sparkling character, and which enables them to be retained on the stomach, which would otherwise reject them in fevers and such like disorders. It is partly due to the carbonic acid in it that champagne is frequently retained when nothing else is. To manufacture soda-water, the so-called gazo-genes now so plentiful, may be made use of, carbonate of soda and tartaric acid being employed in the process. On the large scale sulphuric acid and chalk or marble are employed, but the gas requires to be carefully washed, otherwise the taste of the soda-water is bad. The gas itself has been employed to relieve the pain of cancerous, especially uterine affections.

The extensive use of carbonic acid exhausts the sexual appetite, in the base of the brain.

The leaves of the *Jacarando procera* and other
Caroba. species are largely used in the United States and in Europe for chancres, buboes, chronic catarrh of the urethra, syphilitic lesions, and pains in the body from misuse of mercury. The fluid extract has proved successful in this country for the treatment of gonorrhœa. It is given in doses of ten to sixty minims according to the virulence of the case.

A species of sea-weed, which grows on the Carrageen, rocks, along the sea-shores of the greater part of temperate Europe and North America, used to a considerable extent medicinally and as an article of food. The species which constituted the carrageen of commerce is *Chondrus crispus*, of which there are numerous varieties. It contains eighty per cent. of active medicinal properties, a vegetable jelly with iodine and ozone, which renders it invaluable in microbial disease of the pulmonary organs.

When half an ounce of carrageen is placed to steep for ten minutes in three pints of cold water, and then boiled and strained, it yields up its therapeutic properties, and with or without spices forms a valuable drink. With a larger proportion of carrageen, a thickish liquid or mucilage is obtained, and on further boiling this strong decoction, and cooling, a stiff jelly is procured, which can be rendered quite acceptable to the most delicate stomach by the addition of spices and sugar.



Irish Moss.

Now that its true bactericide properties have been made clear, that there is a something more intrinsically in it than emollient and demulcent, its use should not be overlooked. Milk may be used in its preparation instead of water, and various other germicides can be added, to still further increase its efficacy.

The fluid extract prepared from the root **Cascara Sagrada.** of the cascara-sagrada is a standard remedy for constipation. Various other preparations are in use, but are comparatively worthless, except the *cascara sagrada ozonised lozenge*, prepared with the purest chocolate.

Cascara sagrada is a tonic laxative. It also aids the general processes of digestion, especially promoting those of nutrition and assimilation. Cascara sagrada seems, when given in sufficiently large doses, to exercise a soothing influence on the rectal mucous membrane.

Originally introduced by ourselves, we have paid particular attention to the importation of the most carefully selected bark (*Rhamnus purshiana*), and used the greatest care in the manipulation of the various preparations we have from time to time

introduced, and their superiority over the various imitations that are now made has been verified by the profession, after careful and extended trials.

In its crude state, cascara has an intensely bitter taste; and on its first introduction this was found one of the great objections to its use, especially with ladies and children. We have, however, succeeded, after careful experiments, in rendering the different products perfectly tasteless, and the presentation in the form of an elegant and pleasant lozenge renders its administration, especially to children, a matter of the greatest ease.

The lozenges are carefully prepared in our own laboratories with our especially prepared Extract, rendered tasteless by our new process of manipulation, and are combined with the purest eating chocolate, and can be taken as easily as the ordinary bonbons of the confectioner.

Dose: Each lozenge contains two grains of pure tasteless extract cascara. For adults, one, two, or three may be taken at bedtime; children may take from half to a whole lozenge for a dose at bedtime.

Cassia Alata Grows in the marshes and dried-up rivers of Porto Rico. It is a beautiful shrub, with yellow flowers, growing to a height of six or eight feet. The entire plant, leaves, flowers, and stem, is highly germicidal; they owe this property to the large amount of chrysophanic acid they contain.

Simmering the fresh leaves, buds, flowers, bark in lard gives us an ointment of rare value in all skin affections.

A decoction of the bark, leaves and flowers applied to the skin in chronic eczema, promotes a very rapid healing. An infusion of the flowers and leaves, one ounce to the pint of water, and drank freely during the day, is of great efficacy in all skin affections.

The seeds are a reliable vermifuge administered fasting, are almost certain to bring away any form of tape worm.

In overdoses it produces copious, watery evacuations, and is highly esteemed as a remedy in syphilis.



Cassia Alata.

Celona Glabra.Balmony (*Chelone Glabra*).

extract is the best form ; the former applied to old indolent ulcers promptly kills the bacteria in the sore and promotes a healing process. As an application to all forms of tissue it surpasses many modern drugs, kills the spores of tinea capitis and versicolor, removes freckles and all microbial spots and marks upon the skin.

Internally, it is a good parasiticide, no species of worms can resist its action ; most effective in jaundice and torpid liver ; and completely sterilizes the germs of rheumatism.

The remedy is best administered in the form of tincture. Beginning with small doses until it acts freely upon the liver ; then decreasing to such doses as will move the bowels once in twenty-four hours. A cerate for parasite skin affections is usually made by simmering the green or dried plant in some oleaginous body, as petroleum ointment.

The entire herb possesses strong germicidal and parasitical properties, acting efficiently on the liver, stomach, and bowels, cleansing all the alimentary tract of germs and parasites ; hence its utility in dyspepsia, jaundice, mal-assimilation ; especially valuable in all conditions of debility.

The best form in which to administer it is in the form of a fluid extract.

A parasiticide and germicide, having all the tonic properties of gentian, and an anti-periodic of no mean power. A decoction or fluid



Erythraea Centaurium.

Cerastinum Vulgatum.
(*Mouse's Ear.*)

Highly bactericidal, destroys the bacteria on old ulcers, and promotes rapid cicatrization; used alternately with the

resorcin ointment and Chian turpentine mixtura internally retards and kills all cancerous tumors; the green herb cut up fine and bruised and applied to a wound speedily promotes primary union; boil the plant in vinegar, add sugar to make a syrup, cures bronchitis by sterilizing the germ. As a general remedy in all diseases, it wipes out their micro-organisms.



Mouse Ear.

Cerebrin is a soft, light amorphous hygroscopic powder—isolated from the white substance of the brain. As it is liable to chemical change, it is best administered in the glycerite of kephaline or phosphated tincture of oats. Dose: One to five grains at meals thrice daily.

Kephaline, a soluble form of cerebrin, is best adapted for general prescriptions, being a stable and reliable form.

Oxalate of cerium is a white granular powder, odorless, tasteless, insoluble in water, alcohol or ether, but dissolves freely in sulphuric acid. It is a valuable sedative in all irritation of the stomach and bowels. Until the introduction of the ozonized liquor cerii it was our best remedy in the reflex vomiting of pregnancy.

The oxalate is entirely superseded by the ozonized liquor cerii which is most valuable in the nausea and vomiting of pregnancy, and in similar symptoms associated with dysmenorrhœa, flexion, and other uterine disorders, and with hysteria from anxiety, grief, overwork, and the like. It is also used with good results in pyrosis and in phthisical and atonic dyspepsia, as well as in cases of gastric ulcer. It is serviceable in the violent *morning cough* accompanied with dyspnœa on exertion and sickness on the patient getting out of bed. Cerium has also been employed with benefit in epilepsy, when belladonna and bromides had failed to relieve. The liquor cerii, ozonized, is therefore, worthy of trial in obstinate cases of epilepsy and similar complaints.

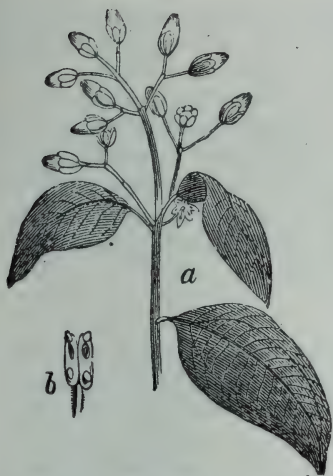
One of the most valuable remedies in the *Materia Medica*, being an antipyretic, tonic, stimulant, antiseptic.

The alkaloid quinine is the best form for *antipyretic* purposes. There are two functions which quinine serves. The one is

that quinine has the power to lower the temperature in febrile conditions which are not due to malaria; the other is that quinine has no extraordinary power of arresting the movements of leucocytes, causing them to draw in their pseudopods, and to contract into a sphere. In the case of free cells like the white blood corpuscles we can see that such a contraction as this will considerably lessen the surface of protoplasm exposed to oxidation, but one can hardly see how the change of form is likely to interpose any obstacle between the oxygen contained in the serum surrounding the cell and the protoplasm. The case is different, however, if we take such a structure as the pigment cell of the frog. Here the protoplasm does not fill the whole cell equally at all times; occasionally it stretches itself out into all the ramifications of the branching cell, and then it will not only allow a large surface for oxidation, but will be separated by a comparatively thin layer of paraplasm from the lymph or interstitial fluid by which the cell is nourished. When the protoplasm contracts it forms a rounded mass in the centre of the cell, and then presents a minimum of surface for oxidation, and at the same time a maximum thickness of paraplasm is interposed between it and the cell wall. If we suppose that quinine produces an effect upon the protoplasm of cells composing the tissues of the body similar to what it has upon leucocytes, we can at once see how it will lessen oxidation in the tissues, and thus act as an antipyretic. Nor is it necessary to assume that it exerts this effect directly upon the tissues themselves. The result will be the same if it stimulates thermal centres in the brain and spinal cord, and causes contraction of the protoplasm through them.

Quinine is best administered either dissolved with tartaric acid or aromatic sulphuric acid. The best time to give it: after determining at what time during the twenty-four hours the temperature is lowest, administer the dose during the fall. We have seen a fall of half a degree the next day follow this course, and the evening temperature would not rise.

The constituents of cinnamon are a volatile
Cinnamon. oil and resin. The oil is prepared chiefly in Ceylon, by grinding the coarsest pieces of the cinnamon, soaking them in sea-water for a few days, and then distilling. Two oils pass over, one lighter, the other heavier than water. It varies much in color, from yellow to a cherry-red, the yellow variety is the best, and most highly esteemed.



Cinnamon; *a*, end of branch, with leaves and flowers; *b*, four-celled anther.

Its medical properties are aromatic, carminative, germicide, hemastatic. An arrester of uterine hemorrhage. A remedy of great value in nausea, vomiting, and diarrhea, especially when such states are caused by the presence of microorganisms in the alimentary tract.

Stick cinnamon, boiled in milk, forms a valuable remedy in diarrhea.

Perhaps the **Camomile.** most highly esteemed of all domestic remedies. It is a bitter aromatic tonic, yielding its properties readily to water; it has an excel-

lent action upon the stomach as a vitalizer, promoting an appetite and assimilation of food, but its use is contra-indicated in all derangements of the brain.

A highly aromatic essential oil abounds in the entire plant, which is of a greenish yellow color, and highly germicidal, being most destructive to the vibrios of typhoid fever, to the spirilla and cocci of cholera infantum.

The oil is best administered in a high state of trituration, a few drops being added to a drachm of sugar of milk, thoroughly triturated, divided up and administered as indicated. It is besides a valuable stimulant to the abdominal sympathetic.

Matricaria, or German camomile, is altogether a very different drug from the above, being one of the most valuable of all tonics, in cases where there is a poverty of nerve force, such as nervous debility, paralysis, a general failure of brain power, premature decay; it has a most vitalizing action on the brain, and the most minute periphery of nerves. Besides, it is a germicide of great power, a true ozone



Camomile.

generating drug. The compound tincture is the form in which it is usually administered, and in doses of from five to ten drops in a glass of water before meals.

It is perfectly compatible with *avena sativa* or kephaline; combined or alternated with those, it is a most reliable remedy in functional disturbance of the brain, threatened softening, locomotor ataxia. The action of *matricaria* upon all organs supplied with ganglia of the great sympathetic, is most marvellous. The larynx, lungs, heart, stomach, spleen, bowels, left kidney, and reproductive organs, are all rejuvenated by its use.

Chelidonium.

This is a peculiar germicide, the fresh juice of the plant applied externally to corns, warts, excrescences, stimulates them beyond what their languid vital power can bear, and they exfoliate. Mixed with cream or boroglyceride and applied to the eye, it will remove opacities of the cornea.

A saturated tincture in *large* doses, is a drastive purgative and poison; in *small* doses, it acts beneficially on the entire glandular system, pink marrow, mesentery, lymphatics, and the liver. It is upon the liver that the entire force of the remedy falls, acting upon that gland as efficiently as the mercurials.

Under its use the symptoms of torpidity disappear.



Common Celandine.

Or carbon, occurs in nature, as black lead or plumbago, but is ordinarily made artificially from animal or vegetable substances. Wood charcoal is mostly employed externally, and that most frequently in the form of poultice, combined with linseed meal and bread. This poultice is of very great value when sores are fetid and parts are sloughing away, keeping them moist and warm, whilst preventing smell. The powder may be used with similar intent. It is sometimes given internally, when patients are suffering from organic diseases of the stomach and intestines, accompanied with

the formation of foul-smelling gases and acrid fluids. It is also recommended as a temporary antidote for certain organic poisons, as aconite and strychnine. In either case a tablespoonful should be given suspended in water.

The ozonized chlorate of carbon.—Specially indicated in cancer, syphilis, tuberculæ, all fevers, and whenever there are disease germs in the human blood. This remedy has acquired a world-wide reputation in the cure of cancer. Its high repute is well merited. It is introduced into the ozonized saxifraga and phytolacca, to render those invaluable alteratives most extremely efficacious as a germicide in the radical cure of all morbid states of the blood. Locally, it can be introduced into all cancer plasters, being compatible with extracts of sheep sorrel and red clover tips, with bichloride of mercury, arsenic, chloride of zinc plasters, and the chloride of chromium, ozonized.

Dose, Five grains, added to some alterative syrup or water, every three hours.

Pulverized willow charcoal.—Efficient bactericide, whenever we have reason to suspect microbes in the alimentary canal. Ox gall and pulverized charcoal make an efficient pill for gall stones and sluggish liver.

The bisulphide of carbon, although an unpleasant remedy, has immense bactericide properties; it kills the microbes of typhoid fever, diphtheria, dysentery. A saturated solution of the bisulphide in water, mixed with milk, taken half an hour before meals, promptly kills those germs. In the case of dysentery, the tenesmus is at once relieved, stools lose their offensive odor.

Bisulphide of carbon, local use of in neuralgia and headache, used as follows often acts like magic: Take a wide-mouth bottle of convenient size, fill it half up with cotton or a sponge, then pour on two or three drachms of the bisulphide. Apply the open mouth of the bottle over the seat of pain closely, so as to prevent escape of the vapor; continue the contact four to ten minutes, according to the severity of the pain. In a short while a sensation of tingling, which will shortly be raised to feeling of smarting and burning, then remove the bottle. The pain soon departs. Headache is treated successfully by applying the bottle to the temples or nape of neck.

The bisulphide of carbon acts as a solvent for phosphorus, and in itself has a beneficial effect in intestinal catarrh.

Chaulmogra Oil.
(*Gynocardia odorata*.)

This oil is one of the most powerful germicides in the *Materia Medica*. It has a most remarkable affinity for certain germs, as the bacillus of leprosy,

amylobacta of rheumatism, tubercle, lupus, and obstinate skin affections.

C. B. Stevens, M. D., 21 Hanover Street, Manchester, N. H., who may be regarded as an authority on the use of this oil, says:

"The kernels of the seed of the fruit of the *gynocardia odorata* yield a fixed oil, by compression, or boiling with water, which possesses potent germicidal properties, so strong and energetic that when administered in tuberculosis, psoriasis, lepra, elephantiasis, rheumatism, or sciatica, prove effective in destroying the germs of the disease. Internally the dose is from five to twenty drops three times daily after meals. Larger doses are apt to nauseate and constipate. Locally, to parasite eruptions, one part of chaulmogra oil to ten parts of olive oil. The active principle of chaulmogra oil is gynocardic acid, which is a most excellent form for administration. This acid in doses of half a grain three times daily after meals, in the form of a pill; the dose can be increased. It has many advantages—definite in composition, positive in action, small dose. Half a drachm of the acid to one ounce of petroleum ointment is very valuable in leprosy and psoriasis.

or better still, *anthrarobin*, which is an innocuous succedaneum for chrysarobin, the so-called chrysophanic acid. It is a bactericide of great power. Very favorable results are reported of its action in cutaneous affections.

Prof. D. K. Hitt, M. D., of Prospect, Marion, Ohio, employed with success, in a large number of cases of hemorrhoids, the plan of using chrysarobin. In the cases where the hemorrhoidal tumors are external he uses the following formula:

Chrysarobin, 80 centigrammes; iodoform, 30 centigrammes; extract belladonna, 60 centigrammes; vaseline, 25 grammes.

Mix. A small quantity of the ointment is placed several times daily upon the hemorrhoids, after previous washing with a 1:50 solution of carbolic acid, or of 1:100 of creolin. If the hemorrhoids are internal, suppositories after the following formula may be employed:

Chrysarobin, .08 centigrammes; iodoform, .02 centigrammes; extract of belladonna, .01 centigramme; cacao butter, 2 grammes.

Mix. For one suppository.

In two or three days the pain caused by the tumors disappears, and after two or three months a complete cure is said to follow.

Chian Turpentine. Chian turpentine mistura, highly ozonized, is an emulsion of Chian turpentine with ethereal peroxide of hydrogen, resorcin and thallin; we have a mixture devoid of all irritating properties, easily absorbed and taken into the blood, and at the same time possessing the highest bactericide properties.

Chian turpentine, which we use, is specially collected for us in the Island of Chio, from the *Pistacea terrebinthæ*.

This, as we have prepared it, is an energetic ozone producer, an agreeable aromatic, with an odor resembling the pinaceous turpentine.

Its special action, when administered, passed in the blood tissues, is to search out the cancer germ, which it surely finds, and slowly, silently kills it. Under its use pain ceases, the tumor, or aggregation of germs, with it also die. If there is an open breeding, eating surface it becomes covered with a characteristic grayish slough, indicating a perfect annihilation of the cancerous microbe. Tumors also dwindle in atrophy under its use.

Dose: One teaspoonful of the Chian turpentine mistura three times a day, which is to be gradually increased to nine teaspoonful in the twenty-four hours.

T. S. Downey, M. D., Maitland, Mo., and G. W. Noble, M. D., Edon, Ohio, both of whom have had a most extensive practice in the treatment and cure of cancer; both eminent members of our profession; speak in glowing terms of their success with this preparation in the management of cases deemed incurable.

Chinoline Salicylate Tartrate.—Powerful antiseptic, capable of destroying the malarial germ and the mycelia of hooping-cough.

Dose: Two to ten grains every three hours.

Chionanthus Virginica is a true liver tonic, in the sense that it innervates the secreting protoplasm of the hepatic cells, and stimulates the local vasomotor centres in the organ. The medicament is deserving of all the praise which the entire profession have bestowed upon it. It is remarkably curative in the conditions that lead to cirrhosis; infantile jaundice yields readily to its action. It is undoubtedly a fine cholagogue. It relieves abdominal plethora and quickens the circulation in the hepatic capillaries. No drug past or present can excel it in jaundice.

Chloral Hydrate. Dose: Fifteen grains, added to syrup of orange peel, every hour, or every three hours. Externally, efficacious in producing sleep in delirium tremens. Combined with bromide of potassa it will control raving mania, puerperal convulsions.

Its persistent use creates a habit, and exhausts the ophthalmic tract; causes amaurosis.

Applied locally to the breasts, during lactation, it will arrest the secretion of milk; it is also an invaluable counter-irritant; more penetrating than cantharides.

Croton Chloral Hydrate. Dose: Five grains in syrup every half hour. Indicated as an anesthetic for deep sleep and relief of pain. Croton chloral contains more hydrogen than chloral hydrate. It is, in fact, butyl chloral. Its practical value is the property of diminishing sensibility before producing narcosis.

Chloralamid. An excellent hypnotic and germicide, of great utility in all microbial diseases. Insomnia and restlessness resulting from pain were little, if at all, influenced by chloralamid. In two cases—one suffering from disease of the ankle with starting of the foot at night, and the other from dysentery with cramp-like pain in the abdomen—doses of 45 grains caused, indeed, sleep, but with an attack of pain readily broke. From these few observations, it would appear that the new hypnotic is not altogether free from some of the disadvantages attending those already in daily use. Doses of 30 and 45 grains have been followed by giddiness, feeling of sickness, dryness of the mouth, and even slight delirium—symptoms which, though not alarming, are certainly disagreeable, but which seem to be inseparable from the action of almost all our sleep-producing agents. A comparison of the action of chloral with that of the amide shows that the latter is not so rapid, sleep coming on half an hour to an hour after its administration; whereas after chloral it often results in fifteen minutes. This slight disadvantage, however, is more than compensated for by the almost entire absence of action which chloralamid has on the circulation.

Dr. Patterson has paid special attention to the dose of this substance, and says: "Usually 30 to 45 grains suffice in the case of a man, while 20 to 30 grains will give satisfactory results in a woman. In experiments carried out by Alt, 60 grains produced in

two strong, healthy women severe giddiness, symptoms of intoxication, with great excitement, and in one great nausea and retching. Chloralamid has no action on the digestive organs, and the appetite remains unimpaired. That this drug will be a valuable addition to our therapeutical armamentarium is undoubted."

Dose of the wine chloralamid, two fluid ounces; dose of the elixir, half a fluid ounce; of the pellets, three.

Chlorine Water. Chlorine water in the treatment of infectious and contagious diseases should never be lost sight of, and as it is so easily prepared every physician should have recourse to it in diphtheria, scarlatina, small-pox and even typhoid fever.

To prepare it: Place powdered chlorate of potassium, three drachms, in a quart bottle, then pour on it three drachms of muriatic acid. After a moment or two cork the bottle and allow the gas to form and fill up the whole space. Then slowly add cold water, the colder the better, and shake well so as to mix the gas and water and insure the solution of the chlorine; add more water, shake again, continue in this way till the bottle is full. The water will be nearly saturated with chlorine. Here you have the chlorine water.

Order a wine-glass full to be given to the patient every hour or two. This water must be kept in a cool place, and should be prepared fresh every day. Its value in diphtheria and scarlet fever is too positive to be neglected by progressive physicians.

An excellent bactericide in measles, scarlatina, variola; if it does not kill, it at least sterilizes the micrococci.

Chloride of Chromium. (Ozonized.) The cancer antidote, for external use only. The liquid chloride of chromium is added to pulverized blood-root, or any other inert powder; is made into a paste of the consistency of tar, spread on leather the size desired, and applied over the cancer, the adjacent parts being carefully protected by plaster. Spread fresh every morning, and apply until the cancer drops out, then discontinue. Indicated in all external cancers, whether they be covered by cuticle or open, ulcerating. The moment it is applied, by endosmosis, it penetrates the cancer germ, unites with it and kills it. To this germ it has a chemical affinity, as the mass of cancer germs are, when destroyed, a perfect ozonoid. The destruction

of the germ is effected without pain, but the surrounding tissues are so blended in and through it that they suffer oxidation, which gives rise to some pain in the separation of the germinal mass from the healthy tissue, but much less than what is caused by any other remedy, except the ozone paste.

Both the red and white clover are valuable bactericides.

Clover. *Trifolium, red clover.*—An extract obtained from the leaves, stem and flowers, by pressure or by boiling and evaporation to the consistency of molasses, spread on leather and applied to any cancer colony or infiltration will gradually kill it and painlessly cause its separation from the sound tissues; very slow but efficient in its action.

Infusion of red clover tops, drank *ad libitum*, destroys the cancer microbe. The compound syrup trifolium is prepared as follows: 32 parts of red clover; 16 stillingia, burdock, phyto-lacca roots, berberis and prickly ash. Mix. Make like compound syrup stillingia. Substantial efficacy; curative by being a microbe killer in the blood.

Meleotus—white or sweet clover. A mother tincture, active, energetic in sterilizing the germ of degraded nerve-bioplasm, *vibriones*, hence is of great utility in chorea, convulsions and fits generally; superior to simulo, as it prevents recurrence.



A branch of the clove tree, with buds.

The flower buds of the clove tree are its principal product. When ripe they are gathered, and dried by the smoke of wood fires, or by exposure to the sun. When first gathered they are reddish, but soon become a deep brown color. The medicinal properties, which are germicidal, reside in an essential oil, which occupies, by weight, one-fifth of the entire quantity of buds. This oil is obtained by repeated distillations with water. While this process is going on two sorts of oil pass

While this process is going on two sorts of oil pass

over, the one lighter than water, the other heavier. When pure, this oil has a light yellow color; a brown red when not so pure. This oil is soluble in ether, alcohol or fixed oils.

Cloves are a germicide of the first rank, and should be freely used in every household to kill the floating aerial bacteria of all large cities. They are powerful enough to destroy the ordinary malarial germ. Thus, a very favorite, crude, but extremely efficacious formula is the following: Take one ounce of pulverized cloves; one ounce of Peruvian bark, finely pulverized; one ounce of cream of tartar, and one drachm of capsicum. Mix thoroughly.

Dose: One teaspoonful every three hours. This rarely fails in ordinary cases of malaria.

The part used are the leaves, the **Coca Erythroxyton.** extract from the green leaves, and the wine. The drug is a stimulant, having a vitalizing action upon the motor cells of both the gray and white matter of the brain and spinal cord. It is an admirable tonic and restorer, and maintains the vital force of the user under most extraordinary efforts of mental and physical tension.

The fluid extract, in teaspoonful doses, thrice daily, imparts to the nervous system a strength, a vigor, or an endurance that enables it to resist the severest fatigue. It is the most effective tonic plant in the vegetable kingdom. It possesses the virtues of all tonics. It is a powerful restorer of the vital forces. It strengthens, exhilarates, sustains, and refreshes, aids digestion, imparts new energies to the worn-out or exhausted mind or body, and excites every faculty to healthy action. It invigorates the genital organs, and is a specific for all nervous complaints, such as sick headache, neuralgia, wakefulness, loss of memory, nervous tremors, loss of appetite, depression of spirits. It vitalizes the blood in all brain workers; there are elements of strength in it, induces cohesion of, and great accumulation of nerve force.

Coca et Celerina, causes a cohesion of all the finer elements of the nervous system, effectually eradicates the opium, whiskey, chloral, and other habits.

Wherever there is a poverty of nerve force, as in neurasthenia, in alternation with kephaline, its action is unexcelled.

Wine of Coca Erythroxyton Ozonized.—This wine is prepared from the finest Florida oranges; the green coca leaves, and peroxide of hydrogen. It forms one of the finest and most elegant preparations ever introduced to the medical profession.

It is the only wine which possesses in an eminent degree the

valuable tonic and invigorating properties of the erythroxyton coca, the celebrated Peruvian restorative, an invaluable remedy to be administered when the nerve forces are shattered, deficient,



Erythroxyton Coca.

or exhausted, being thus a powerful tonic for fatigue of mind or body.

Taken in small doses, at intervals of three or four hours apart, it is a gentle excitant to the motor cells, giving the consumer great powers of endurance of both mind and body. It acts as a

scavenger to diseased blood, cleanses it from all microbes, imparting a marvellous freshness of vigor to the whole body. It lessens metamorphism, at the same time increases the appetite; its use in fevers lowers heat, pulse, and respirations.

As a voice tonic to preachers, public speakers, singers, it is indispensable, being tenser of the vocal chords, thereby greatly strengthening and increasing the tone and volume of the voice. *Indicated:* In all deviations from a normal standard of health; in all acute and chronic diseases; wherever microbes or ptomaines exist, neuralgia, insomnia, malaise, despondency, and a positive cure for all habits.

It is a powerful muscular, nerve, and voice tonic, giving unusual power of endurance in both mental and physical labor; it is also remarkable in its food-replacing power, persons being able to abstain from food for many hours after a full dose of this wine of coca.

A powerful nerve stimulant. Restores the functions of the digestive organs, strengthens the mental and physical powers, assuages thirst, relieves the dulness and drowsiness of nervous debility. Given with benefit in cases of opium and morphia habit.

The North Am. Med. Chir. Review, March, 1880, has the following:—"In large quantities, it is said that this drug produces a general exaltation of the circulatory and nervous systems; imparting increased vigor to the muscles, as well as to the intellect, with an indescribable feeling of satisfaction."

In small doses it increases appetite and promotes digestion. In cases of sleeplessness from exhaustion and fatigue, it is invaluable, producing a sound and refreshing sleep without the distressing sensations so common after opiates, bromides, and hydrate of chloral.

One wineglassful is equal to one drachm of the leaves.

Dose, as a tonic: one wineglassful before or with each meal. Children, half or quarter of a wineglassful.

For sleeplessness from nervous exhaustion: place a wineglassful at the bedside, and take a sip about every half hour until asleep, or take the whole at one dose, and repeat during the night if wakeful.



Young plant of *Erythroxylon Coca*.

The spermatorrhea pill which has acquired such a celebrity in the cure of seminal weakness, is prepared as follows:

Cocaine, one drachm; jerubelin, fifteen grains; hypophosphate of lime, thirty grains; gelsemium, six grains; extract ignatia, three grains; leptandra, thirty grains; glycerin, q. s. Mix, Ft. sixty pills.

Millions of pills from the above have been sold for arrest of spermatorrhœa with most gratifying results. Cocaine in that formula being a mere abstracta.

The Cocaine Suppository from the divine plant is prepared as follows:

Butter of cocoa, six ounces; cocaine hydrochlorate, two to four grains; solid ext. hyoscyamus (English), one and one half ounces; Ft. 100 suppositories. Mix.

The addition of either the hyoscyamus or conium, modifies the action of the cocaine.

This suppository positively cures spermatorrhœa, impotence and sterility, continence or incontinence of urine, inflammation and enlargement of prostate, piles, stricture of rectum; also cures coccydynia, dysmenorrhœa, or painful menstruation, cancer of the rectum.

Cocculus Indicus is the common name for a berry of a climbing shrub, which grows in Ceylon. It is used in large quantities by brewers for increasing the bitterness and intoxicating power of malt liquors. It is also used to destroy fish. As a microbicide, its power is immense, but its use demands great care and caution.

Picrotoxon, its alkaloid, a most irritant poison, is used in the form of a cerate to kill parasites on the skin. It has also been used with some success in epilepsy. Best to try it in pill form.



Scurvy Grass.

Cochlearia Officinalis. The whole herb is officinal. The bactericide properties are most abundant

in the green plant. This resides in an oil which is obtained by distillation from both the green and dried plant, most abundant in the former; this oil is identical in germicide properties with the oil of mustard. The tincture of either the green or dried plant, best made with dilute alcohol.

It is, take it all in all, an excellent energetic stimulating alterative and germicide, very useful in dormant liver or spleen; often successful in paralysis; of great utility locally in ulcers, sores in the mouth, and spots upon the skin.

Cocoa Theobromo. The fruit of the gods, is from a tree which is extensively cultivated in the tropical parts of Asia, Africa and America. It is a tree which rises with a bare stem to the height of six or seven feet, dividing into many branches, and attaining a height of from sixteen to twenty feet; oftentimes twice that height. It attains its full growth in seven years. The fruit has the appearance of a cucumber in shape, six or eight inches long, yellow, but red on the side next the sun. The rind is thick and warty, the pulp sweetish, not unpleasant, the seeds quite numerous, easily compressed, with a thin, pale, reddish brown, fragile skin or shell, covering a dark brown, oily, aromatic bitter kernel, which consists mostly of wrinkled cotyledons. These seeds are the beans of commerce; the larger seeds decorticated, bruised, ground, yield that delicious, nutritious beverage—cocoa. The



Theobroma Cacao.

principle constituent of the bean, aside from this more solid constituent, is the oil or butter of cocoa, which forms fifty per cent. of their weight, a glucoside, *theobroma*, which is identical with caffeine, slightly more nitrogenous.

The butter is extracted by compression of the seeds, or by decoction, or by the action of a solvent; the method of expression is preferable. The butter is an excellent germicide; useful for making bougies, cones, pastiles, suppositories and ointments.

The important constituents of the coffee

Coffee. bean is caffeine, a substance to which it, tea, kola nut, guarana, cocoa nut, owe their exhilarating and refreshing properties. The effect of caffeine is not



Coffee; a, a branchlet with leaves, flowers and fruit; b, section of fruit.

identical with tea or coffee, or the other drugs containing it; all possess a germicidal action.

Extensive clinical experience have demonstrated caffeine to stimulate the heart and respiratory movements; increase the peristaltic wave; excite the brain and spinal cord; retard tissue change, and augment the flow of urine.

It is the remedy which excels all others in the so-called nervous headache, or in that due to fatigue or overwork, or the abuse of intoxicating liquors. It is used as an antidote to opium poisoning; as a diuretic in dropsical effusions due to cardiac disease.

Dose: from two to five grains. Of the various salts of caffeine, the citrate and bromide have met with most favor, being soluble and not deliquescent.

The caffeine soda salts are the best germicides, because they are perfectly soluble in water, and make permanent solutions, and will, if brought in contact with the amœba of catarrh, the bacteria of erysipelas, kill those micro-organisms.

The **American Columbo.** The annexed wood cut is an illustration of the columbo or frasera, which grows so abundantly in our Southern States. Frasera is a mild, bitter tonic, of a rather fine order. In many particulars it resembles columbo in its



American Columbo.

medical properties as well as in its appearance, and experience in

its use has given us a high opinion of its virtues. It neither astringes nor stimulates, and is a bitter above all others that is most acceptable to the stomach. It answers admirably as a remedy in simple dyspepsia and in all enfeebled states of the alimentary canal. Its very mildness and absence of all irritating properties render it a tonic of great value in the convalescing stages of all acute diseases. Even in inflammation of the stomach it will be tolerated when all other remedies will be rejected.

The article termed fraserin is simply a solid extract in a state of trituration.

Columbo is regarded as next to collinsonia as a tonic to the stomach and bowels. There are many preparations of it, all of great excellence.

The following formula is very efficient: an ounce of columbo, half an ounce of ginger, the same of leptandra, and thirty grains of capsicum, to one pint of boiling water.

Dose, a wineglass three times a day.

as employed in medicine,
Colchicum, is either the bulbous underground portion (more correctly termed a corm) or the seeds of the meadow saffron. From the corm are prepared an extract and a wine of colchicum, and from the seed a tincture. Colchicum seems to have the effect of increasing the flow of bile, of diminishing the force and rapidity of the heart's action, and if large doses are used, causes vomiting and purging. The specific action of colchicum is, however, on the pain of the gouty paroxysm, which it relieves in a marvellous manner. Its use is followed by some prostration, and a tendency to faintness which is far from agreeable, even though the pain has gone. It is sometimes used in acute rheumatism, but does not produce the same wonderful effects as in gout. There is, however, one fact which is of vital interest to those who suffer from gout, they may kill the pain with colchicum, but they do not cure the disease, and in all probability this will return sooner or more violently after being chocked off with colchicum, than had it been allowed to exhaust itself, or other remedies, as alkaline purgatives, employed. Of the ordinary extract, about a grain



Colchicum.

should be given for a dose; of the wine and tincture ten or fifteen drops every four hours.

Its bactericide action is exerted chiefly on amylobacta and urate of soda of gout.

Indicated where there is a rheumatism of joints, worse by motion. Dysentery of a bloody mucous character, with loathing of food, and nausea. Dose, one-half to one drachm of the wine, or twenty-five to thirty drops of the normal tincture. In small doses it is valuable in pericarditis, gout and rheumatism of the small joints. It may be used in any heart affection connected with rheumatism. In dysentery, with stools like the scrapings of flesh, colchicum is a good remedy. In tympanitis, three drops of the tincture every half hour is a very positive relief. And where there is a pain after urinating, twenty drops three times a day gives relief. In dropsy after scarlet fever small doses, say three to five drops with thirty to fifty drops of the tincture of asclepias syriaca is apt to be followed by a cure. Colchicum with apocynum androsem, in doses of ten to thirty drops, according to age, cures dropsy or rheumatism.

Collinsonia Canadensis, Commonly known as "stone root," or "knob root," is one of the most valuable of indigenous

American medicinal plants. It is widely distributed, being found in richly-wooded soils from April to October in all sections of the United States. It possesses a rank aromatic odor, and is hot and somewhat pungent to the taste. Its principal medicinal constituent appears to be a volatile oil, which is driven off by boiling or drying.

All parts of the plant may be used in medicine; but the root is the most powerful, and the portion usually employed. As it yields its virtues to water and alcohol, it may be administered in the form of a powder, or as the tincture, the fluid extract, or the infusion. The dose of the powdered root varies from ten to sixty grains, that of the tincture from twenty drops to two drachms; the fluid extract from fifteen minims to a drachm; the infusion from one to four ounces.

The physiological action of collinsonia, very much resembles bayberry and stone crop, intermediate between the two. It is an astringent to mucous surfaces and a bactericide of considerable power, besides equalizing chaotic nerve centres.

It is very highly esteemed in all disordered states of the alimentary canal, starves out both gastric and intestinal sarcinæ.

Its action upon all organs contained in the pelvic region is

good, relaxes the ureters, promotes an increased flow of urine, facilitates the expulsion of calculi, diminishes the irritability and general sensitiveness of the bladder.

Acute cystitis is most efficiently treated with collinsonia in alternation with gelsemium. So is constipation, hemorrhoids, rectal neuralgia.

Again in chaotic nervous affections, like chorea, it is equal to cimicifuga in its action; very valuable in neuroses of the vagina.

Its germicidal action is best seen in its sterilizing the microbe of whooping-cough.

Upon the urethra, prostate and rectum its action is very similar to the stone crop.

It has some peculiar action upon ptomaines, as when it is being used, all odors of the body disappear.

Collinsonia is of great utility in piles, as follows: Tincture hamamelis, tincture collinsonia, tincture euonymus of each equal parts. Teaspoonful in water four times daily. Take the first daily dose early in the morning in a tumbler of water in which ten grains of soda bicarbonate are dissolved, then at night just before retiring; remaining two doses between meals.



Collinsonia.

The product of gun-cotton dissolved in ether
Collodion. and alcohol, when exposed to the air, the ether speedily evaporates, leaving it in such a state that when painted on it leaves a thin film on the surface to which it is applied. This film is impervious to the air and is very useful for cuts. Steeping gauze in collodion and applying in gaping wounds, supersedes the use of sutures. Tannic acid and collodion are useful for sterilizing the microbe of corns.

A preparation called flexible collodion, made by adding Canada balsam and castor oil to ordinary collodion, is however much more useful in many instances than ordinary collodion, as it does not crack on being bent or stretched.

To this various germicidal remedies can be introduced and painted over parasite skin affections—creolin, resorcin, ichthyol, creosote, naphthaline, added render it an application of the most powerful germicidal character.



Coltsfoot.

Cigars made of the leaves and smoked afford prompt relief in the violent paroxysms of asthma. Infusion excellent for colds.

The root of this plant yields to water a peculiar mucilaginous substance, highly antiseptic, which renders it of great value in the treatment of all bronchial affections. It has a sterilizing action on the amœba of chronic catarrh, and on the conferva of long-standing bronchitis. It yields its properties to hot water; hence an infusion is the best form for administration.

It makes a most admirable tonic for female weakness as follows:

Take one ounce each of the fluid extract comfrey, Solomon's seal, unicorn root; half an ounce each of fluid extract camomile, compound gentian, sassafras, cardamom;

The common name of a British plant, known to botanists as *tussilago farfara*. It is a compositous plant, and has had a good reputation as a remedy in diseases of the lungs.

Colt's-foot contains an energetic active principle, a *glucoside*, which is a most valuable germicide. This principle sterilizes the microbe present in asthma, bronchitis, and incipient pulmonary disease.



Common Comfrey.

alcohol, four ounces; sherry wine, one pint and a half. Mix.
Dose: A tablespoonful every three hours.

Common name, Indian

Convulvus Turnip, man of the earth.

Panduratus. Its properties are that of
a most active bactericide,

mild but efficient alterative, without producing any drastic action either on the bowels or kidneys.

The milky juice of the fresh root is so powerful a germicide that it will, if applied to the part freshly bitten by a rabid animal or venomous reptile, kill or antidote the poison.



Indian Turnip.

Concentrated Ozone.

One or two drops in a carious tooth will instantly relieve most violent toothache; rubbed over a painful nerve the pain of neuralgia ceases; two to twenty drops in sweetened water will afford most refreshing sleep; cloths saturated with it and applied (covered with oiled silk) over any portion of the body suffering from inflammation, will instantly arrest it and cause a renewal of life; to the abdomen in cholera and typhoid; to the throat in diphtheria and scarlatina. Successfully used in parturition to alleviate its pains by rubbing it over the abdomen and lumbar plexus of nerves; if applied over the mammæ when secreting the lactiferous fluid it is a more efficient arrestor of secretion than belladonna. Dose: For internal use five to ten drops; for local use rub freely over the painful part; repeat as indicated.

Condurango Bark

has been chemically examined. It contains two or three glucosides and a resin, all of them manifesting the same action.

These substances form collectively the condurangin. It coagulates when heated in an aqueous solution, even at 40° C., and, like albumen, is precipitated from an aqueous solution by sodium chloride. Its action on the central nervous system is decidedly a poisonous one. In small doses it produces symptoms like those of tabes dorsalis in ataxic change of gait. It also appears to act on the peripheral nerves and muscles, at first increasing and then depressing their electric excitability. Loss of appetite, and in the earlier stages a plentiful flow of saliva, as well as

vomiting, are constant symptoms in mammals. The poisonous dose of condurangin is about 0.02 gramme per kilogramme of the body weight for carnivorous animals, and about three times as much for herbivorous animals.

It was brought forward as a remedy calculated to destroy the microbe of cancer, but for this purpose it is utterly useless.

An ozonized extract prepared from the conium maculatum is one of the most valuable remedies when the blood is germ-laden with the micrococci of cancer.



Conium Maculatum.

From one to three grains should be given every four hours.

It sterilizes the cancer germ, it aids in rectifying the defect in nutrition upon which the degradation of bioplasm takes place so as to give us the germ. So valuable is this remedy that no case of cancer can be successfully treated without it.

Excellent results are obtained from the administration of conium in the cure of chorea with violent movements. Large doses at first are best, until the system is thoroughly under its influence, when smaller doses, more frequently repeated, will keep up its action.

The uncertainty of action of certain preparations necessitates care in its administration.

An ointment prepared from the green leaves is an admirable remedy in rectal irritability and fissure.

Convallamarin—Convallarin. Two glucosides from the flowers of convallaria majalis, or lily of the valley, convallamarin and convallarin, whose physiological effects were determined by Marmé, in 1866. Convallamarin is of a persistent bitter taste, readily soluble in water, insoluble in ether and chloroform. Upon boiling it with diluted acids, it is split up into

convallamaretin and sugar. According to Marmé, it is emetic in small doses, and affects the heart similarly to digitalin, arresting its action in systole.

The commercial products vary widely in strength. Merck's convallamarin may be administered hypodermically in doses of .005 to .02 grammes several times daily. Given by the mouth, .05 to .06 grammes every hour or two up to .1 gramme per diem, produce the full effects of the drug.



Lily of the Valley.

Convallamarin is indicated in weakness of the heart, œdema from myocarditis and other cardiac diseases, as well as in exudative pleurisy and Bright's disease.

Convallarin has a scratchy taste, sparingly soluble in water, insoluble in ether, but readily soluble in alcohol. It is also separated into convallamaretin and sugar upon being boiled with diluted acids. In action, it is purgative only. Dose: About one-fiftieth grain.

An alkaloid from the coto bark; of great utility in diarrhea and cholera. **Cotoin.** Cotoin is insoluble in the gastric juice of the stomach, and passes unchanged into the intestines, where it is dissolved. It is specially indicated in the diarrhea of those affected with ulcer of the bowels, as in the insane, in phthisis, in the diarrhea of detention. It is contra-indicated if there be congestion.

Dose: One grain for adults; half grain for children, in powder or emulsion; several times a day.

Corallorhiza Odontorhiza. A leafless herb, sending up from a coral-like rhizome, a simple flower, from six to sixteen inches high, furnished with sheaths, instead of leaves, of a light brown or purplish color, and bearing small, greenish-brown flowers in a long spike.

It is a parasite plant, growing from the roots of trees, and

nourished by them. The root is the part used. It is much branched, toothed, of a brown color, and from its resemblance to coral in appearance, has derived its name.



Corallina.

Like numerous other parasite plants, it has a peculiar action in morbid states in which micro-organisms play an important part.

Administered in doses of thirty grains, every three hours, either in powder or in jelly, it acts precisely like exalgin, lowers heat, respirations, pulse.

Corn Smut. Ustilago, fl. extract, ten to sixty drops in uterine hemorrhage, bleeding piles, epistaxis; aids parturition when uterine contractions are feeble. Useful in enlarged prostate; spermatorrhœa, impotence.



Cotton Plant.

Maize, or Indian Corn.
(*Zea mays*).

The reputation of stigmata maidis, as a diuretic, demulcent, and anti-septic in all

affections of the genito-urinary tract, is well established.

In order to obtain a most efficacious preparation, the fluid extract should be prepared from freshly-gathered silk.

Cotton Root. The bark of the root of this plant is emmenagogue, parturient, abortive and diuretic. As it causes a condition of engorgement, in true congestion, it is very apt to

be followed by hemorrhage in patients of a sanguine temperament.

The bark of the green root is the most active, the so-called active principle gossypium, is worthless, perfectly inert.

Those desirous of procuring a reliable article of cotton root, must procure it from some one who will dig the root, slice off the bark, and at once put it into alcohol. To imagine that it can be prepared otherwise is absurd. Dried root preparations are all worthless.

This is the active volatile constituent of the
Coumarin. tonka bean, a germicide of great power, capable when administered in hooping-cough of killing

the microbe of that disease. This active principle is sometimes found in a crystallizable state, between the two lobes of the kernel, but more commonly it is thus prepared: The beans are coarsely ground, heated for some days with twice their bulk of alcohol. This tincture is poured off, set aside, and the tintured mass subjected to the same process. After this is completed, the two tinctures are mixed together, the alcohol distilled off until it appears turbid, when twice its bulk of water is added, which precipitates the *coumarin* and fatty matter. This



Tonka Bean.

precipitate is then heated to the boiling point and passed slowly through a wet cloth, which attracts all the fatty matter, and the coumarin passes through. The fluid extract may be used with great advantage.

is a substance composed of carbon, hydrogen,
Creatine. nitrogen, and oxygen, and is found in the juice of the flesh of all animals. A pound of flesh yields upon an average about five grains. The quantity varies in different animals. The flesh of fowl yields the largest quantity. The flesh of fish contains it in larger quantities than beef or mutton. Creatine is obtained in colorless, transparent crystals, and, dissolved in water, it has a slightly bitter taste. It unites with the various acids forming salts. If creatine is boiled with

alkalies, a new alkaloid is produced called sarkosiné. If boiled with hydrochloric acid, it produces *creatinine*. This substance also forms salts with the various acids, and is found normally in flesh. These alkaloids are probably the result of the decomposition of the flesh of animals. They are found with the extract of meat, but whether they exert any power on the system is not known.

B. F. Shepherd, M. D., Frankford, Ind., in an able and elaborate article on creatine, entertains a most favorable action of it and recommends its use in doses of two grains, four times a day, as a remedy of great value, as an excitant of muscular action in atonic conditions of the general muscular system, especially of the heart. The remedy is placed dry on the tongue, and followed by a draught of water.

A bactericide of the very highest order, produced in the destructive distillation of wood for the purpose of obtaining acetic acid. It is a colorless, transparent liquid, with a peculiar odor and burning taste.

It is an invaluable drug in medicine, its germicidal action is prompt, decisive. It completely annihilates the bacillus of tubercle, the *sarcinæ ventriculi* of gastric catarrh, the microbe of diarrhea and dysentery.

Inhaled through hot spray atomizer, it kills the germs in the bronchial tubes. It is not well to use it in lotions or gargles, as it does not mix with water.

It is freely soluble in alcohol and acetic acid. On account of its remarkable property in coagulating albumen, it has acquired quite a reputation in coagulating aneurisms. Externally applied to the germ-laden veins in phlebitis, its power of penetration is so great by endosmosis, that it kills the entire bacterial colony; of great value in destroying the microbe of dental caries; combined in various proportions with salicylic acid, it is capable of destroying the microbe of lupus, and other forms of skin germs and parasites. Internally, in all affections where the tubercular bacilli are present in the blood; it has the power of sterilizing and partially annihilating that germ. It should be given internally in syrup of tolu or some emulsion in drop doses, and by inhalation of various strengths.

This well-known germicide has been demonstrated by *Professor Bigger, M. D.*, of Atlanta, Ga., to be fatal to micrococci in the strength of 1 to 200. While he admits that it may not be from its antiseptic or germicidal powers that it benefits, but that

it may be simply from its favorable action upon digestion, still he advises that it be pushed to its utmost limit of toleration, as here is where so many fail in its use. Pushing it to this extent would be unnecessary if its beneficial action was expended only upon the process of digestion and assimilation; for experience with the drug plainly shows that it is the small doses, and not the large, which assist digestion, and that the large ones which he advises, occasionally irritate the stomach. He says that disappointment arises through timidity. "The more creosote that can be borne the better the effect," is his dictum. He claims to have treated 500 cases during the past nine years, and of those treated by this formula, twenty-seven per cent. recovered. Others were treated by the following formula, which gave the best results:

Creosoti, fifteen minims; tr. gentian, forty-five minims; spir. vini rect., six and one-half fluid-drachms; vini xerici, q. s. ad three fluid ounces.

Of this, one ounce was taken three times a day. The creosote was gradually increased to thirty grains. He obtained the best results by following treatment for from three months to a year. The most benefit was seen in the young, and in the first stages of the disease, when the symptoms were not well defined. Good results were always secured when tubercular glands were present. It generally relieved irritation and cough, and secretion and expectoration diminished, so that narcotics could be dispensed with.

Dr. T. E. Quick, of Carrollton, N. Y., after trying various formulæ, settled upon the following as the best:

Creosoti purissimi, two parts; alcoholis, thirty parts; tr. gentianæ; ext. caffèæ, ññ ten parts; aquæ destillatæ one hundred parts. M. Sig.—Shake well and take a tablespoonful in half a glass of milk twice daily.

From most extensive experience, and merited success, he formulated the following pill:

Creosote, one-half minim; iodoform, one-tenth grain; ext. of opium, one-quarter grain; balsam of tolu, turpentine, of each, one-third minim. Mix. Of these, from three to ten may be taken daily.

is a product of the dry distillation of coal, and is an
Creolin. oily, dark-brown, fluid, smelling of tar, but differing from carbolic acid in being easily and completely miscible with water, forming a milky solution which tends to become brown. We have tested its action on several

varieties of organisms. A two per thousand mixture of creolin killed the cholera bacillus and the streptococcus of pus and of erysipelas in two minutes, the *bacillus anthracis* in five minutes; but the typhoid bacillus, the *staphylococcus pyogenes*, was not affected in an hour's treatment. A two-per-cent. mixture, however, killed the staphylococcus and tertragens in about fifteen minutes. Creolin is a more powerful germicide than carbolic acid; a three-per-cent. mixture killed the spores of *bacillus anthracis* in two days, a six-per-cent. in twenty-four hours, whereas a carbolic acid mixture up to eight per cent. did not affect the spores in seven days. Many other experiments confirmed the superiority of creolin over carbolic acid. Given in large doses to animals, creolin is not found to be poisonous. It is eliminated by the kidneys, and the urine is not discolored, although tribromophenal may be separated from it by the addition of bromine water and of hydrochloric acid. Creolin has been used therapeutically both for external and internal administration. Externally, we have used a one-per-cent. mixture in a severe case of puerperal joint affection, in ulcers of the leg, in old operation wounds, and also in recent wounds. Good results were obtained in all these cases; the growth of granulations was stimulated, and the excessive discharge was stopped. Ulcers may be treated with a gauze-compress soaked in a one-to-two-per-cent. solution and bandaged up for about four days. We strongly recommend the employment of creolin in gauze or as an emulsion in surgical practice, in conditions similar to those indicated above. We have employed it with good results in otitis media. We use an injection of the strength of ten drops to one-half pint of warm water in acute otitis. It relieves the pain, and owing to its innocuousness, it may be used as an injection in leucorrhœa. As regards its administration, it effects big results in gastric catarrh, in diseases of the stomach and intestines. It was found free from poisonous effect and non-irritant. It may be given in doses of three to fifteen grains, in gelatine capsules, three times daily, and relieves meteorism and catarrh, and is serviceable in the severer forms of local inflammation of the intestines, such as typhlitis. In simple dilatation of the stomach, in flatulence and in diarrhea, it is of great service. It is of great utility as an injection in cystitis. It is always well to be a little cautious of taking too rose-colored a view of the action and effects of a newly-introduced drug. If all that has been stated about creolin be correct, we have in it a drug of great importance, a powerful antiseptic with no poisonous qualities. Experience will determine the extent of its utility.

The germicidal properties of creolin has been thoroughly in-

vestigated by Pennsylvania's great bacteriologist, *James M. Bunn, M. D.*, of Altoona, Pa., who pronounces it a non-toxic disinfectant bactericide.

The experiments were performed by mixing a certain percentage of the antiseptic with bouillon-cultures of the organism, from which mixture, after a certain time, the presence of living bacteria was tested by a fresh cultivation free from creolin. It was found that a two-per-1000 mixture of creolin killed the cholera bacillus and the streptococcus of pus and of erysipelas within two minutes; the bacillus of anthrax was killed in five minutes, while the typhoid bacillus and the staphylococcus of pus were still alive after one hour. The last organism, as well as tetragenesis, was killed in ten to fifteen minutes by a two-per-cent. mixture. Compared with carbolic acid, it was found that a two-per-cent. mixture of creolin killed the spores of the anthrax bacillus in two days, a six-per-cent. mixture within twenty-four hours, while a carbolic acid mixture up to eight per cent. had no effect on the spores within seven days. A similar comparative result was obtained with the hay bacillus, and the superiority of creolin over acid was further shown by its great power of preventing the growth of organism in culture. Creolin is not poisonous, as it may be given in large doses to dogs without deleterious effect. *Bunn* earnestly recommends its use in surgery in place of corrosive sublimate, carbolic acid, and iodoform. He has strongly recommended its use. He has applied it in the form of emulsion or a creolin gauze, and found that it stimulates the growth of granulations, and aids in separating sloughs without the production of any toxic symptoms. The urine does not present the green color of carbolic acid urine, but tribromophenol may be separated from it on the addition of hydrochloric acid and bromine water.

Curarin Sulphate. Curarin is found in the form of a sulphate in the arrow poison of the South American Indians, the so-called curari or woorari which is derived from a number of plants of the strychnos family. Curari was first brought

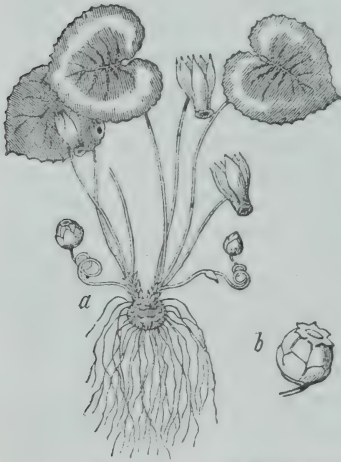
to Europe by the celebrated traveller, Waterton. It has long been used as a remedy in the treatment of convulsive affections,



Woorari Poison.

tetanus, hydrophobia, etc., with more or less success. The dose of the curari is one-tenth grain. Great care must be exercised in its use. The sulphate of curarin is used for the same disease, but as it is more powerful than curari, the dose must be proportionately smaller. From one-twentieth to one-sixtieth of a grain has been given.

The remedy is worthy of trial in cases of tetanus, when the combination of *lobelia*, *capsicum* and *valerian* cannot be procured.



Cyclamen Europæum; *a*, the whole plant;
b, the fruit.

point of an emetic cathartic, small doses frequently repeated until the spasm gives way; then at longer intervals, until the germ dies.

This is a glucoside isolated from *Cyclamen europæum*, a powerful germicide, capable of destroying the microbe of tetanus, producing effects on the animal system analogous to those of curari. This preparation is soluble in water, sparingly so in alcohol. Upon shaking an aqueous solution it assumes a frothy appearance.

Besides being destructive to the germ of tetanus, it has the same action on the red corpuscles of the blood.

Either orally or hypodermically, its administration must not be prolonged or carried to the

Turnera aphrodisiaca, is used in renal and vesical diseases, nephritic albuminuria, diabetes, and has proved successful as a nervine tonic in a case of blindness from tobacco amaurosis; also as a tonic for the genito-urinary tract.

The fluid extract when ozonized is indicated in all cases of sexual debility in young or old of both sexes. It is a true sexual invigorator, its merits are sustained by extensive experience, and it is of the greatest efficacy in every case of genital debility. Dose: From ten to thirty drops added to water; every three hours.

Foxglove, a powerful cardiac tonic in small doses in enfeebled heart action, a stimulant which gives permanent improvement by increasing the nutrition of the heart. It exerts a contractile or tonic action upon the capillaries, unlocks the absorbents, and sterilizes disease germs.

Where the heart is feeble, there is no more direct remedy than digitalis.

In all forms of serous effusion, the infusion of digitalis is a drug of great efficacy, and can always be relied upon in the gravest cases of dropsy.

The tincture is the best form for general administration.

In all cases it exercises a special influence on the circulation; a sedative, calming influence, which can only be explained by its excitant action on the ultimate branches of the sympathetic system.



Foxglove or Digitalis.



Dogwood.

The bark of the **Dogwood.** *Cornus Florida* forms one of our best ozonized fluid extracts and may be prescribed with great certainty as a tonic, germicide, stimulant.

It acts chiefly upon the brain and spinal cord as a stimulant.

Some think that it is a good substitute for quinine; in this they are mistaken. It is much inferior to cinchona preparations. Still it is an excellent tonic in dyspeptic cases.

Its internal use increases the strength and frequency of the pulse, and elevates normal, while it depresses abnormal temperature. Dose of the bark from

thirty to sixty grains. A fluid extract in doses of from a half to one teaspoonful every four hours is a good form in which to administer it.

Sundew (*Drosera rotundifolia*).

patient relief from bronchial irritation.

This plant is highly
Drosera. germicidal and has a
wide range of action.

Its effects are best exhibited when administered in diseases of the respiratory organs, as in nasal catarrh, laryngitis, whooping cough, asthma, bronchitis, pulmonary phthisis. It promotes a renewal of vitality, better innervation of the lungs, at the same time it sterilizes all germs in the air passages.

The special action of this drug is upon the great nerve centres, having a special action in getting rid of congestion. Its action is mild, but invariably effective, affording the

Eggs.—In addition to eggs being a nutritious food, they are also of value as a medicine. The albumen, beat up in water and salted, is an excellent remedy in diarrhea, also very useful in the vomiting of cholera infantum.

Or squirting
Elaterium. cucumber, in its
mature state, is
a plant rough all over with stiff
hairs, has a trailing branch stem
without tendrils; the leaves are
heart-shaped, bevelled and toothed
on long stalks; the flowers
axillary, yellow; the male-flowers
in small racemes; the fruit
oblong, about an inch and one-
half long, grayish green, covered
with soft prickles and finally
parting from the stalk and ex-
pelling its seeds along with a
thick mucus, through the aper-
ture, where the stalks are in-
serted. This remarkable phenomenon is ascribed to osmotic
action within the fruit; a thin membrane separating a mucus

Wild Cucumber (*Ecbalium agreste*).

which immediately surrounds the seeds from a less dense juice, which abounds in the succulent part of the fruit, and the quality of the former being gradually increased at the expense of the latter, till on the perfect ripening of the fruit, the much-distended central cell is open to permit its ejection. It is this mucus surrounding the seeds—a thick green mucus of a very peculiar character which contains the elaterin. To collect this the juice of the ripe fruit is allowed to stand a short time and become turbid, when it deposits a sediment. This sediment, carefully collected and dried, is elaterium, from which the crystalline principle elaterin is prepared, one of the most powerful of all drastic cathartics, but invaluable in certain forms of dropsy.

The patient should be, in all cases, suitably prepared for the remedy by drinking rather freely of an infusion of digitalis for a few days, and then the elaterin in one-twelfth of a grain, in a fine state of trituration, should be given every few hours until copious evacuations of serous fluid takes place.

Elaterin.—Indicated in all dropsies—the most active agent known to remove large serous accumulations. Its use should be preceded by infusions of digitalis. Dose: one-twelfth to one-twentieth of a grain triturated in sugar of milk, as indicated.

A bac-
Elecampane. tericide of
 great pow-
 er, exercising a peculiar steril-
 izing action on all microbes; has a most remarkable action on the bacillus of tubercle. It is worthy of further investigation.

It is a good remedy, of intrinsic value in rabies; it has a powerful germicidal action, faint aromatic odor, a bitter, acrid and a somewhat camphor-like taste. It is a stimulant to the organs of secretion, promotes expectoration, and is a diuretic and soporific. It contains two active principles, one called inulin, which resembles starch, but is deposited unchanged.

An old author speaks of it thus: "Elecampane root, taken with honey made in an electuary, cleanseth the breath, ripeneth the



Elecampane (*Inula Helenium*).

tough phlegm and maketh it easier to be spit forth, and prevaieth mightily against the cough and shortness of the breath, comforteth the stomach and helpeth digestion."

The bark, leaves, shoots, flowers and berries of the **Elder.** common elder are highly antiseptic, diuretic and slightly narcotic. These properties reside in a volatile oil which is present in the entire plant, but most abundant in the flowers.

A decoction of the leaves is so strongly antiseptic that if applied to the bacterial blush of erysipelas, it will in a few hours destroy the germs. Elder water is unexcelled as a local antiseptic in skin affections.

An ointment prepared by simmering the inner bark, flowers and leaves, in lard, is very highly esteemed by rectal specialists as a local application to rectal ulcers of a tubercular character. The following is their formula:

Unguentum sambucus, one ounce; hydrargyrum mur. sub., thirty grains; pulverized opium, solid extract belladonna, of each, seventeen grains.

Mix. The bowel is first washed out with castile soap and tepid water, subsequently the ointment is brushed over the ulcer. This repeated several times at intervals of a week apart until the germ colony is destroyed and the ulcer heals.

Elder flower soap excels in therapeutic value all other germicidal soaps. The berries make an agreeable sub-acid wine, containing much malic and citric acid, sugar and glucose.

Elm Bark. The pulverized bark makes an excellent germicide poultice, to which bicarbonate of soda in any given quantity can be added.

An infusion of the bark is one of our best remedies in gastritis and gastric ulcer.



Flower-stock, leaves, and cluster of berries of common elder (*Sambucus nigra*).

Slippery Elm Bark in the successful treatment of tapeworm is well presented by recent authors. Pulverized slippery elm bark, four ounces; water, one pint. A tenacious mucilaginous fluid is thus obtained.

The following directions for use are given: The patient to fast two days; the evening of the second day to take a purgative dose of castor oil sufficient to move the bowels the following morning, and while still fasting take one-half the medicine, and in half an hour the remaining half along with the full dose of castor oil. In a case so treated the entire parasite in a mass was expelled in one hour after the last dose of medicine, measuring forty feet in length.

**Epilobium
Angustifolium.**
(*Willow Herb.*)

This indigenous plant has very nearly identical properties with the willow tree, and even yields salicine, hence it is germicidal, bracing, sedative, astringent action.

It yields its properties freely to both water and alcohol.

It seems to have a special affinity to unite with and destroy the micro-organisms of diarrhea and dysentery.

Its sphere of action is best exhibited upon all organs in the genito-urinary organs, hence it is valuable in catarrh of the vagina, bladder, prostate.

The tincture is the most eligible form for administration.



Erigeron.



Willow Herb.

**Erigeron
Canadensis.**

The oil is equally efficacious as terebene, and as powerful a germicide, also astringent, styptic.

Five drops of the oil on sugar repeated as indicated, exerts a well-marked influence over the heart and arteries, and is a most efficient remedy in chronic bronchitis. Recent extensive clinical experience with this drug confirms its ancient reputation as an invaluable hæmastic to the uterus, bladder and rectum. Its chief sphere of action

is upon the genito-urinary organs, it is essentially a uterine styp-
tic, stops the flow, lessens the irritability; it is also of great effi-
cacy in hæmoptysis. It acts well upon the kidneys, checks hæma-
turia; greatly lessens the flow of albumen in chronic inter-
stitial nephritis, and in chronic cystitis it exerts a good effect in
lessening the mucous exfoliation from the coats of the bladder.
If the oil dropped on sugar and administered excites any heart-
burn, administer in mucilage or syrup of tolu.

The degradation of the primary elements of nutri-
Ergot. tion of certain grasses, cereals, fruits, vegetables, by
adverse states, as poverty of soil and absence of
nutritive pabulum, into a fungus or microbe, has nothing in com-
mon with the normal gland.

The principal use of this fungus, up to a recent period, has
been its efficacy in parturition. When administered during
labor, it produces a constant, unremit-
ting contraction and rigidity of the
pregnant uterus. Consequently, un-
less the os uteri and external parts,
are sufficiently relaxed, it is apt to
prove disastrous to the mother and
child.



Ergot of Rye.

The indiscriminate use of this fun-
gus gives rise to thrombosis or em-
bolism, hence sudden deaths during
its use is the rule from clot and rup-
ture of the heart.

It is, however, a spinal stimulant of
great efficacy, and this, together with
its faculty of causing a coagulum to
form in the blood, renders its use of
rare value in all hemorrhages from or-
gans in chest and abdomen. So
great are its properties as a spinal stimulant, that hypodermic
injections of ergotine, will, in short time, reduce an enlarged
prostate, or cause absorption of a uterine fibroid; so with en-
largement of the thyroid.

The Glucoside Ergotine.—By stimulating the spinal cord (lum-
bar portion) it causes contractions of the uterus; used in paraly-
sis of the sphincters; enuresis; incontinence of urine; impot-
ency; to absorb uterine fibroids; diminish enlarged prostate.
Dose: one-fourth to one grain every four hours.

Erythronium Americanum,

or adder's-tongue. All parts of this plant are active in the destruction of microbe.

The plant in its green state is most energetic, its activity is much diminished by drying.

The crushed leaves and bulbs, added to diluted alcohol, macerated four weeks, percolated, make an elegant preparation for emetic purposes, as an alterative and germicide; in very small doses it is often of advantage in the cure of chronic eczema and herpes.

In the form of a preparation made from the green plant we derive the most efficient results.

Cerate is of great utility in nearly all skin affections.



Adder's-Tongue (*Ophioglossum vulgatum*).

—————
This is a most effective germicide, valuable tonic, active stimulant and restorative.

Its special action is upon the genito-urinary organs, being a diuretic and

aphrodisiac. In its action it resembles apiol, allays vesical and urethral irritation from whatever cause.

Some claim that it will destroy the microbe of snake bite, but this is not correct.

It acts well in some cases of dropsy, dependent upon congestion or obstruction of the kidneys with uric acid.

Its use in alternation with the saw palmetto, has a most excellent effect in atrophy of the testes.

It has been used with great success in dropsical effusions. It acts well in all such cases, in alternation with strophanthus.



Sea Holly; (*Eryngium maritimum*); a, a floret; b, a petal; c, a stamen; d, the pistil.

Escholtzia Californica. This plant has been thoroughly investigated, and three distinct products have been isolated: a glucoside, a new alkaloid, resembling codia, and a very small percentage of morphia. Two pounds of the dried plant yielded about six grains of morphia.

The tincture, or fluid extract of the entire plant is a most excellent; efficient germicide, and entirely well adapted to combat the various diseases of infancy, especially the green diarrhea of the summer season.

From a large number of cases in which the remedy was used in cholera infantum during the heated term of July, August, and September, in crowded-up abodes, devoid of all sanitary precautions, and among a class of cases, with great vital disorder, pain, fever, spasm, prostration, it has demonstrated itself to be a remedy of vast importance, and one destined to supersede lactic acid, salicylate soda, resorcin, in the treatment of those formidable affections. It can be administered with safety to the youngest child in any stage of the disease, and always with the most satisfactory results.

In infantile diarrhea, when the common bacillus are liberating ptomaines, as is manifested by the symptoms of utter goneness, pallor, distress, tense abdomen, drawing up of knees, screaming or crying, etc., with green stools, in this stage the action of the remedy is seen to the best advantage, for when administered right here, a complete change to the better at once takes place, and if persevered with, the green stools, with the bacillus and ptomaines, disappear and recovery is rapid.

Eucalyptus, the name applied to an extensive genus of trees of the myrtle family, natives of Australia and Tasmania, all possessing great germicidal properties. The eucalyptus globulus, or blue gum, one of the species, has come into high esteem and deserved repute as a sanitary tree, and has exercised in regions of the warm temperate zone, a greater influence, scienic, industrial, hygienic, bacteriological, than any other species of arboraceous vegetation, even the pine not excepted. It is a great ozone generator, liberates that agent in great abundance.

The planting of this tree in the most pernicious paludal and malarial marsh, where ozone never penetrated, and human life could not exist, rendered them perfectly habitable and healthy.

There are numerous preparations made from the selected leaves, such as a fluid extract, which is almost inert, as in the mode of extraction, the essential oil is virtually lost.

All the bactericidal properties of the leaves are in this essential oil, which can readily be prepared in the form of a glycerite, and five volumes of hydrogen dioxide added, in this form we have a germicide of great efficiency in sterilizing and annihilating the microbes of croup, diphtheria, catarrh; and is capable of neutralizing offensive discharges from the vagina, or ulcers.

An ozonized distillation from the leaves is the most efficient remedy ever discovered for promptly killing the gonococcus of gonorrhœa; one ounce of the distillation, added to four ounces water, gives us an injection of intrinsic value in gonorrhœa, leucorrhœa, ophthalmia.

Suppositories prepared from the fresh leaves kill the tuberculæ bacilli of a germ-eaten rectum. A cerate prepared from the oil is valuable in erysipelas.

Eucalyptus honey, contains all the ozone-generating properties found in the tree, and to the presence of which are due all its wonderful germicidal properties. This honey plays an important part in the cure of all laryngeal, bronchial, pulmonary diseases, as well as in hooping-cough and influenza.

Eucalyptol, active principle in solution.—In the administration of this remedy for malarial fever, open the bowels freely.

Three hours before the chill, give two tablespoonfuls of the extract undiluted; drink of all kinds to be strictly forbidden; twenty minutes before the rigor, another half-ounce.

In place of the chill, a violent perspiration sets in, which has the peculiar odor of a marshy swamp, which is due to the dead germs on the skin.

Dose: from ten to fifteen drops on sugar thrice daily. Utterly insufficient to destroy the tubercular bacilli, but acts powerfully on the bacteria.

Eucalyptus Folia.—(A distillation from the fresh leaves, ozonized.) In gonorrhœa, use as an infection after urinating, or three times a day; for leucorrhœa, use as an injection by fountain syringe morning and night; for ophthalmia, keep a cloth constantly wet with it, loosely applied to the eye. An energetic agent to destroy the germs of gonorrhœa and leucorrhœa. It not only destroys the germ, the factor of gonorrhœa, but its use before a suspicious connection acts as a prophylactic. In the various forms of purulent or gonorrhœal ophthalmia, it com-



Folia Eucalyptus.

pletely kills the bacteria or gonococcus present. Dose : add one fluid ounce to four fluid ounces of water. For external use only.

This new drug has proved most successful in cases of asthma, bronchitis, coughs, influenza, affections of the chest, and is now being tried for hay-fever.

Euphorbia Pilulifera.

Preparations.—As this plant is a poison, great care should be taken not to make too strong a decoction, or ill instead of good results may be expected. The decoction is prepared as follows : Place one ounce of the weed in an enamelled saucepan containing two quarts of cold water, boil, and then allow it to simmer for a couple of hours, or until the quantity of water is reduced to one quart ; strain it, allow it to cool, and bottle for use, adding a teaspoonful of alcohol and chloroform to fortify and prevent fermentation ; also a tincture.

Doses : Decoction, two fluid ounces to be taken at night before going to bed, on rising in the morning, and an hour before dinner. Tincture : one-half to one teaspoonful, two or three times a day in water.

Most favorable reports reach us from all quarters, of the prompt beneficial results in asthma, promoting easy breathing and soothing the irritation of bronchial tubes. It succeeds when all other remedies fail.



Euphorbia officinalis (common Eye Bright).

This decoction has, from time immemorial been famous as a remedy for dimness of vision.

On account of its astringent and antiseptic action, it is invaluable in all forms of ophthalmia. Add to one pint infusion one ounce of boroglyceride, and we have an eye lotion of great efficacy, one which will purge the visual organ of all microbes, and in granular conjunctivitis act as an absorbent to effused lymph.

Besides its utility in eye affections, it is often of great service as a diuretic. The infusion to be taken freely.

An excellent extract may be prepared by macerating the coarsely ground plant with equal parts of water and glycerine for fourteen days, and then percolating.

The extract may be administered in all acute and painful affections of the eyes; it is even successful in opacity of the cornea, in twitching and paralysis of the lids.

Eupatorium Purpureum. Queen of the meadows, or gravel root, is a decided tonic to the granular structure of the kidneys; an infusion of the root is very valuable in alternation with nitro-glycerine in Bright's disease of the kidneys. There are few remedies so beneficial as this one in affording relief wherever there is painful suppression of the urine, either from inflammation or from calcareous accumulations. It is of great benefit in the treatment of almost all affections of the kidneys and bladder.

In dropsy, strangury, hæmaturia, gout and rheumatism, it is a valuable auxiliary agent, and of decided benefit in dropsy, on account of its stimulating influence on the vessels, as well as its diuretic powers.



Queen of the Meadows, or Gravel Root.

The name (*ex*, privative, and *algos*, pain) is significant of its qualities. The formula is $C_9H_{11}NO$ (or $C_6H_5O_2H_3O.NCH_3$), and the substance is one of the three isomeric (para, meta and ortho) methyl derivatives of acetanilid. It occurs either in fine acicular or long tablet-like crystals, accordingly as it is obtained by evaporation from solution, or by fusion thereafter. It is sparingly soluble in cold water, more soluble in hot water, and extremely soluble in very dilute alcohol, or in water slightly alcoholated. Physiologically it acts very much like analgesine, having, however, more effect upon the sensory and less upon the thermogenic centres than this substance. Its therapeutic effects are obtained in doses of from four to six grains, administered at once, or from six to twelve grains taken in two doses in the course of twenty-four hours, and are powerfully analgesic, subduing the element of pain in all forms of neuralgia, including visceral. Like all new remedies of this sort, it is at present on trial. It is claimed by

eminent authority that it has in their hands up to the present exhibited no evil sequelæ, being free from the rash, cyanosis, etc., so frequently observed after the ingestion of antipyrine and acetanilid. Exalgine is eliminated by the urine, upon the quantity of which it exercises a marked effect, acting like the antipyretics of the same group, diminishing the quantity of the secretion. In diabetes it also diminishes the quantity of sugar eliminated. Like all of the derivatives of the aromatic series, it is antiseptic and antithermic, as well as analgesic, and possesses the latter quality in a comparatively superlative degree, being more efficient, in doses less than half so great, than antipyrine.

The following is an excellent formula for its administration: Dissolve two drachms of exalgine in two ounces of diluted alcohol, 45 per cent.; add the same to either two ounces of the syrup of tolu or fluid extract of licorice, and administer in teaspoonful doses as indicated.



Fennel (*Faniculum vulgare*);
a, a flower.

Nearly all our essential oils are germicides of the first order, and their use is sadly neglected in practice.

For example, the oil of peppermint has an antiseptic property in it, a potency for good, a field of therapeutic utility, vast in extent and importance, greater than yet known or suspected.

The greatest of all desiderata in diphtheria is a germicide like this, which can be fearlessly applied, in the greatest quantity and frequency, which is innocuous, whether it be absorbed or swallowed.

The oil of fennel has not such active germicide properties, although a grateful aromatic and carminative.

Fennel seed exercises an important action on the broad ligaments of the uterus, and is utilized with rare success in all cases of prolapsus. An infusion of the powdered seeds, twenty grains to a drachm to a pint of water, is an excellent form for administration.

Fumarine. *A glucoside from fumarina officinalis or fumitory*; a most remarkable vegetable bactericide.

A simple decoction used as a mouthwash or gargle kills the oidium albicans. As an eye lotion, completely sterilizes all bacteria and other microorganisms in ophthalmia. A fluid extract is exceedingly useful in congestion of the liver and spleen. It is a very valuable remedy in sterilizing the micrococci of the eruptive fevers. The general properties of this remedy are tonic, alterative, and, in large doses, laxative and diuretic. Its prolonged use diminishes plethora and will produce anæmia; so it should be administered for about ten days, left off for four or five days, and then resumed.



Fumitory.

Gaultheria. The whole plant has an agreeable, aromatic odor and taste, owing to the presence of a volatile oil, which is stimulant and highly germicidal.

An ordinary fluid extract of the plant has in ordinary doses a direct sedative action upon the genito-urinary organs of both sexes. It is an anaphrodisiac, allays irritation and inflammation of the bladder, prostrate urethra; ovaries, uterus and vagina.

The oil of partridge-berry yields salicylic acid in great abundance.

The glycerite of wintergreen is prepared from the oil, and is without a doubt the most valuable of all its preparations, being a cerebral stimulant and vitalizer, and when administered in proper doses, in acute rheumatism, having such a chemical affinity for the lactic, butyric ferment or germ in the blood and tissues, completely neutralizes and annihilates it. It lowers temperature, equalizes the circulation. It is a perfect substitute for salicylic



Procumbent Gaultheria (*Gaultheria procumbens*); a, fruit; b, flower.

acid and its salts, the latter being a chemical derivative of the former. In its use in rheumatism, it has many advantages; it is prompt and efficient in action—few relapses when used; no cardiac complications. It is best to administer it in frequent

doses, till temperature is lowered. It is a local anodyne to inflamed joints.

The best method of administration is in frequently repeated doses, continued in diminished doses throughout convalescence. Its use possesses the advantages of being unattended with any toxic effect or gastric disturbance.

Glycerite of Wintergreen.—In acute rheumatism this remedy supersedes its derivatives, salicin, or salicylate, in neutralizing the lactic and butyric acid; besides, it is a great promoter of nutrition. *Salicylate of ammonia* is useful when we desire ammonia administered; *salicylate of potash* is an excellent substitute for the soda salt; it is to be preferred whenever we desire to introduce potash into the system, as in the gouty diathesis; *salicylate of lithia* is the *ne plus ultra* of all drugs in gout; *salicylate of quinine* is used with considerable success in neuralgia and rheumatic pains; and the *salicylate of cinchonidia* is very useful as a tonic and anti-periodic in neuralgia, gout, rheumatism. Cinchonidia ($C_2H_{24}N_2O$) is an isomer of cinchonia, but possesses left instead of right polarization and is more soluble. In chronic rheumatism, as a stimulant to the appetite and general tonic, it is of great utility.

Glycerite of Wintergreen (Ozonized), Gaultheria.—Indicated in all cases of acute or chronic rheumatism. When administered it unites with the lactic and butyric acids, and renders them inert, at the same time its tonic and antiseptic action upon the organs of digestion and assimilation prevents the formation of those acids; hence its use stamps and starves out the disease.

A perfect substitute for salicylic acid and soda. The superiority of this preparation is seen in the rapid cure of both acute and chronic cases, the infrequency of relapses, and the prevention of cardiac complications:

All physicians who use this prefer it to the various compounds produced by artificial means.

Perfectly annihilates the bacillus amylobacta of rheumatism.

Dose: From one-half to one teaspoonful every two hours.

The bark of the root of the yellow jessamine
Gelsemium. is a nervine, antispasmodic and an energetic genital sedative. A pure nerve tonic of the highest order and a germicide of great power, being capable of destroying the malarial germ, so that it is used either alone or combined with quinine with the greatest success in all malarial fevers.

It has a powerful influence on the sympathetic nervous system,

allays nervous irritability, as may be seen by its use in all nervous diseases, neuralgia, headache, tetanus, epilepsy, delirium tremens, hysteria and convulsions.

It is invaluable in all forms of reflex irritation, arresting the symptoms so produced. As a genital sedative, exceedingly valuable in gonorrhœa, allays urethral irritation, and is of the greatest efficacy in nocturnal emissions when they are dependent on irritation of the prostatic portion of the urethra, or if there is an inflamed prostate or rectal ulcer. In all cases of spermatorrhœa it is invaluable, soothing to the damaged parts, cuts off for the time being all sexual desire which, when its use is discontinued, are restored to their full vigor. To secure its full physiological action it should be given in large doses at bedtime; a tincture of the fresh root is the best form. The active principle is unfit for use, being toxic and unreliable in its action.

In *puerperal eclampsia* lobelia and gelsemium combined are excellent. In severe cases administer a teaspoonful by the rectum, first emptying the lower bowel by enema. The dose may be repeated in half an hour, and so on till the convulsions are abated. When given by the mouth half teaspoonful doses are in order.

Very useful when a person is under the influence of an alcoholic stimulant or is mentally excited, the face is flushed and the eyes have the appearance of being bright. The excitement is in the base of the brain and the vaso-motor tract at the same time is in a state bordering on paresis. Here are found the centres for respiration, circulation and secretion. Here are points wherefrom emanate controlling influences that either stimulate or inhibit ganglia and their nerves. It is in this state that gelsemium is remarkably valuable. Vasomotor dilator excitation prevails. There are vaso-dilator centres through the medulla and cord. When these are excited we have full capillaries and veins, and low arterial



Gelsemium.

pressure, dilated pupils. Pulse soft and temperature high, functional excitement and the vital energies of the centres are being depressed.

Gelsemium is a wonderful medicament in all these conditions. The irritation of nerve centres, restlessness, fever, bright eye and flushed face, soft pulse, low blood pressure, weak heart sounds, pains of that kind that indicate irritation of centres and not of nerves. Gelsemium must be fitted to the case in each person. Some require larger doses than others to be of value; too small a dose is worthless, too big a dose is paralyzing. Remember gelsemium is a stimulant.

Gentian. This remedy possesses in a high degree the tonic properties which characterize simple bitters. It excites the appetite, invigorates digestion, increases the vital forces of the body.

It may be used whenever a tonic is indicated in all conditions of debility, but it is the condition of the stomach and of the system generally, not the name of the disease, which must be taken into consideration in prescribing it.

It is a germicide of some value, destroying the bacteria and *oidium albicans* in malignant and sloughing ulcers. It can either be sprinkled on or incorporated in a poultice and applied to the sore.

It kills the germ streptococcus, or chain of micrococci, which is present in impetigo.



Common Gentian; *a*, capsule; *b*, capsule cut across; *c*, vertical section of seed, magnified.

The powdered gentian is incorporated in ozone ointment, and applied to the scalp morning and night.

The same ointment, as a hair dressing, is a prophylactic to this disease, which has been epidemic in our public schools and certain streets.

Geranium. The root of the cranesbill, or spotted geranium, is an astringent and antiseptic; a decided tonic, bracing to all mucous surfaces. It is a vitalizing and restorative agent, promotes instead of suppressing the normal mucous secretion. It is most efficacious in cholera infantum and

the summer diarrhea of children; peculiarly serviceable if there is much pain, griping or flatulency.

On account of its pleasant taste and efficient action, it is particularly suitable for administration to children and persons of a delicate constitution. It is of great service alone to check the vomiting of cholera, and can be combined with salicylate soda when a powerful antiseptic action is needed.

It cannot be valued too highly as a safe and efficient astringent, and it is indicated in all forms of infantile diarrhea.

In fissure, ulcer of the rectum, it is of the greatest efficacy.

A tincture is the most eligible form for administration.

Probably one of the most profound of our physicians and certainly one who is a keen observer of morbid action, says:

“There are few remedies which possess a wider range of usefulness than *geranium maculatum*, and which are so devoid of harmful properties. In all forms of hemorrhage, whether internal or external, it is without a superior. Hæmoptysis can usually be promptly arrested by drachm. doses of the fluid extract given hourly until the attack subsides. Relapses may be prevented by continuing the same dose at longer intervals for three or

four days. Hæmatemesis may be effectually controlled in the same manner after ergot, matico, sulphuric acid, iron, ice and other styptics have failed. In hemorrhage from the kidneys and the intestinal canal better results can be obtained from the administration of smaller doses twenty drops four times daily, for an extended period. Epistaxis may be speedily checked by plugging the nostrils with cotton dipped in a solution composed of one part of the fluid extract of geranium and three parts of water; or by syringing the nasal passages with the same solution. Hemorrhage resulting from the extraction of a tooth is occasionally obstinate in character, persisting for days, defying the cau-



Cranesbill.

tery and other methods, enfeebling the patient and alarming the family; but it can invariably be promptly arrested by filling the socket with a piece of cotton saturated with the undiluted extract of *geranium maculatum*, and applying firm pressure for a few minutes. Hemorrhagia can be most effectually abated by the internal administration of *geranium* combined with vaginal injections of the same remedy."



Common Ginger (*Zingiber officinale*); a, flower, detached; b, perfect anther.

uterus. It is invaluable combined with quinine in uterine hemorrhage, either in infusion, say half an ounce of pulverized ginger to a pint of water; or, syrup of ginger, three ounces; sulphate quinia, twenty grains. Mix. A teaspoonful as indicated.

Bark of the root
Gillenia Trifoliata. of the *gillenia trifoliata* is a safe and mild emetic; a most reliable and efficacious agent in diseases where emetics are indicated.

Besides it can be employed with great benefit in all dropsical conditions. It is of most value in gastric catarrh, where the *sarcinæ ventriculi* and yeast plant are on the stomach.

It might fairly be named an emeto-hydragogue, cathartic and antiseptic.

For an alterative action, best to administer in very small doses, and continue for some time.

A well-known root, indigenous to both the East and West Indies and China, but the best is grown in Jamaica. It is a diffusible stimulant, and aromatic and antiseptic. To weak, germ-laden stomachs it is a remedy of rare value. It makes an excellent tea, which should be taken either warm or cold, as desired. In the preparation of an infusion of ginger it should never be boiled, as that impairs its antiseptic properties very much; valuable carminative, useful in colic, debility and laxity of the stomach and



Indian Physic.

The fluid extract is the best form for general use. When it is desirable to administer it in large doses, it should be combined with fluid extract of collinsonia, which entirely mitigates its irritating effects.

An invaluable germicide and parasiticide.

Glycerine. Glycerine is a sweet substance, the basis of fats, being combined in them with the peculiar fatty acid characteristic of each. Accordingly, when these fats are decomposed by the addition of an alkali, as is done in making soap, the glycerine is set free, and the new combination of fatty acid and alkali constitutes soap. It is also obtained by distilling the fats by means of superheated steam. Thus obtained, the glycerine is a sweet liquid, colorless, and syrupy, oily to the touch, yet mixing readily with water. The solution of it in water does not ferment with yeast, and it does not dry up on exposure to heat of a moderate temperature. Its properties are very valuable, it readily dissolves many substances, and not drying up readily, it constitutes an excellent basis for applying them to the skin. It is chiefly as an adjunct to lotions that glycerine is of use. Lotions containing it do not dry up, and so the skin is kept soft and moist, and the bad effect of drying in forming scabs is avoided. It has been tried internally instead of cod liver oil, and it is used as a basis for some remedies, as gallic acid and tannic acid, when they are applied to the throat. In this way, too, borax may be made of use in aphthæ with advantage.

Dose: one drachm, locally applied, in the proportion of a desert-spoonful to eight ounces of water, and taken internally, in doses of one to two drachms, is curative of impetigo, prurigo, pruritis, lupus, and herpis exedens. It is a good application to fetid ulcers, skin scurf, dandruff, chapped hands, chilblains, acne, rosacea, eczema, and to prevent pitting in small-pox. It is a good application, alternated with boroglyceride, for cracked nipples, cracked lips, and hands, burns, scalds, wounds, and erysipelas. It is valuable in dry eczema of the ear, alternated with boric acid. It prevents fermentation of the stomach, and given with nux, is a tonic.

Glycerine has been lauded in constipation; glycerine when brought into contact with the mucous membrane of the rectum, withdraws water from it, thus causing hyperæmia and irritation of the sentient nerves of the rectum, which in its turn leads reflexly to powerful peristaltic contraction, ending in defecation. The larger the accumulation of fæces, the greater is the effect. There is no discomfort or pain, but the action takes place at

once. Sometimes, however, a little throbbing is felt in the rectum for a few minutes afterwards.

This repeated exhausting of the serous coat of the rectum renders it weak, liable to prolapse or deposit of the cancer germ, so that the so-called "glycerine suppository" so freely advertised, is productive of great damage.

Internal use of Glycerine.—*Prof. C. L. Souder, M. D.*, Burrows, Ind., prescribes it as a stimulant to the digestive organs in the non-febrile stage of phthisis, when for any reason cod-liver oil ceases to be tolerated. The following mixture is given daily in two or three doses: glycerine, forty grammes, and rum or cognac, ten grammes, with one drop of essence of mint. This aromatic alcoholized compound, of agreeable flavor, is well tolerated by the stomach, and even after long uninterrupted use, it causes neither satiety nor disgust. The addition of the rum or brandy has simply in view the modification of the insipid taste of the glycerine, and to assist its digestion. The amount of the glycerine may be raised to fifty or sixty grammes, but only in persons who do not exhibit any signs of abnormal excitability of the heart or nervous system; and restlessness, unusual loquacity, obstinate insomnia, or an increase of temperature, announces that the proper dose has been exceeded. It diminishes constipation in almost all cases, and yet moderates diarrhea when it is present; and under its use sleep becomes calmer. It has an evident effect on nutrition, its employment in most cases, leading to an increase in weight after the first fortnight. In tuberculous cases it induces a considerable amendment in the functional manifestations of the disease, such as dyspnoea, cough, and sweating. The expectoration is the symptom which is least influenced. The local condition of the lung also remains stationary, and the physical signs undergo no change. The action of glycerine on the liver is exhibited by the increase of its size, and by the more abundant flow of bile. With respect to its action on the kidneys, there are observed a more abundant diuresis and an absolute and relative increase of the urea, chlorides, and phosphates eliminated by the urine. In affections of the genito-urinary organs, it has been found that under the use of glycerine the alkalescence of the urine seems to diminish, while purulence, when present, becomes considerably lessened.

Glycerine-Gelatine Preparations.—*Their use in Skin Diseases.*—The glycerine gelatines are distinguished above all the agents used for promoting the absorption of secretions, and especially in comparison with the pastes, by their adhesiveness, which constitutes a most useful addition to their other valuable characteristics. The most important of them is the germicide preparation,

which finds a very extensive field of utility, no less as independent therapeutic agents than as auxiliaries to the use of other agents. Slight superficial eczemas and erythemata, especially such as occupy the flexor surfaces of the joints, or are distributed over large tracts of the body-surface, can be treated by means of it both quickly, safely, and pleasantly. The preparation is rendered fluid in a water-bath, then painted on to the skin whilst still warm with a broad bristle brush, after which the layer is dabbed over with a flock of cotton-wool. By this means the layer is soon dried, and takes on the nature of a fabric. From places which are free from hair, it can be stripped off in a single sheet on the following day, but from places which are covered with lanugo, it must be washed off with warm water.

A gelatine covering does not interfere with the perspiration of the skin, but rather tends to increase it, so that there need be no hesitancy in painting the patient all over with it, if the case demanded it.

Glycerite of Kepheline, (ozonized).—Indications. As this is a true brain essence, it is of the greatest efficiency in all nervous diseases, as mental and physical exhaustion, wasting diseases, loss of memory, vertigo, worry, struggle, nervous debility, decay of brain power, premature and otherwise, nervous prostration, neuralgia, loss of vital power, general vital deterioration, sleeplessness, paralysis, white softening, typhoid, effectual and permanent cure in all cases of nerve debility; builds up the brain, restores lost energy, refreshes the nerves, stimulates the sexual appetite and supplies it with nervo-vital fluid. It thus is a positive cure for seminal weakness, impotency, or loss of power in the generative organs. It is also of great efficacy in leucorrhœa, female weakness, and change of life. Gives intellectual vigor and vivacity.

J. J. Tempest, M. D., D. C. L., 32 Bank st., Bradford, England, Europe, a close clinical observer, and eminent physician, when speaking of kephaline, says: "I regard it as an excellent brain food, a nervo-vital essence; when administered, it will repair, or reconstruct chaotic nerve force, deepen the typical fissures of thought, refresh the nerves when tired by worry or study; repair lost energy, stimulate and supply the elements of the molecular growth of brain tissue, by its vitalizing action on the lymph glands, or blood raisers.

"It is of pre-eminent utility in this age of cerebral exhaustion, and anæmia; every man and woman should use it."

More recently, this great English physician has used kephaline in paralysis, white softening, and various other so-called incurable conditions, with great success.

Whenever the tubercular bacilli appear in the blood or any weakened part, it annihilates the microbe in all the fluids and solids of the body; the factor of pulmonary consumption being destroyed—wasting; debility; cough; loss of voice; expectoration; night sweats; hæmoptysis, and difficult breathing *cease*; under its use the pulse slows; heat, respirations *diminish*; phosphates and chlorides in urine become *normal*. The remedy either in stomach or rectum liberates its ozone, which enters the blood, acts as a scavenger and vitalizer to germ-laden blood, cleansing it. It is very efficacious in tubercular meningitis, tabes mesenterica, diabetes, pink marrow engorgement, typhoid fever, Bright's disease, and in all diseases due to the presence of micrococci in the blood. Dose: fifteen to thirty drops for the first fourteen days, then increase it slowly to sixty drops every three hours.

Joseph Redman, M. D., Carson City, Nevada, an eminent bacteriologist and excellent physician, one who is regarded as standard authority, says:

“Of all germicides the glycerite of ozone stands unrivalled in tuberculosis, for both annihilating and sterilizing the germ, in the following manner: Beginning with ten drops three times daily, the dose is run up rapidly to twenty, twenty-five, or even thirty drops. Short interruptions were allowed, and this remedy was universally well borne and exhibited no toxic effects. In cases of laryngeal phthisis, in addition to the glycerite of ozone internally, resorcin was used locally in substance with the best results. Even in advanced cases the treatment was carried out, not so much in the hope of curing as for the reason that it seemed equal to any other in alleviating the symptoms of the later stages. Even in such cases real benefit often followed. Contrary to expectation, in intestinal tuberculosis and the diarrheas referred to it, glycerite of ozone was of benefit. In general miliary tuberculosis it is efficacious, and the forms of disease most benefited have been those with hemorrhages, or with caseous or fibroid degeneration. During actual hæmoptysis the use of the remedy is suspended. The author thinks the most decided value of the treatment results from improvement of the gastric and intestinal digestion, the immediate cause of which he leaves undecided. The rapid improvement of appetite and assimilation soon appears manifest in increased weight and renewed vigor, and through the latter the patient is rendered more capable of withstanding fresh inroads of disease. So evident was the effect on the alimentary tract that the author was led to use glycerite of ozone with benefit in ordinary cases of dyspepsia and gastric catarrh. In bronchitis it was used with satisfaction.”

Though not a germicide, is an invaluable agent for the purpose of holding germicidal and parasiticide remedies in direct contact with a microbe, fungi or parasite, in order to insure their destruction. The method of preparing and applying it is as follows: Take of purified gutta-percha, in thin slices, one ounce; chloroform, eight ounces; carbonate of lead, in fine powder, one ounce. Add the one ounce of gutta-percha to six ounces of the chloroform in one bottle. Shake frequently till a solution is effected. Add the carbonate of lead to the remaining two ounces of chloroform. Shake; after both have become thoroughly incorporated, mix the two together.

This is a most elegant menstruum for the exhibition of germicides in cutaneous disease; it is applied by painting it on the skin with a brush, and allowing it to dry. This forms a delicate neutral, durable dressing, perfectly elastic, and exceedingly well adapted for the treatment of chronic skin diseases. Nothing so convenient, so effective, as the preparation itself to protect the skin in light burns; the rapidity with which the chloroform evaporates, leaving a thin elastic, nearly colorless coating, is astonishing. It does not shrink, but is soft, and abraded parts heal almost immediately under it.

The following germicides are added to it and used with brilliant success: Resorcin, thallin, chrysarobin, iodol, naphthol, ichthyol, oil of cade, salicylic acid, siegesbeckie. In the large proportion of skin affections, as eczema, psoriasis, lepra, scabies, the different forms of tenia, they prove most efficacious.

Traumaticine consists of a solution of one part of purified gutta-percha in ten parts of chloroform. This forms an admirable adhesive, and continues unchanged and adherent to the skin for two or three days, or even longer. On the contrary, in his experience, the layer of gelatine is apt to separate in a few hours, in consequence of friction by the clothes or movements of the limbs, and needs frequent renewal. Again, the traumaticine produces a much thinner and more delicate film than does either collodion or gelatine, and therefore occasions neither tension nor pain. The traumaticine is more readily applied than gelatine;



Gutta Percha. 1, a flower; 2, a pistil; 3, a branch with leaves and flowers; 4, transverse section of ovary; 5, vertical section of ovary; 6, transverse section of fruit; 7, fruit, scarcely mature; 8, anther.

it does not stiffen so quickly, and the brush does not become matted into a stiff mass. The solution in traumaticine is permanent; the gelatine tends to become mouldy, even with the addition of salicylic acid. Psoriasis can be admirably treated with a solution of chrysarobine in traumaticine as follows: After the chief part of the scales have been removed by means of a simple bath of soap and water, a ten-per-cent. solution is not only painted on, but rubbed in, with a narrow, short-haired painter's brush, to the patches. The application can be repeated every day, or every second or third day, in proportion to the extent of the disease. A bath is taken after each three or four applications. After at most twelve paintings the infiltration and scales will have disappeared, and in place of them are visible white patches bounded by a red or violet-brown areola. Neither in children nor in adults did any untoward results follow even a very extensive application to the body and face of the chrysarobine-traumaticine.

Gold Chloride et Soda.

when the microbes are on the bones.

Dose, 1-100th grain of muriate doses, is especially called for in the treatment of chronic bone and glandular affections, and attended with mental gloom. It is also of value in hypertrophy of the liver. In ozæna, especially, where the nasal bones are

A bactericide of some power in the destruction of the bacillus of tubercle and syphilis; it acts best

when the microbes are on the bones. affected, it is a very positive remedy. In chronic nasal catarrh it acts well, but is only applicable in this form. In chronic otorrhœa it is also used with benefit, as also in syphilitic bone affection.



Gold Thread.

The fluid extract is prepared in the same manner as that of hydrastis.

Makes an excellent combination with peroxide of hydrogen.

Gold Thread

resembles hydrastis in all its varied properties, only more feeble, yields the same alkaloids. Boroglyceride and an infusion of gold thread make a valuable remedy in nasal catarrh.

Grindelia Robusta. This remedy has become well established in cases of asthma and kindred diseases; in asthma and hay fever ten to twenty drops of the fluid extract may be given in sweetened water or milk every half hour until the microbe is killed and relief is obtained.

Preparations: Fluid extract (one drachm represents one ounce of the plant) and tincture.

Doses: Fluid extract, one half to one fluid drachm, repeated every three or four hours, as required. Tincture, one half drachm every one or two hours in whooping-cough.

An excellent formula for asthma is the following: Fluid extract grindelia robusta, one ounce; fluid extract lobelia, three drachms; fluid extract belladonna, one and a half drachms; iodide potassium, two and a half drachms; syrup tolu, q. s. ad four ounces. Teaspoonful as needed to keep down the attacks.

from which the resin is obtained, grows in the West Indies. The wood is known as lignum vitæ, and is excessively hard. The wood is employed for various purposes, and the chips and turnings obtained in preparing it for these are saved and made use of in medicine. The resin is also got by boring a hole in the log, and putting one end of it in the fire; as it burns the resin melts and runs from the hole. More commonly it is obtained by boiling the chips already referred to in salt and water, when the resin floats on the top. The resin is insoluble in water, but soluble in alcohol. The preparation commonly employed is the ammoniated tincture, consisting of the resin dissolved in aromatic spirit of ammonia, and an ordinary alcoholic tincture. Either taken internally is a powerful stimulant and bactericide. It sterilizes the bacillus amylobacta of rheumatism; the venereal bacillus and sterilizes the tubercular microbe. By steeping ordinary blotting paper in the alcoholic tincture and drying, then placing it beneath the leaves of a book for preservation, it affords one of the best characteristic tests for ozone, being colored blue by that and all oxidizing agents. It contains guaiacic acid which closely resembles benzoic acid, and yields, on distillation, certain definite compounds known as guaiacine, pyroguaiacine and hydride of guaiacyl.



Guaiacum officinalis.

Sunflower (*Helianthus annuus*).

pneumonia. A syrup from the seeds is of great efficacy in colds, influenza, catarrh.

A glucoside has been isolated, but its medicinal properties are feeble.

The entire plant yields to boiling water a peculiar active cholagogue, which effects remarkable results in chronic hepatitis. The formulas in use are either drinking *ad libitum* a decoction of equal parts of liverwort and chionanthus Virginia, or fluid extract of hepatica and chionanthus Virginia, equal parts of each. Mix. A tablespoonful thrice daily.

Hepatica.
(*Liverwort*.)

Hoang-Nan.

(*Strychnos Gaultheriana*.)

Its physiological effects are most potent on the nerve-centres; moderated doses produce a feeling of intense fatigue, general indisposition, vertigo, tingling in the hands and feet, involuntary movements of the jaws.

This remedy effectually annihilates the microbes above enumerated; when administered, the microbes imbibe this poison and die.

Common sun-
Helianthus. flower; is an invaluable germicide and ozone generator. Planted in the vicinity of a deadly malarial marsh, they yield, if properly cared for, enough of ozone to destroy the malarial germ as fast as it is evolved from the decaying vegetable matter. Its ozone generating properties or faculty is even greater than the eucalyptus, although its antiseptic properties are much less.

The seeds yield a fixed oil which is a valuable article of diet in all bronchial complaints, and as a local application to the chest in infantile



Liverwort.

An effective and most powerful germicide, sterilizes and kills the microbes of rabies or hydrophobia, elephantiasis, leprosy, cancer, snake-

The remedy should be boldly and energetically given in all suspicious cases, until its physiological action is experienced. As soon as this takes place the microbe is killed. Dose is very variable.

The root of
Hound's Tongue. this plant is
 (*Cynoglossum.*) highly germi-
 cidal and as-
 tringent; it is thus an excellent
 alterative wherever there are disease
 germs in the blood, and its astringent
 mucilaginous properties are of great
 utility in diarrhea, dysentery, coughs,
 catarrh and hæmoptysis; locally to
 burns, ulcers, tumors, infiltrations and
 goitre.

Administered internally or applied
 locally, it sterilizes and kills numer-
 ous of the disease germs.

An inspissated extract, or the juice, or succus of the green
 root, applied to a snake-bite or the bite of a rabid animal, effec-
 tually kills the poisonous breeding germs, and at the same time
 paralyzes the motor and sensual nerves of the part to which it is
 applied. It is an herb which merits further investigation.



Hound's Tongue (*Cynoglossum officinale*).



Hop (*Humulus Lupulus*).

The action
Hops. of the hop,
 when admin-
 istered in almost any
 form, is tonic, soothing,
 anodyne, germicidal.

The infusion is thus
 prepared: To one pint
 of boiling water add six
 drachms of hops, mace-
 rate for four hours in a
 loosely covered vessel
 and strain. Dose, from
 one to two ounces.

The tincture is pre-
 pared thus: Six ounces
 of hops are added to two
 pints of alcohol; mace-
 rate for fourteen days

and percolate. Dose, from one to two ounces, or ten drops of the fluid extract.

These are tonic and vermifuge.

Hop-bitters are made thus: Half a pound of hops, two ounces of buchu, boiled in five quarts of water, and two ounces of the essence of wintergreen, added to flavor.

A pillow stuffed with hops is valuable in insomnia.

A glucoside is prepared from the hop.

Lupuline, combined with equal parts of the glucoside from the black willow is invaluable in seminal emissions.

A poultice of hops relieves pain and prevents suppuration.

Horse-Chestnut.

The fruit of this tree is an antiseptic, astringent, narcotic, cholagogue, etc., and is often successfully used in intermittent;

locally in the form of ointment to ulcers, swellings; also of great utility in hemorrhoids. To the latter it relieves the rectal congestion by its stimulant and depurant action on the liver, and applied to the piles in any convenient form, its astringent action causes them to disappear.

Its stimulant and antiseptic action renders it of great utility in nasal catarrh, relieving the congestion of the sinuses of



Horse-Chestnut—Leaves, flowers, fruit.

the head, and often bringing away masses of germs that are blocking up the nasal fossa.

The oil of horse-chestnuts on the painful joints of rheumatism affords almost instant relief. An excellent liniment may be made of it, thus: To eight ounces of alcohol add one ounce each of the oil of horse-chestnuts, menthol, oil of cajeput, and oil of wintergreen. Mix well. Apply three times a day.

Horse-Chestnut fluid extract.—Useful in piles, by relieving the portal circulation; also in ointment form.

Dose, fifteen to thirty drops, added to water, every three hours.

The powdered kernel of the nut is a sternutatory of utility in

nasal catarrh. The fixed oil which the nuts contain is very useful as a local application in rheumatism.

The flowering summit
Hyssop. and leaves are the parts used. They have an agreeable, aromatic odor, and a warm, pungent, bitterish taste, which is due to the presence of a volatile oil, which is highly germicidal. Its infusion has been much employed in chronic nasal catarrh, as it retards germ evolution, facilitates expectoration. It is a most excellent drug in hoarseness and bronchial obstruction.

An acetic syrup makes an excellent remedy for difficult breathing and ordinary colds.

It is a drug specially indicated for the aged or debilitated suffering from any affection of the respiratory organs.

The leaves, crowded in and simmered in olive oil, make one of the finest germicides for local use to the throat in diphtheria and scarlet fever, and to old, germ-eaten ulcers.



Common Hyssop (*Hyssopus officinalis*).



Hydrastis Canadensis.

Hydrastis Canadensis.
 (*Golden Seal*.)

The fluid hydrastis, made by digesting the root in water or glycerine, or by displacement with this vehicle, is the best medicament in the treatment of gastric and duodenal catarrh.

Hydrastis is a powerful local remedy; acting on the blood supply of parts it is applied to in virtue of its vasoconstrictor action on the arterioles. A decoction of the ground root, made by boiling four ounces of the root in a mixture of sixteen fluid ounces each of water and glycerine for two or three hours, adding water from time to time as the fluid boils away; at the end of the boiling process the quantity of fluid

must measure thirty-two fluid ounces. This is the most universally successful local application known in the treatment of gonorrhœa, chronic inflammations of mucous membranes, diseases of the uterus of a catarrhal and leucorrhœal nature, ophthalmia, etc.

The influence of hydrastis over inflamed parts locally used, is well known to eclectics, and has been used for years by them as a local medicament in lieu of other astringents and local stimulants.

The white principle of hydrastis, in my experience, is nearly worthless; so is the sulphate of hydrastine. The combination of fluid hydrastis and hamamelis forms a valuable medicament in the treatment of menorrhagia.

Hydrastis and pulsatilla combined is one of our best preparations in the pains and nervous troubles, and the hemorrhagic gushes often encountered in women entering the climacteric of life. Pulsatilla and belladonna combined afford us a fine heart sedative in nervous excitement of women in the menopause.

Hydrastis canadensis is indicated where there are thick, ropy discharges from mucous membranes, loss of appetite and feeble digestion.

Dose: twenty to sixty drops of the tincture, twenty to thirty drops of the fluid extract. In small doses, this article acts well in all cases of feeble digestion, especially if from catarrh of the mucous membranes. It is recommended in jaundice, chronic bronchitis, constipation, if given in drop doses. In chronic ophthalmia, or for granulated lids, a solution in water, of the sulphate of hydrastia two grains, in distilled water one ounce, applied three times a day, often cures this trouble.

The fluid extract of hydrastis canadensis is indicated as a tonic in all weakened states of the digestive organs; its obviates constipation by stimulating a free flow of bile from the liver; added to water, makes an excellent wash for ulcerated sore throat or in ophthalmia.

Dose: ten to thirty drops, added to water, every four hours.

Hydrastine sulphate is indicated as a stomach tonic and to increase the flow of bile; in atonic dyspepsia, tubercular diarrhœa and enlarged spleen. Valuable astringent, antiseptic gargle in syphilitic sore throat.

Dose: two to five grains, in pill or powder, every four hours.

Hydrocotyle Asiatica. A most valuable bactericide, having the power, when administered persistently in small doses, of utterly annihilating the venereal bacillus.

It is extensively used in Hindostan, and is being gradually introduced into this country.

The dose is from five to ten drops of the tincture, added to a little water.

Hydronaphthol. This valuable derivative of coal tar is no longer an experiment, but has fairly won a permanent place high up in the list of modern antiseptics. After severest tests and experiments in both hospital and private practice, it has been accorded a place second only to mercuric bichloride in point of germicidal power, and being non-poisonous and non-corrosive, it is preferable to that well-known agent for all the purposes for which it is recommended. Hydronaphthol is free from the odor and escharotic properties of carbolic acid and other phenols, hence it is a pleasant and valuable internal antiseptic. Therefore, aside from its value as a general antiseptic, disinfectant, germicide and preservative, it is being used with great satisfaction as an internal remedy in cancer of the stomach, chronic dyspepsia, gastritis, typhoid fever and in other diseases of the alimentary canal; also in enuresis, cystitis, rheumatism and gout.

The very learned *S. H. Holbrook, M. D.*, of Salem, and other eminent dermatologists of Massachusetts, have found hydronaphthol an excellent remedy in ulcers, eczema, scabies, all forms of tinea.

It is a most excellent bactericide for the preservation of anatomical preparations without shrinkage or decay.

Hydronaphthol is a secondary compound of betanaphthol, differing from it in having a molecule of hydrogen displaced by an equivalent of hydroxide. Considered as a germicide, it is one of the highest rank, sufficiently powerful to destroy the bacillus of anthrax, subtilis, variola, leprosy. Administered internally in small doses as an antiseptic; but it is found to be of the greatest service in washing out septic or germ-laden cavities or wounds. It is most convenient either to make use of a solution in alcohol, in which it is soluble to the amount of 1 in 2 parts, or with glycerine added to the alcoholic solution, so as to make it of the strength of 1 in 10. It is soluble in oil to the extent of 1 in 20, but it is only dissolved in cold water to the amount of 1 in 1100. In making this last solution it is best to see that the water is tepid. A solution of 1 in 300 in warm water possesses very great germicidal powers.

is a peculiar product obtained from a bituminous rock found in the Tyrol. It occurs in the form of a reddish brown liquid, clear and syrupy, of a peculiar herb-like odor, and of a faintly alkaline reaction. It is soluble in water, partially so in alcohol and ether, but more soluble in a mixture of alcohol and ether. From its aqueous solution it is precipitated by hydrochloric acid. It is a remedy of intrinsic value in all parasitè skin affections, as in impetigo, eczema, sycosis and other forms of tinea, where fatty agents increase their growth. A most reliable formula consists in three parts of ichthyol to glycerine and dextrine each ten parts, mix.

Equal parts of ichthyol and spirits of turpentine, a mixture of great efficacy in dry and moist chilblains; the burning and itching passing away the moment it is applied.

Three parts ichthyol to one of chloroform is a never-failing remedy for toothache. In burns and scalds, psoriasis, in prurigo, pruritus, ichthyol has been used both internally and externally with success. As a germicide it stands unrivalled, being even efficacious in nasal catarrh, chronic bronchitis, and chronic rheumatism.

Our best dermatologists regard ichthyol as a cutaneous germicide, most efficient, superior to many other remedies; painted over the affected part it protects it from the air and dust by forming a coating over it; relieves congestion by causing contraction of the arterioles, thus diminishing the vascularity of the part.

In eczema, one drachm of ichthyol to one ounce of distilled water, when painted over the affected part with a camel's hair brush, relieves the itching and tingling.

For squamous eczema, an ointment made of one drachm of ichthyol added to one ounce of ozone ointment.

The same ointment applied over affected parts in rheumatism has a sterilizing action on the micrococci of that affection, for it unquestionably relieves the fever; the swelling and the joint-pain leave—thus killing the germ where it was localized.

Ichthyol has found a rival in thiol, a new product of chemical synthesis, obtained by artificially sulphuretting unsaturated hydro-carbons, and charging these with ten per cent. of sulphur. Chemical and therapeutical researches prove its exact identity with ichthyol. Thiol consists of a brown fluid of the consistency of syrup; it is completely soluble in water, is totally inodorous, and has therefore a decided advantage over ichthyol. There exists also a dry thiol, which has two and a half times the strength of fluid thiol, otherwise having the same properties as

the latter. Thiol is used like ichthyol in the following diseases: Acne, acute and chronic rheumatic arthritis, other rheumatic affections, contusions, decubitus, eczema, erysipelas, neuralgia, ischia, leprosy, frost-bites, prurigo, pruritus, ulcer cruris, burns and scalds.

Thiol and ichthyol are identically alike; thiol will replace the latter when the natural sources of that remedy are exhausted.

Ingluvin is a remedial agent which, since its comparatively recent introduction to the medical profession of the United States and Europe, has gained for itself a reputation perhaps hardly equalled in so brief a period in the case of any other preparation known in pharmacy. It is prepared from the *ventriculus callosus gallinaceus*; the gizzard of the domestic fowl—*pullus gallinaceus*. Since its introduction no remedy of modern times has excited more attention among physicians far and near, or received a higher endorsement, than ingluvin. As the source of its manufacture and the substance from which it is derived are made public, the profession has not hesitated to prescribe it in all cases where pepsin is indicated as a remedy, and its use has been attended with more uniform beneficial results than that afforded by pepsin, which has been found so variable, perhaps on account of its various strengths and different modes of preparation. Ingluvin, unlike pepsin, is *not incompatible with alkalis*.

The diseases in which the use of ingluvin is indicated are indigestion in its various forms, known as dyspepsia, and sick stomach or nausea caused by debility of that organ. It was originally discovered to be a remedy, indeed a specific, for vomiting in pregnancy; in this respect it stands above all other medicinal agents. In all that is here set forth the manufacturers claim no more than is sustained by medical authority of the highest standing.

The practitioner is especially cautioned to avoid fraudulent substitutes and imitations, which the manufacturers are aware have been offered, and which are but the crude powdered gizzards of the fowl. Ingluvin differs from this by its extreme refinement, and its association with simple substances for its preservation as animal matter. It is therefore essential to his success, and for the welfare of the patient, that the practitioner should be guarded against unscrupulous competition that would offer powdered gizzards, and seek to profit by the success of the true preparation.

Dose: From five to ten grains.

A substance derived from a great variety of plants ;
Indigo. many compounds of great chemical and medicinal value have been derived from it. Indigo, itself, and

all its alkaloids and glucosides, are potent germicides, it was from this agent that aniline was first derived, from which such a host of invaluable antipyretics have been prepared.

The wild indigo, or its glucoside baptisin, is of great efficacy in the destruction of microscopic life; one ounce of the crude plant (root) to a pint of boiling water, infuse over night, and drink freely the following day, will kill the germs of typhoid fever, epidemic dysentery, chronic diarrhea, sore throat. The glucoside baptisin



Indigo Plant (*Indigo Tinctoria*); a, pod;
 b, block of indigo.

has been effectually used in epileptic and nervous cases.

It is also a valuable remedy in chronic irritation of the liver, with albuminuria.

The bark of the root of this plant yields an active
Ipecac. principle of great value called emetine. This vegetable alkaloid in very small doses is an active stimulant to the mucous membrane of the bronchi.

All preparations of this bark are of great value. In large doses it is a mild and efficient emetic; whereas in small doses it allays irritation of the gastric nerves.

In medium doses it does good work either alone or combined with muriate of ammonia in bronchitis.

Also a good remedy in the treatment of infantile pneumonia. It is an excellent remedy in small doses for nausea and vomiting, and exercises a sedative action on the mucous membrane, whether diarrhea or dysentery be present.



Ipecac.

All preparations of iodine are highly germicidal.

Iodine. Its use is indicated wherever there are disease germs in the human blood.

Dose, ten to fifteen drops of the officinal tincture, five to seven drops of Lugal's solution. Iodol in pills, one to two grains. Dose of iodide of soda, five to six grains.

Uses.—Iodine is a remedy for croup, of the membranous variety, or spasm of the glottis. It is a good remedy for cancer. It is a good injection in a corrosive leucorrhœa, diluted to prevent irritation. One part to ten or fifteen of water at first.

Lugal's solution in doses of six to eight drops, three times a day, is a good remedy for chronic malarial poisoning, where there is induration of the liver and spleen or other glands. It is a good inhalation in the early stage of pneumonia. It prevents suppuration, if used in time, especially if iodoform is used on the ulcer. For tubercular and skin affections, iodine, in doses of one to six drops three times a day, is almost a specific, and it is valuable in syphilis. It is a positive remedy for leucorrhœa. Alternated with diluted bromine, the inhalation of iodine is a remedy in hay asthma and hay fever, bronchitis and catarrh. Iodine is a good mouth wash, as it removes tartar from the teeth, and cures diseased gums, and heals ulcers of the mouth and gums. Iodine (tincture) kept applied, cures orchitis. Iodoform lotion, one part to fifteen of water, constantly applied, removes abnormal growths of the mammary glands. It also cures house-maid's *knee*, and also purulent ophthalmia. An ointment of iodoform, applied frequently, cures enlargement of the prostate. In powder it is the best antiseptic dressing for ulcerations of the external surface.

Iodol, containing as it does nearly eighty-nine per cent. of iodine, is next to iodoform, the strongest iodine preparation extant; and is much superior to iodoform in germicidal power, and its absence of odor and of toxic properties makes it preferable to iodoform. An iodol jacket in consolidated lung either with the bacilli of tubercle, or the pneumococcus of pneumônia, is most effective in the annihilation of the germs, thus clearing up lungs partially dead.

Iodol sprinkled on chancres, specific. Iodol as a snuff in nasal catarrh and ozæna, destroys the amœba in the former, and the oidium albicans in the latter.

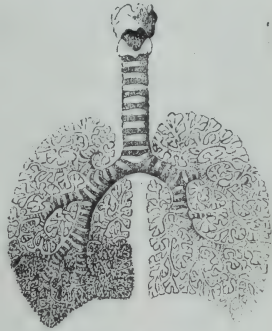


Diagram showing the lower lobe of the right lung engorged with the pneumococcus; an iodol jacket was applied for 24 hours, every microbe disappeared, leaving the lung clear on percussion.

It destroys the tubercle in the thyroid, and thus cures goitre; annihilates the bacteria of erysipelas and boils; kills all fungi, as the different forms of *tinea*. It is destructive to all microscopic life, vitalizing to the higher grades of animated existence.

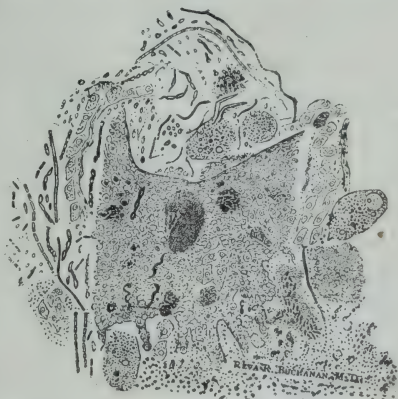
Iodized oil for external application has numerous advantages, it is readily absorbed; does not stain; may be applied to the most delicate skin without irritation; it is of immense value in pulmonary consumption and in tubercular disease of joints.

Dr. W. H. Flesher, Green Ridge, Mo., a physician of great culture and experience, says:

"Iodol, or tetraiodopyrol, has a light-brown color, and is almost odorless, in which respect it offers a decided advantage over iodoform. Unfortunately, it is not very soluble in water, only in a proportion of 1 to 5000. In alcohol it dissolves in three times its weight. The drug is employed in the following manner: 1. As a powder, in the same manner as iodoform. Being a finer powder, it enters and covers the part more completely than the former. It forms no scurf (in opposition with iodoform) on the wound, renders the secretion odorless, favors the formation of healthy granulation, and has a general salutary influence on the nutrition of the affected parts. 2. As solution, in sixteen parts of alcohol and thirty-four parts of glycerine, for the saturation of uterine or rectal tampons. It is also injected in this form into empty or scraped-out abscesses. 3. As gauze. 4. In combination with vaseline and collodium. In no instance, in spite of its extensive use, were any symptoms of intoxication observed, nor was ever any iodine after its use discoverable in the urine. It is probable that its action depends on the generation of free iodine, though we have no definite data yet regarding this point. At all events, its action is prompt and harmless, and offers no small advantage over the iodoform in the absence of any odor, though its poor solubility and its (at present) high price are equally great objections."

Its special advantages are: when applied, the iodine which it contains is set free by lung bioplasm, kills microbes; when sprinkled on a wound, movements of leucocytes, renders the surface dry, prevents suppuration, and encourages granulation, while at the same time its local anesthetic action lessens pain, It seems to have a special destructive action on the tubercle bacillus, and is therefore employed with advantage as a local application for tubercular disease of the larynx and tubercular abscesses. One great convenience of iodoform consists in the fact that it can be applied as a powder over any surface, and will there exercise its antiseptic action for a long time without the necessity of any dressing being applied over it, but as I have

said, it is not without its dangers, and, although sparingly soluble, it may yet be absorbed from wounds or cavities to such an extent as to produce poisoning. The symptoms of poisoning are particularly interesting, as they consist of a peculiar combination of the action of iodine itself with that of an alkyl. Like an iodide, it may produce unpleasant taste and smell, running at the nose, and gastric disturbance, but it behaves also like a member of the alcoholic series in causing special symptoms of poisoning which are connected with the nervous system, and consisting of loss of memory, variable temper, headache, sleeplessness, and especially mental disturbances, sometimes amounting to furious mania, alternating with coma. Fatty degeneration of the heart and other organs is usually found after death.



The microbe of epidemic influenza, which appeared in the U. S., 1890; which was completely sterilized by the administration of ozonized iodine in alternation with the sulphate of quinine. Every case yields to these remedies.

Ozonized iodine is a remarkable active form, and has acquired a big reputation, which it justly deserves in sterilizing the blood.

During a recent epidemic of influenza, it was administered with remarkable success in getting rid of the microbe, and relieving the intense pain in the muscles and bones.

Soziodol is a compound of such well-known antiseptics as iodine, carbolic acid, and sulphur, and is chemically described under the name Di-iodoparaphenolsulphonic acid. It is destined to act as an odorless substitute for iodoform.

Sodium-soziodol occurs in colorless tubular crystals, which dissolve easily in water or glycerine at an ordinary temperature, to the extent of about one in twelve. The glycerine solution remains quite unchanged when exposed to sunlight, but the aqueous solution slowly alters its color on exposure.

Potassium-soziodol dissolves only to a slight extent in water and glycerine, these fluids dissolving only about a fiftieth part of their weight of the salt. This property makes the potassium

salt preferable to the sodium salt in the treatment of cases which require the application of dusting powders, etc., because of the greater duration of their efficacy; the effects of both salts are, however, the same. Soziodol has been applied not only in the solution, but in combination with talc, lanolin, sugar of milk, and with much success, in the pure state. It is perfectly odorless, and experience has shown that it is without any injurious after-effects whatever, so that it seems to be entitled to prominent rank among antiseptics.

Its chemical nature permits of combinations with almost every metal, opening thus a vast field for therapeutic treatment, and enabling the physician to combine the action of certain metallic bodies with that of the antiseptic substance proper, such as aluminum, magnesium, lead and zinc, which compounds are easily soluble. Also the ammonium, barium, mercury, and silver salts, which are difficultly soluble.

The soziodol salts have been used in skin diseases of a parasitic character: eczema, even of long standing. Dry eczema may be treated with sodium-soziodol; damp eczema with zinc, either as a powder or with talc (1 to 10), and in very obstinate cases of syphilitic eruption, mercury-soziodol has been used with great success. In diseases of the ear, nose, larynx, and pharynx, potassium- and sodium-soziodol, either pure or mixed with an equal weight of powdered talc, yield good results. For conjunctivitis, five to ten per cent. solution of sodium-soziodol forms an excellent lotion, and for gonorrhœa, zinc-soziodol in one to three per cent. solution, and it can be applied to ulcerative cancer surfaces with advantage. Their application is indicated everywhere in the place of iodoform, and the fact that here the long-looked-for desideratum, an odorless substitute for iodoform, has been found, should induce all medical men to give them a fair trial.

Jaborandi, a remedy of decided value in the treatment of a large number of febrile and inflammatory diseases, is not a germicide, but possesses the most extraordinary faculty, when the blood is germ-laden, of driving the entire brood of bacilli and micrococci to the cutaneous surface and salivary glands of the mouth, where they can be readily annihilated with bactericides. It does this by its potent diaphoretic and sialagogue action, consequently in a large percentage of fevers, and inflammations, as in œdema of the glottis, laryngitis, bronchitis, pleurisy, pneumonia, rheumatism, erysipelas, diabetes, malarial fever, etc., it is of signal efficacy in the management of the cases.

A good form to administer is to take of the fluid extract one drachm, and add to it a cup of hot water, and if free salivation and diaphoresis does not occur in half an hour, give a second dose; it is rarely necessary to repeat. The saliva in all cases must be spit out as fast as it accumulates in the mouth, as it is invariably loaded with the micro-organisms of disease.

Another formula is the following:

Fluid extract of jaborandi, four drachms; aromatic spirits of ammonia, one drachm; simple syrup, one ounce. Mix.

One teaspoonful to be given every ten minutes till free perspiration is induced.

The alkaloid pilocarpin hydrochlorate, one-fourth grain in solution, injected hypodermically, has been extremely efficacious in dropsical effusions, as the result of interstitial obstruction of the kidneys.

Tetanus has been successfully treated by subcutaneous injection of the same alkaloid, but the dose used has been very large. The purport of treatment is to drive the microbe from the cerebrospinal centres to the skin.

The hypodermic use of the same alkaloid has been well spoken of in alopecia.

Pilocarpin removes the urgent symptoms of asthma.

The therapeutic action of Jalap. this remedy is so well known that it seems superfluous to enumerate it; but as it has such a decided action in relieving modern cerebral congestion, it is worthy of notice. It is of unquestionable utility, a most valuable cathartic in disease of the



Jaborandi.



Jalap.

brain; its derivative action is unexcelled. The best combination for use is one part of powdered jalap, two parts bitartrate potassa, and sufficient pulverized ginger to keep it from griping. It is also of value in dropsical effusions.

With all our new remedies, this very frequently comes into excellent service.

In small doses, combined with leptandra, it does excellent work in torpid states of the liver.

Jamaica Dogwood.

many species of germs when brought in contact with them—the root thrown into water will stupely fish. In five to eight-drop



Jamaica Dogwood.

A fluid extract prepared from the bark of the root is a powerful narcotic, germicide and parasiticide—annihilates the mycelia of whooping-cough, the germs of toothache, erysipelas, and of bronchial catarrh.

Extremely valuable in insomnia, affords in all cases most refreshing sleep. It possesses all the desirable effects of chloral, bromide of potass, opium, urethan. If administered during parturition, it will lessen the pains of labor without interfering with uterine contractions.

It is of great utility in all forms of neuralgia.

The following is an excellent formula in gastralgia: Fluid extract of Jamaica dogwood, fluid extract of American columbæ, comp. tincture of

matricaria—of each one ounce. Mix. Dose: from fifteen to thirty drops, added to a little water, as indicated.

Jambul.

(*Syzygium Jambulanum*.)

The seeds and bark are powerfully germicidal, stomachic, carminative, diuretic, astringent. When introduced into the human stomach,

and passed into the process of secondary digestion, thence into the blood, they have a specially destructive action upon the glucose or sugar fungus, not only annihilating it, but preventing its formation by some peculiar action upon the starch formed in

the liver. In this way it controls the disease, and all its prominent symptoms disappear under its use, such as prostration, debility, emaciation, thirst, ravenous appetite, extreme restlessness, excessive secretion of urine of high specific gravity.

While taking jambul, there need be no restriction of diet, the urine becomes normal.

For easy administration, and better to preserve the properties of the drug, two and one-half grains are encased in a capsule; two of these should be taken three or even six times a day, according to the indications of each particular case.

By taking these pearls in diabetes thrice daily, the specific gravity, the percentage of sugar and the quantity of water passed are astonishingly reduced.

The berries are stimu-

Juniper. lant, antiseptic, diuretic; chiefly used in dropsical affections. Its antiseptic properties causes it to be a drug of great value. Whenever we desire to impregnate the body with a natural ozone scavenger, juniperus is indicated; valuable in dropsy, in blood and cutaneous affections, and in those states where there is a bleeding fungus in the bladder associated with retention of urine and catarrh of that organ. The compound spirits of juniper is thus prepared: take of juniper berries, well bruised, one pound; caraway and fennel seeds, pulverized, one ounce and a half of each; dilute alcohol, one gallon; macerate two weeks, then add half a gallon of water and distill off one gallon.

The infusion is an excellent one for administration, prepared by adding one ounce of crushed berries to one pint of boiling water. The whole of this is to be taken in the twenty-four hours. All extracts are worthless.



Common Juniper. (*J. communis*).
a, branchlet with male flowers;
b, part of branchlet with female
 flowers; *c*, unripe fruit.

Kaki,
 (Pulverized Root Japanese
 Persimmon.)

It is indicated in gastric catarrh, chronic diarrhea, typhoid fever, dysentery, ulceration of the bowels, catarrh of the colon and rectum. Decidedly one of the best reme-

dies ever introduced, as it excites a renewal of life in the various coats of the entire intestinal tract; a sovereign remedy in the diseases enumerated.

Dose: One to two teaspoonfuls to a half pint of boiling water; when cool, permit patient to drink freely.

Fluid extract; a bactericide of great efficacy in sterilizing the syphilitic bacillus. Dose for that purpose, twenty to thirty drops thrice daily.

Kalmia, (*Laurel*.) Kalmia, in one-drop doses, has proved valuable in albuminuria, curing twenty-five per cent. It mitigates the pain of rheumatism very quickly, and acts positively in neuralgia. It wards off rheumatism of the heart. In headache, coming on in the morning and going off at night, this remedy acts like a charm. In influenza, with watery eyes, sore throat and much aching in the bones, the kalmia gives quick relief. In all aches and pains, think of the kalmia. It may be given in drop doses, with two to five drops of gelsemium, every hour or for five or six hours, then lessen.

Dose: fluid extract, twenty to thirty drops; tincture, thirty to sixty drops three times a day. A remedy for toothache, neuralgia, small doses of this drug will give relief quickly.

Kava-Kava, (*Piper Methycticum*.) In painful urination, this is a remedy, in doses of eight to ten drops every three hours, or in extreme cases give twenty-five drops. It may be combined with pareira brava, one drop at a dose. These remedies may also alternate benzoate of lithia in gravel, cystitis and catarrh of the bladder. It may be combined with hydrangea in gravel, or with liatris spicata in cystitis. These remedies often give relief, where there is excess of acid in the urine, then it will require lithia in addition.

In gonorrhoea, kava-kava paste entirely replaces the old remedies. It does not cause gastro-intestinal irritation; neither does it impart any odor to the breath, but it kills the gonococcus, the discharge is very speedily reduced to a slight oozing. In chronic catarrh and suppurating nephritis, it very soon diminishes the amount of muco-purulent matter. Cures very obstinate cases of cystitis. The tincture and fluid extract are worthless, have no germicidal action. The paste invariably does its work well. Dose: A piece the size of a bean every three hours.

Kola Nut. The nut of *cola acuminata*, or *sterculia*, a native of the tropical parts of the western coast of Africa, and cultivated in other tropical countries. The natives value the nuts very highly, and often take a portion of them before meals, believing that they improve the appetite and destroy all microbes in what they eat and drink, even rendering putrid meat and stagnant water fresh. The nuts are the size of eggs and possess identical properties with the coca erythroxy-lyon and caffeine. In all its forms it is a germicide; it has marked aphrodisiac properties and retards tissue waste. It has a most decided action in heart disease with renal obstruction, promotes diuresis by increasing the general vascular tension. It acts as a nutrient and tonic, an aperient and gastric stimulant. It cannot be too highly extolled in chronic alcoholism, appeases the appetite, removes stupefaction, prevents disagreeable after-effects. It has a remarkable prophylactic action—or rather guarding effect to the liberation of large doses of iodide of potassium in the blood in cases where the blood is germ-laden with the syphilitic microbe.

The Liberia kola nut is the best, and it is from this that a laxative and refreshing fruit lozenge has been prepared for the relief and cure of constipation and its attendant maladies, as headache congestion of the liver and spleen, piles, dyspepsia, and all disorders of the alimentary canal.

With Americans, who consume a highly concentrated diet, and possess a normal condition of the brain, liver and digestive organs, one evacuation of the bowels in the twenty-four hours, following the morning meal, is to be regarded as a healthy standard. When defecation is less frequent, slow, prolonged or retarded, it constitutes constipation.

Habitual constipation is one of the most common affections incidental to young or old, in all sections of our country, due to neurasthenia in nearly all cases, and this poverty of nerve force is aggravated by our highly ozonized atmosphere, by malaria, by the use of stimulants; erroneous drug treatments, adulterated food, hasty mastication, nerve strain, worry, struggle for existence,



Branch and nut of the Kola Sterculia.

brain exhaustion ; chronic disease, sedentary habits, etc., give rise to inertia or sluggishness, deficiency of bile, which give rise to arrested perisaltic action, a faulty condition of the intestinal secretions and constipation.

Assuming, then, that a lack of nerve force is the source of this widespread affection, it would seem to be most erroneous and pernicious to treat this affection with purgatives, and still further increase the debility.

Constipation, or fæcal accumulation, is a fearful source of headache, fetid breath, dyspepsia, torpidity of the liver and spleen ; piles, insomnia, mental depression, apoplexy, nervous disorders of all kinds—the brain and rectum suffer most in all cases.

The poisonous activity of human fæces even in a healthy individual is very great. There are formed in the intestines of an adult in twenty-four hours a quantity of cadaveric alkaloids, which, if excretion were stopped and all were absorbed, would be sufficient to destroy life. No one can doubt the seriousness of retained fæces and the injurious effects of constipation, for when it exists those poisons are absorbed at the rate of diminished perisaltic action.

The only true method of curing constipation is by increasing the vital force of the affected individual, and the removal of all apparent causes. The remedy must not be either a purgative or laxative ; it must increase the vital stamina ; by this means procure a free flow of bile, remove congestion and unload the bowels.

For this purpose the active nerve-stimulating principle of the kola nut has been isolated and made into a pleasing, palatable form which, when taken, relieves this difficulty. This active, isolated principle is free from all bitter and astringent properties, incidental to the drug, while the nerve-cell elaborating principle is even more energetic by this elimination.

This principle is one of immense power ; it not only stimulates the brain by its action in generating more gray matter, but in some mysterious manner vivifies the great sympathetic which covers the bowels and energies the eighth pair that supply the liver. Such a remedy speedily affects the liver, restores that gland to its pristine activity, the bowels become regular, the complexion clear, the breath sweet, and the whole body seems rejuvenated and pervaded by a feeling of buoyancy, which shows that the liver has resumed its normal function.

The remedy is indispensable, not only in constipation, but in all diseases of the liver and bowels, as it increases cerebral force, acts upon the sympathetic which supplies the intestines and pro-

notes the nutritive assimilative forces, rouses up the secretion of the liver. It never causes any pain or griping, or nausea, no derangement or inconvenience, but in all cases constipation disappears.

The individual taking the remedy must be the judge of the dose. Enough should be taken before retiring to cause only one comfortable, free, copious evacuation after the morning meal.

It is a gentle and effective aperient for the most debilitated as well as the strong, affording agreeable and effective relief from constipation. Its use, unlike other medicines, does not necessitate continuous repetition, and, however frequently taken, its action being so gentle, no evil effects can arise therefrom.

A native of Abyssinia. The panicles are unisexual. Both the male and the female flowers, but chiefly the latter, are collected and exposed to the sun to dry. As they reach this country, they are in compressed clusters, entire or more or less broken, or in subcylindrical rolls, bound together with transverse bands, or in small fragments. The clusters or rolls vary from ten to twelve inches, of a greenish-brown color, and have a pleasant, herby, tea-like odor, but very acrid and disagreeable. There is found in the entire plant a volatile oil, a bitter acrid resin, and the alkaloid *koussin*, which is inert.



Koussou.

An infusion is the only form which is eligible for use. Two ounces to a pint of water, simmered down to half a pint. The usual precautions being observed, as to diet, it should be drunk freely and is most effectual in destroying all forms of tape-worm.

prepared from the kurchicine, are most efficacious.

Hindoo Bitters.

These bitters excel all others in point of real merit, and their fine bitter orange flavor makes them as pleasant as they are useful. They are a reliable remedy for dyspepsia, indigestion, constipation, ague, and diseases of the stom-

ach, bowels, liver, and kidneys. They purify and enrich the blood, tone and impart strength to the system, stimulate the digestion, regulate the bowels, promote a healthy appetite, dispel nervous exhaustion, cure general debility, give buoyancy to the spirits, and are especially recommended as a true tonic and restorer for invalids, females and delicate persons. They will be found extremely beneficial in regulating the various functions of the body, and a reliable antidote and preventive for chills and fever and all malarial diseases.

The Hindoo Bitters are not an intoxicating beverage, nor can they be used as such by reason of their cathartic properties, and being purely vegetable, they are classed strictly as a medical agent, and can be given at all times with beneficial results. When taken after meals they aid digestion; when taken before meals, they produce a healthy appetite, and as a morning tonic they have a charming effect. In cases of dipsomania, or for persons having an unnatural desire for liquor, they will be found peculiarly suitable, as the use of these bitters will enable them to free themselves of the pernicious habit, by acquiring a strong and healthy appetite for solid food.

The same remedy is put up in pill form, and there is also an alkaloid extracted from the same—sulphate of kurchicine.

Concentrated tincture of kurchicine highly ozonized is of immense utility in the quotidian, tertian and quartan types of malarial fever, as it destroys the micro-organisms which give rise to that class of pernicious fevers. So definite and potent is its action that after the first dose the odoriferous character of the dead germs can be detected in the sweat, saliva, urine. The bowels must be opened; all fluids strictly forbidden, either with the remedy or for several hours subsequently, or between doses, as watery fluids supply a pabulum to germ evolution in the blood. The remedy causes the malarial germ to speedily disappear from the blood and tissues. It is valuable in small doses in all fevers or states of debility. It changes the electrical forces of the body from a negative to a positive state.

This is a most efficient germicide in certain forms of dyspepsia, and for the removal of phosphatic deposits in the urine. From one to two drachms is added to a half or a pint of sweetened water and drunk like lemonade, this being the dose for twenty-four hours; in one-half drachm to the pint of water, taken daily, of utility in diabetes.

A solution of one part of the acid to five of water has been

efficacious in dissolving the false membrane of croup and diphtheria.

A small amount of the acid added to pepsin increases its solvent powers in a most remarkable degree.

An eighty-per-cent. solution painted over ulcerating lupus is most effectual in the destruction of the tubercular bacilli. Obstinate cases of ulceration of a phagedenic or cancerous type are successfully treated with this acid. More recently it has done good work in the removal of large patches of epithelioma in, around and on the os uteri. The acid locally, and Chian turpentine internally in cancer of the uterus often effect radical cure. The application of the acid in all cases should be limited to the diseased parts.

The great value of lactic acid in the diarrhea of infants is well established, especially in cholera infantum. The best result is obtained from small doses, frequently repeated. The following formula operates well: Lactic acid C. P., half a drachm; simple syrup, one ounce; water, three ounces. Mix. In teaspoonful doses, repeated as occasion requires.

For corns, acid salicylic, ten parts; acid lactic, ten parts; colloidion, eight parts; carbolic acid, two parts; apply to the corn several coats, allowing each previous one to dry.

E. D. Reed, M. D., Frederick, Md., in a recent essay read before the Society in that State, says:

"Lactic acid has been found to possess some very remarkable properties. It has no corrosive action upon healthy mucous membrane, but attacks and destroys unhealthy and sloughing tissues. The diseased tissues turn a dark, dirty brown under its application, and quickly slough off, leaving a healthy appearing surface which tends to granulate and heal. It is a valuable remedy when the pain is severe and the discharge very offensive and flooding frequent. These symptoms are greatly relieved by the application of the acid twice a week.

It does not produce pain when applied, and when used freely twice a week relief is almost immediately experienced. The manner of application is as follows: An ordinary Furgeson speculum is introduced, the cervix cleansed; then a mop made of absorbent cotton and saturated with the acid is freely applied to the sloughing mass; water is then thrown in, and the acid again applied, after which a tampon of cotton is placed, and the patient allowed to go. The treatment should be practiced once or twice a week, according to the gravity of the case."

Disappointment in the use of lactic acid is frequently experienced on account of the poor quality of the drug. Hence the necessity of procuring the article of a reliable chemist.

E. S. Pixley, M. D., Pittsfield, Mass., has had most extensive experience with dilute lactic acid in the treatment of summer diarrhoea and cholera infantum; he has also found it useful in headache and rheumatism, having the effect of clearing the intestinal tract of all microbes.

Children take the remedy easily, as it forms an agreeable beverage, and its continuous use does not in any way interfere with digestion.

Lachnanthes
Tinctoria.
(Red Root.)



Red Root.

The whole herb in the form of a saturated tincture, is a bactericide of considerable power; administered in pneumonia, typhoid, and other fevers, it kills the spores, and the full fledged microbes. It also has a most remarkable action in sterilizing the tubercle bacillus, hence it is of great utility in the cough of bronchitis and phthisis. The tincture is prepared as follows: Coarsely ground herb, one pound, cover with alcohol of a seventy-five per cent. strength. Let it macerate one month. Then percolate. A few drops of this tincture is excellent in hoarseness, laryngeal cough, and for our hay-fever cough of spring and fall.

In the recent epidemic, influenza, the physicians of New Jersey have been using the tincture of the red root with salicylate soda with wonderful success. It certainly is a valuable addition to our respiratory antiseptics.

There seems to be a considerable future before
Lactose. lactose as a diuretic. Milk itself can be used as a diuretic, but it tends to produce a temporary glycosuria. Lactose has none of these disadvantages. Very considerable diuresis is produced by the administration of one hundred grammes of lactose, that is to say, the amount contained in two litres of milk. The diuretic effect produced by a potion containing that amount of lactose is greater than any produced by drugs; it quickly reaches two and a half litres of urine a day,

almost always rising to three and a half and even four and a half litres on the third day. During this period dropsical effusions disappear, and the blood is dehydrated. Its effect is certain in cardiac dropsy; in renal dropsy, on the other hand, its action is much more doubtful. In cardiac cases it fails only when the complication of Bright's disease exists, and when the albuminuria amounts to from sixty to ninety centigrammes per litre of urine. Diarrhea or copious perspiration may also lessen the diuretic effect of lactose by dehydrating the blood. The remedy is, as a rule, well borne. It should be continued for eight or ten days, when the administration should be interrupted for a few days, and afterwards resumed. The blood-pressure is not raised by lactose. It is far superior in this respect to strophanthus and digitaline.

The milky juice of the lettuce, added to the ozonized syrup of tolu, is a most valuable preparation.

Possesses the hypnotic, sedative, and calming properties of the opiate preparations, without provoking constipation, cerebral congestion, want of appetite, etc. It is one of the very few preparations that can be efficaciously employed for children without any inconvenience. In consumption it moderates the cough and expectoration, destroys the bacillus.

A shrub of the mint family, possessing all the germicidal properties of its class; besides being an aromatic stimulant and tonic, it is much esteemed in the form of a decoction in nervous debility; as a tonic to the stomach; a gargle to the mouth and throat; in cases of aphonia. Vinous tincture of the flowers make an excellent aromatic wine for colic, and where ptomaines are irritating the bowels.

Its oil is obtained by distillation, forms a pleasant and invigorating perfume, and the amount of ozone developed in the atmosphere by this volatile antiseptic is immense. Thus it may be used in an atomizer for laryngeal irritation, or in the form of a cerate.



Lavender.

Oil of lavender, two ounces ; vaseline, two ounces ; oil of sweet almonds, one ounce ; oxide of zinc, two ounces ; carbolic acid, thirty grains. Mix. Apply to the nostrils in catarrh.

All the fruit germicidal, the rind stomachic.

Lemon. Lemon juice specific for the cure and prevention of scurvy.

Administered in large doses in rheumatism it annihilates the lactic ferment, but not essentially curative.



Lemon (*Citrus Lemonum*).

It greatly intensifies the action of some alkaloids; lemon juice and quinine added to strong mocha coffee is pre-eminently destructive to the malarial germ. Citric acid or lemon juice added to caffeine affords us a reliable remedy for the headaches incidental to breathing sewer gas. As a local application, with a small amount of cocaine added, never-failing in pruritis of the scrotum; for freckles equal parts of lemon juice and glycerine, say two ounces of each, and one

grain of bichloride of hydrargyrum added; for painting over the diphtheritic patch. Take it all in all, it is a remedial agent of much potency.

Citric acid has powerful germicidal action.

It is cooling and refreshing to the taste, and is decomposed in the system, acting, probably, in the same manner as sugar. When taken in the form of lemon juice, or in the fruits of the orange family of plants, it is eminently antiscorbutic. On this account ships going a voyage of more than six weeks are compelled to take a supply of lemon or lime juice, and sailors should take at least half-an-ounce a day. The crystallized citric acid does not appear to act as an antiscorbutic. Citric acid and the juices which contain it are employed for making effervescing draughts, when mixed with alkalis. Fourteen grains of citric acid, or half-an-ounce of lemon juice, mixed with twenty grains of bicarbonate of potash, makes, with one ounce of water, an excellent effervescing draught.

Black root or Culver's Physic, the root of **Leptandra**. *leptandra virg.*, is a mild alterative, cholagogue and tonic. It is a slow acting remedy, but efficient, reliable and powerful in stimulating the granular structure of the liver, correcting the hepatic secretions and promoting a free flow of bile. It is an efficacious remedy in all diseases of the liver: if combined with phosphate of soda, it operates efficiently in jaundice or whenever the liver needs the aid of a remedy to promote biliary secretion.

The fluid extract from the fresh root is the most reliable and best for ordinary use.

The so-called leptandrin is simply a solid extract in a state of trituration, not entirely useless but nearly so.

The glucoside leptandra (American preparation) is reliable, as it is prepared from the fresh root. It forms some splendid compounds. Glucoside leptandra, two drachms; citrate of caffeine, one drachm; strychnine, half a grain. Mix. Make sixty pills, one thrice daily of great efficiency in constipation of Bright's disease.

Leptandra, hydrastin, quinine, of each thirty grains; solid extract of nuxvomica, grains seven. Mix. Make thirty pills. One thrice daily, good tonic.

Licorice root contains a valuable substance called *glycyrrhizine*, closely allied to sugar; yellow, transparent, uncrystallizable; soluble in both water and alcohol, forming compounds with acids and their bases.

It is much used, not only for its antiseptic properties, but for a vehicle to disguise the taste of bitter drugs.

Fluid extract of licorice, for quinine mixtures, is very generally used by physicians, but all may not be aware how effectually it disguises the bitterness of quinine. The desired dose of the



Leptandra.

quinine in powder should be added to a teaspoonful of the licorice and thoroughly mixed before being swallowed. An *aromatic elixir of licorice* should be used like the fluid extract.



Common Licorice (*Glycyrrhiza glabra*).



Cocardus. (Magnified 225 diam.)
A highly polymorphic species of mould which is very prone to appear upon aqueous extracts of *Glycyrrhiza*, and renders them worthless.

Ammoniated Glycyrrhiza.—The sweet principle of licorice, glycyrrhiza, in combination with ammonia. Used to blunt the gustatory nerve and to mask the bitterness of quinine. Dose: One grain every three hours.

Instead of obtaining this by decomposing the atmosphere, we can now more effectually obtain it in greater abundance and purity by compressing strongly ozonized oxygen to the extent of 125 atmospheres at a temperature of -102.5°C . (-153.5°F). We have practically dispensed with pressure and employed cold alone. At a degree of heat—or shall we say *cold*?—represented by -181.4°C . (-194.5°F), the temperature now known as that of the boiling-point of fluid oxygen, ozone condensed to a deep, purple-blue liquid, the color of which is so intense that a layer of it about two and a half mm. is to all intents and purposes opaque. The ozone remained liquid as the temperature was allowed to rise gradually (controlled by fluid ethylene), until at about -106°C . (-168.8°F), as indicated by a “hydrogen thermometer,” the ozone begins to boil. The boiling-point of ethylene itself is not very different, being -102.5°C . (-152.5°F). Very great care must be taken in order that the ethylene and the ozone do not come into actual contact with each other, as if they do so, an explosion of terrific violence immediately occurs. Recent chemical manipulations have led to the discovery and intro-

duction of apparatus by the aid of which those wonderful products of modern science—liquid oxygen, hydrogen, nitrogen, etc., and even the solid form of these so-called “permanent” gases—were made.

Carbonate of lithia, valuable in relieving cystitis; **Lithia.** affords relief in irritable states of the prostate. The bromide of lithia acts efficiently in all cases of gout or rheumatism. Benzoate of lithia neutralizes uric acid in the blood and overcomes the uric acid diathesis; it is also a remarkable solvent to calculi in the bladder. The benzoate of lithia in five-grain doses alternated with salicylate soda in the acetate of ammonia does good work in chronic rheumatism.

The carbonate of lithia rendered soluble by the peroxide of hydrogen is one of the chief ingredients of the uric acid solvent ozonized.

The salicylate of lithia is an excellent bactericide, has a destructive effect upon the bacillus amylobacta.

Indian tobacco, the leaves and seeds are used **Lobelia.** medically for a variety of diseases, as it is an emetic, expectorant, sedative, antispasmodic, and has the invaluable property of sterilizing all disease germs. It is a most powerful and active emetic, provided its administration is preceded by copious warm alkaline drinks, as it is not absorbed in an acid menstruum.

It is very useful in all fevers, as it keeps the germs, the factor of fever, quiescent; it relaxes the system, produces diaphoresis.

As a relaxant and sedative, it is a most efficient agent in the treatment of epilepsy, hysteria, spasm, cramp, convulsions, tetanus.

It acts well upon the motor nerves of respiration, hence it is often of the greatest utility in asthma, bronchitis, laryngitis. The immense resources of modern therapeutics have not been able to supersede it. The vast future of medicine will require lobelia.

Noses may wither with the amœba of catarrh; eyes fail from steady use; ears become dull by excesses; tissue-starved teeth may vanish and drop out; but the cleansing of the stomach from the fungus.



Lobelia.

sarcinæ needs lobelia. We do not claim it to be an antiseptic, it cannot destroy micrococci, it sterilizes them and also the nutrient soil upon which they live. No drug has superseded it in tetanus; its action cannot be explained; meets the etiological and vital condition, renders the germs of this fatal disease quiescent in the blood, and retards organic changes.

Vegetable sulphur, is an invaluable germicide. The plant, moss or fern, possesses properties of a high anti-bacterial character, for a decoction of it kills that terrible parasite malady the *plica polonica*. It is extremely useful in that peculiar burning of the cutaneous surface when it is loaded with the germs of disease, in painful boils; in that aggregation of the germ *sphilitica* on the bones called nodes; in all tubercular skin affections; it operates like ordinary sulphur upon the liver, stimulating that gland, removing



Club Moss
(*Lycopodium*).

that dirty, yellow hue of the skin, which is so common in torpid liver. Besides it is invaluable in relieving irritable bladder, especially in the enuresis of children.

Bugleweed, the *Lycopus* herb either in decoction, tincture or fluid extract, is astringent, tonic, sedative and narcotic.

It is so soothing when administered that it diminishes heat, pulse, respirations, and its action is incomparable in incipient pulmonary tuberculosis, in retarding germ evolution and growth—in preventing bacterial development in diarrhea and dysentery.



Bugleweed.

It is this peculiar germicidal action that renders this plant so efficient, so highly prized in all hæmorrhages from the lungs and stomach.

Its action upon the heart resembles that of bromide of soda.

Besides, it is valuable in toning up and promoting digestion, and allaying all uneasiness or irritability of the alimentary canal.

The best preparation for use is either the tincture or fluid extract, in doses according to the effect desired.

The *physiological* action of bugleweed is directly on the nerve.

The combination of this property and its germicidal properties is what renders it of so much value in pulmonary and intestinal tuberculosis.

This invaluable anthelmintic consists of an
Male Fern. ethereal extract or oleoresin extracted from the rhizome. This is the only preparation fit for medicinal use; it is a thick, dark green liquid, has the odor of the fern, nauseous bitterish acid to the taste. On standing, a granular, crystalline substance appears on the surface, which is the active ingredient, and should not be separated.

Dose from thirty to sixty grains is the proper quantity, administered in capsules.

If capsules are not acceptable, it may be administered conveniently in the following combination: Ethereal extract male fern sixty grains, rubbed up in mucilage of gum acacia one ounce. To be taken at one dose, followed by copious drinks of slippery elm. Castor oil to be taken two hours afterward.



Common Male Fern.

is a powerful germicide, having a special affinity to
Manaca destroy the microbe of syphilis, the bacilli of tubercle and the germs of rheumatism. It excites the action of the lymphatic system most energetically, and eliminates morbid or waste material from the system. In alterna-



Manaca.

in phrenal syphilis, affording relief in all cases from the nocturnal pain.

tion with the saxifraga, it is the *ne plus ultra* of all drugs in syphilis.

Prof. Day, M. D., of America, and *E. Mather, M. D.*, of England, have had undoubtedly the most experience with this drug. They state, and both agree that, if very carefully guarded in its administration, it will destroy the bacillus of syphilis and amylobacta of rheumatism.

It is of special utility

Marjoram.

A perennial plant, with a stem about a foot high; ovate leaves; roundish, paniced, crowded heads of purple flowers, with large bracts. Its properties are germicidal, used in cooking for seasoning. Stimulating and diaphoretic in the eruptive fevers, has a sterilizing action on germ evolution. The powder is nearly equal in antiseptic properties to the horse-chestnut in nasal catarrh. An infusion is the best method of administering. Drinking it cold it warms, invigorates and soothes the nervous system. The essential oil of sweet marjoram mixed with olive oil in various proportions, is an excellent remedy for baldness, as it is inimical to the different forms of tinea of the scalp.



1. Sweet Marjoram (*Origanum Marjorana*); 2. Common Marjoram (*Origanum vulgare*).

Marrubium.

Horehound is a most efficacious germicide upon all micro-organisms on the mucous membrane of bronchi and larynx, and also upon germ-laden sputum from the substance of the lungs, as we have

in pulmonary tuberculosis and pneumonia; consequently, although entirely ignorant of its annihilating action upon the germs of catarrh and bronchitis, and its sterilizing action upon the tubercular bacilli, and the pneumococcus, the remedy has been empirically prescribed with the best results in chronic catarrh and bronchitis, attended with very copious germ-laden expectoration.

Besides its action as a bronchial stimulant and antiseptic, it is a safe and efficacious tonic, acting as a most efficient stimulant to the kidneys, skin, but especially the liver, giving us copious biliary secretion.

An infusion of one ounce to the pint of boiling water. Dose: a wineglassful, either warm or cold, as desired, answers well; but better still is the tincture, which holds its aromatic properties in a more perfect state.



Horehound (*Marrubium vulgare*).

Japanese peppermint, a camphoraceous body, **Menthol.** having the same bactericide properties as thymol. Menthol is somewhat soluble in water, as shown by its taste being imparted to water, and by the slug-like movements of the crystals when covered with water, and placed under the microscope. Sometimes the movements in the water towards and from the dissolving crystals, are as rapid as those formed by an active rotifer or vortical. These movements are rendered visible by minute objects floating in the water, as infusoria and algæ. They approach the crystals of menthol with velocity, and are ejected with violent electric motion.

Menthol left exposed, will evaporate and disappear at the ordinary temperatures of the rooms. Its smell is like peppermint, but less pungent. Taste is somewhat sharp, and penetrates the whole mouth. It looks like the sulphate of magnesia to the naked eye, but more talc-like. It is rather bulky, one ounce filling a two-fluid ounce bottle. From what I can judge, it is a very agreeable medicine, and would make an acceptable substitute for the smelling-salts of elderly ladies. There is nothing unclean about it. Its volatility renders it easy to administer in diseases of the air passages, even to infants and very feeble persons.

Menthol is a bactericide, has the remarkable property when

administered, of sterilizing the blood to many disease-germs. The following are a few of the formulæ in general use:

For internal administration.—Menthol, one drachm; three ounces each of fl. ext. licorice, water, alcohol; twenty drops each of oil of cajeput and carbolic acid. Mix. Four drops every two hours.

For applying to the nostrils in hay fever.—Menthol, one drachm; ozone ointment, two ounces; hydrochlorate of cocaine, one grain. Mix.

For piles, eczema, pruritus of the genitals, fistulæ, rectal excoriations.—Menthol, one drachm; ozone ointment, two ounces; chaulmugra oil, half an ounce; cocaine hydrochlorate, two grains. Mix.

As a gargle for sore mouth, scarlet fever, syphilitic and tubercular ulceration.—Take of each menthol and carbolic acid, twenty grains; two ounces each of fluid extract of licorice and glycerine; peroxide of hydrogen, one drachm; one pint of water. Mix.

In pruritus.—Take one drachm menthol; two ounces of alcohol; thirty grains carbolic acid; the same of the benzoate of soda; add the whole to six ounces of rose water.

Mudar Bark. (*Calotropis Gigantea*). This drug is used by the natives as a remedy for epilepsy, paralysis, bites of poisonous animals, worms, etc. In cutaneous affections, especially leprosy, it is frequently employed. Its active principle, discovered by the late *Dr. Duncan*, of Edinburgh, called mudarine, possesses the extraordinary property of congealing by heat and becoming again fluid when cooled. *Dr. G. Playfair* found the milky juice to be very efficacious in leprosy, lues venerea, herpes, dropsy, rheumatism, hectic and intermittent fevers; and *Dr. Duncan* considered that it agreed in many respects with ipecacuanha, and that it might eventually supersede the latter. (See Major Heber Drury's "Useful Plants of India.")

Marigold (*Calendula*), in the form of a tincture of the green plant, that is, flowers, leaves and stem, is a bactericide of the first order; hence it is of intrinsic value in all cuts, bruises, wounds, and contusions. It is altogether superior to arnica in ecchymosis. The mother tincture diluted one-half with water and applied to a wound or ulcer, promotes rapid cicatrization by destroying the bacteria.

As a germicide its range of action is large; it sterilizes the *oidium albicans* of aphthæ and sore nipples.

It combines well with peroxide of hydrogen, and when four volumes of that invaluable agent are added, it is of the greatest possible utility in threatened gangrene, purulent ophthalmia, abscess, carbuncle, etc.

Menyanthis Trifoliata.
(*Buck Bean.*)

the country it is used quite extensively in the treatment of our indigenous fevers, rheumatism, jaundice and parasite cutaneous diseases. It is alterative and purgative.

It is often administered in infusion—half an ounce of the pulverized plant to a pint of boiling water. Dose, a wineglassful repeated frequently. Also in the form of a fluid extract in doses of thirty to sixty drops.

A most intensely bitter tonic and germicide. In some sections of



Buck Bean.

Mexican Ointment.
(*For Rupture.*)

It is applied externally over the hernial aperture, and has the remarkable faculty of contracting the orifice, and at the same time, without the slightest irritation, causes thickening of the parts, and forever after prevents the rupture from taking place.

It is a most excellent remedy to prevent the occurrence of rupture.

It is spread on a piece of leather morning and night and applied.

It is a most excellent local bactericide when applied to the skin in any form, of either vegetable or animal parasitic disease, it almost immediately kills it.

Its action is perfectly painless.

This ointment is in very general use in Mexico as an ointment for hernia. Its true composition has as yet not been definitely settled.

Mitchella Repens.
(*Partridge Berry.*)

The comp. syrup of partridge berry is the most important agent ever presented to the profession in the treatment of dis-

The whole plant is germicidal, and is a remarkable agent to render labor easy, it is also diuretic, tonic and astringent. It resembles the *aleteris farinosa*.

eases of the female reproductive organs. This syrup is emmenagogue, parturient, antispasmodic, diuretic and tonic, and is particularly efficacious in the treatment of engorgement, inflammation and induration of the uterus, dysmenorrhœa, menorrhagia, leucorrhœa, amenorrhœa, prolapsus uteri, hysteria, melancholia, pruritus vulvæ, impaired vitality, vomiting of pregnancy, habitual abortion and uræmic eclampsia. It being a powerful uterine sedative, is the remedy *par excellence* in dysmenorrhœa or threatened abortion.

Mulberry. Some of the most common affections, spring and fall, when the vicissitudes of temperature are great, are inflammatory affections of the glands



Common Mulberry (*Morus nigra*); fruit, leaf, and female flower.

of the mouth and larynx, chilliness, fever, pain in deglutition, and as it progresses, swallowing becomes exceedingly difficult, if not impracticable. The tongue coated white or brown, mouth dry, and if the inflammation is not promptly checked by the use of antipyrine, small vesicles make their exit: in these the *oidium albicans* make their appearance. In such cases the glycerite of sulphur, one teaspoonful every hour, and the throat packed from ear to ear, with a strong infusion of the inner bark of

the white mulberry. As a gargle and mouth wash, the same infusion is unexcelled, as it destroys all germs in the mouth. It is also an infallible remedy in nursing sore mouth and ulceration of the nipple.

The root has considerable reputation as a vermifuge.

Maranta, Arrowroot, is a variety of starch, extracted from the roots of certain plants which grow only in tropical countries, and is much valued as a delicacy, a light, nutritious and easily digested food for children and invalids. The tuberous roots contain a large percentage of farina. That growing in the ozoniferous atmosphere of Bermuda

is a foot long when a year old, and when reduced to a pulp, by repeated raspings and washings, yields one of the finest antiseptics in medicine. A small quantity of this extract introduced into albuminoid bodies preserves them for many months, without deterioration or chemical change. The use of this antiseptic in all fevers, and in all diseases in which albuminoid changes take place, is worthy of serious consideration.

The amount of fecula or starch present in the root of the maranta varies according to age and soil, runs from eight to twenty-six per cent. The latter stage is reached when the plant is about a year old.

A green tincture prepared from the fresh root is highly germicidal, and is an antidote to the stings and bites of venomous insects and reptiles.



Arrowroot; *a*, tubers; *b*, leaf and flowers; *c*, stamen and style.



Mistletoe (*Viscum Album*).

Mistletoe. (*Viscum Album*.)

This parasitical shrub, which derives its nourishment from the living tissue of the tree upon which it grows, and from which it seems to spring, has been held in high repute by both German and British Druids as a germicide in sterilizing the microbe of hooping-cough and the bacillus of hay-fever. It has a decided medicinal property in chorea, epilepsy, convulsions, and stands high as a pain-alleviating remedy.

It is used most extensively in this country as a uterine tonic and vitalizer. The very best results are obtained by administering the elixir of the mistletoe during the last four months of preg-

nancy, equal to the wine of the *aleteris farinosa*. Sure to relieve pregnancy and parturition of many complications, and insure ease and safety; and still more, when its action in labor is aided by the uterine cones, we bring about the phenomenon in midwifery practice of "painless parturition."

Mura Puama.—Fluid extract more powerful than *damiana* as an aphrodisiac. It forms the chief ingredients of the sexual invigorating fluid and pills.

The fluid extract of mullein leaves is indicated
Mullein. in pulmonary phthisis; efficacious to relieve cough and ulcerated bowels; obviates phthisical diarrhoea. The smoke of the burnt leaves relieves irritation of the bronchial mucous membrane.

Mullein oil, valuable in all cases of aural disease, as deafness, otitis media, otorrhea, otalgia.

This oil is prepared by polarised light and by peroxide of hydrogen.

One to three drops in the ear.

Dr. Mather, the celebrated English physician says: Mullein oil was worth a trial in bad cases of deafness, especially when labyrinthine mischief was suspected. I commenced its use in a large number of cases, with most satisfactory results.

In nearly all cases complaining of pains and presenting signs of hyperæmia of the middle ear, the instillation every two or three hours of two or three drops of this oil rapidly arrested the pain, and prevented suppuration and perforation of the *membrana tympani*.

In every case of otorrhea or otitis media, after the ear was washed out with tepid water and castile soap, it was dropped; following its use there was no more odor, no muco-purulent discharge, not a vestige of the *streptococcus pyogenes* could be seen.

In cases of labyrinthine deafness the result was extremely satisfactory. In some instance the cure was gradual; in others at once.

The mullein oil treatment of aural diseases excels all others, especially of an otalgic or suppurative character.

This is a substance **Myrrh.** which exudes from the bark of the balsamodendron myrrha, a tree peculiar to the tropics, in oily yellow tears, which gradually thickens, and finally becomes hard, and darker in color. It is an invaluable germicide, was extensively used by the Egyptians for embalming, and by the moderns as a remedy to destroy micro-organisms in the mouth and alimentary canal; hence useful in all forms of oral ulceration, spongy gums, fetid breath; it destroys the bacteria of ulcers, hence if sprinkled on them promotes healing; of value to sterilize the amœba of catarrh and bronchitis. A tincture is good form for general use.



Myrrh (*Balsamodendron myrrha*).



Myrtle. 1, Myrtle Flower. 2, Myrtle in Flower.

Ten drops of **Myrtle.** ozone et chlorine were added to sixteen ounces of tepid water, and when used an ounce of myrtol was added. Used as a mouth wash and douche by the nose. Most excellent results followed, a general improvement took place, a complete change from worse to better, so much so that I determined to try the myrtol internally. The preparation I used was an ozonized distillation of the leaves and flowers of the common myrtle; being a liquid possessing all the perfume of the plant. It is of less density than water, and evaporates at ordinary temperature. It has a slightly acrid, astringent taste, followed by a sensation of freshness. It

is a powerful germicide, stimulates all the vital functions of life, inimical to microscopic life. It is a great appetizer, a sedative

to the nervous system, enters the blood, acts as a scavenger to that fluid, and after disinfecting the entire body is freely eliminated by the breath, skin, and kidneys. It has a decided affinity to disinfect the respiratory mucous membrane, completely annihilates the amoeba of catarrh, laryngitis, bronchitis, asthma; also of glanders; changes the opaque, gangrenous, purulent secretion, at the same time inducing a healthy condition. It is an unsurpassed remedy in chronic fetid bronchitis, complicated with paroxysmal asthma and emphysema.

($C_{10}H_8$) is a derivative of benzol, and allied to **Naphthaline** phenol. It appears as thin white shining rhombic crystals, with a strong pungent odor and burning taste. It is insoluble in water, but readily dissolves in alcohol, ether and fatty and ethereal oils. Externally it has been found of value in the treatment of venereal ulcers, of wounds and of scabies.

This substance was recommended for certain intestinal affections by *Dr. H. Warner*, Springfield, Mass.

The purest naphthaline alone should be used, and he found it invaluable in case of chronic intestinal catarrh and cholera morbus in children, as well as in typhoid fever. In intestinal tuberculosis he found that it caused some improvement, but no radical change, and for acute diarrhea it was no better than opium and suitable diet. *Dr. Warner's* success was not attained by others who used naphthaline according to his directions, and they reported that it produced hypogastric pain, strangury, tenesmus, and urinary appearances suggestive of carbolic acid poisoning. Moderate success was reported, however, by a few writers. The author, after extensive and careful use during a sufficiently long period of time to warrant conclusions, decided:

1. That naphthaline is ineffective in the so-called dyspepsias which are characterized by frequent movements of the bowels, and usually by the vomiting of coagulated milk, and is inferior to other medicaments which are in general use for such conditions.

2. In all other forms of intestinal catarrh in children naphthaline should be preferred to all other known means of medication. In simple acute diarrhea the preparations of opium would be preferable, but for the fact that naphthaline checks fermentation processes, and in this way prevents an acute intestinal catarrh from developing into a chronic one.

Naphthaline is a powerful antiseptic, insoluble in water, alkalies;

and acids ; may be administered in capsules two to eight-grain doses without any noteworthy absorption by the stomach and intestines. Excellent results are obtained from the use of this germicide in acute and chronic intestinal diseases, tubercular affections, diarrhea, dysentery, infantile diarrhea and cholera. It kills the germs of disease in the alimentary tract ; besides it disinfects the entire passages of the germ-laden, green stools, so common among children in crowded cities during the hot season of the year. In cholera infantum it has achieved most wonderful results.

An excellent formula for all cases, to destroy the bacteria and disinfect the entire alimentary tract, is the following :

Naphthaline, sacch. lac., of each, two ounces ; oil peppermint, one drop. Ft. twenty chart. One every hour, and less frequent, according to the evacuations.

Externally in a pure form, or in an ointment, it is useful in scabies, herpes tonsurans, eczema.

Prof. Fuchs, M. D., New York City, N. Y., several years ago, called attention to the value of this agent in the treatment of certain diseases of the skin, and particularly of scabies. He employs naphthol in a ten-per-cent. alcoholic solution, or in the form of ointment, and says that one or two applications will cure the most inveterate cases of common itch. He has had equal success with naphthol in psoriasis, eczema and ichthyosis, and there is nothing better, he says, to allay tormenting itching of prurigo.

Dr. Fuchs speak in high praise of naphthol as an external agent (alcoholic lotion or pomade) in the skin diseases mentioned above. Van Harlingen, moreover, has seen favorable results from naphthol in obstinate cutaneous affections.

The experiments to which allusions has been made, have led Bouchard to regard naphthol as one of the best and safest of antiseptics. According to these a three-per-cent. solution markedly retards the development of the typhoid bacillus, as well as that of the bacillus tuberculosis. The same solution is fatal to the microbes of several of the parasitic diseases of animals, and prevents fermentations. Bouchard gives naphthol internally in typhoid fever, and believes that, if it does not abort this disease, it certainly renders its course milder. He regards a dose of forty-five grains (2.50 grammes) a day as realizing the conditions of intestinal antiseptics, and affirms that in such doses there is no antiseptic agent which is more innocuous. This use of naphthol in typhoid fever has been followed to some extent in this country with apparently favorable results.

Indicated as a powerful stimulant to the
Nitrite of Amyl. pneumogastric and vagus in angina pectoris, asthma, epilepsy, syncope. Its action is instantaneous and certain, as it lowers vascular tension by dilating the arterioles; stiffens up a weak heart, breaks or wards off the spasm.

Dose: One, two, three, four, five, ten drops in pearls or glass shells. Crush a pearl in a handkerchief and inhale on the approach of a paroxysm.

One of the most valuable stimulants in
Nitro-Glycerine. the *Materia Medica*. Indicated in all conditions of prostration or collapse, in headache, asthma, angina pectoris, albuminuria, neuralgia, nervous anæmia.

The best form for administration is a one-per-cent. solution. This is the handiest and least liable to change or become worthless.

The average dose is one drop, but patients are not all alike in the amount required to produce an effect—some requiring less than one drop, others requiring three or four or more drops to produce the same effect. The effects usually last two to three hours. It is wisdom for the physician in all cases to call the remedy by a less terrorizing name—glonoin, or trinitrin.

Physiological Effects.—Dropped on the tongue, the effect is the more rapid, as there is no dilution. By way of the stomach, unless greatly diluted, the effect is apparent in a few minutes, the pulse being increased from ten to twenty beats, and becoming full and regular. In a few cases there is a slight headache, lasting for a few minutes. In larger doses the face becomes flushed, a severe headache is experienced, accompanied with a feeling of fulness, singing in the ears, flashes before the eyes, and all the symptoms of an increased supply of blood to the brain. On account of this effect on the cerebral circulation, care should be taken in administering the remedy to the aged, as the sudden expansion of the cerebral vessels might cause a rupture of their weakened calcareous walls. Its action on the heart is through the sympathetic nervous system. The vagus nerve and the vaso-contractor nerves of the vaso-motor nervous system are depressed, partially paralyzed. This allows the extensive system of arterioles to dilate, and thus give room within their walls for a greater amount of blood to flow. Thus this enlarged reservoir of tubes relieves the heart of the work of forcing the current through narrow contracted tubes. This and the vagus nerve

being depressed permits the heart to beat freer, fuller and more rapidly.

Of great value in asphyxia.. Best administered by adding the prescribed dose to a little water, or in the form of pill.

The antidotes to an overdose are either ergot, strychnine or belladonna.

Two of our oldest physicians speak of it thus :

J. H. Moon, M. D., Montpelier, Idaho, a physician of the highest scientific attainments, gives his experience on nitro-glycerine in *tinnitus aurium*, as follows :

"After the usual experience in ear-work, and a gradual accumulation of unimproving cases of *tinnitus aurium*, I began to study the general effects of nitro-glycerine, and to use it in these cases. In some cases there was an improvement; in others there was none.

In the patients where improvement had occurred, there was found to be present a similarity of conditions, and I soon satisfied myself that there was a class of patients in which the nitro-glycerine treatment was valuable. I found it most serviceable in patients having the *tinnitus aurium*, without much impairment of hearing, and where but little change had occurred in the nasopharynx and where it was found on examination that some abnormal condition of the heart existed, either functional or organic.

The *tinnitus* was generally constant, or nearly so. It was not, as a rule, more marked when the patient was in a recumbent position; occasionally there was some remission in that position. The thermometric and barometric conditions of the atmosphere influenced the *tinnitus*; damp weather, with low barometer, usually increased it. Dull, heavy headache, more or less persistent, and most frequently located in the parietal regions, though sometimes located in the frontal region, was of frequent occurrence."

Wm. McMillen, M. D., Sugar Branch, Ind., one of the most eminent physicians in the United States, and a close clinical observer, points out the value of this drug in various affections—*angina pectoris*, *migraine*, and *neuralgia*, (which he describes as *angioneuroses*), as also in sea-sickness, some forms of *anæmia*, faintness, palpitation, and other diseases; depends upon the existence of an irregular distribution of blood, which condition may be inferred from a certain degree of pallor of the skin, especially of the face, often co-existent with a weak pulse and a small rigid radial artery, which frequently is situated at some depth. When, on the other hand, headache and *neuralgia* occur in patients with chronic congestion of the subcutaneous veins of

the face, nitro-glycerine is to be avoided; and similarly it is of no use in asthma, when the face is reddened in consequence of emphysema. If, however, a pale face exists with angina pectoris, migraine, giddiness, shock, toothache, or sea-sickness, the best results may be looked for by giving nitro-glycerine. The regulating effect of the drug exercises an influence over the congestion of internal organs similar to that brought about by blood-letting; and in these congestions, whether of lung, brain, or kidney when they are of a temporary character, the pulse is generally found to be slow and of low tension; a fact which, as the author remarks, is sufficiently well known in reference to the fever-free periods of acute hyperæmia of the lung and kidney. He lays down as a rule, that the condition of the pulse is the best indication for the employment of nitro-glycerine, and the most trustworthy guide as to the dose with which to commence the treatment. The smaller the radial artery is, the more rapidly it dilates under the action of the drug, and the less the secondary effects proceed; on the other hand, the fuller the pulse with a distended radial artery, the less it is affected; and finally, the softer the artery, with a weak pulse, the greater the secondary, and the less the general effects. Single-drop doses of the one-per-cent. solution are sufficient in cases of small pulse, but with a full pulse, it will be found that the full effects cannot be produced with less than two-drop doses. When there is a soft artery with a weak pulse, subnormal doses only should be given; a quarter to half a drop. After the trial dose is given, the patient's sensations of pulsation and pain in the head, as well as the distension of the radial artery under the finger of the physician, will be the guides for increasing the dose.



Nutmeg (*Myristica moschata*). A branch showing fruit, and section of fruit, with nutmeg enclosed.

An aromatic germicide of some power, and in large doses produces alarming sensorial disturbance and stupefaction. It is chiefly used as a spice, for its carminative and stimulant properties. Its action is identical with mace, and in both, their virtues depend upon the presence of a volatile oil, which has a remarkable affinity for oxygen. When the oil *myristicæ* is distilled at a temperature 347° F., there are marked traces of comp. oxygen,

and the pure colorless hydrocarbon, which remains after distillation, is identical in composition with the pure oil of turpentine.

The extract which is thus prepared, is available for internal use.

Mix two drachms of the oil with one ounce of pulverized mace; macerate for a few days in one quart of deodorized alcohol, then filter. Dose from five to ten drops, thrice daily.

The tincture prepared from the seeds of the **Nux Vomica**, *strychnos nux vomica*, when administered in small doses, is an excitant or stimulant to the vaso-motor and motor-centres of the spinal, and thereby increases the activity of the circulation and general tone of the system. It is one of the most valuable of all tonics, and inimical to microscopic life.

In anæmia of the brain and spinal cord, in all forms of paralysis due to that pathological condition, this drug is invaluable, stimulating the cord and rousing up the inertia of the muscular system. It increases the activity of striated as well as non-striated muscular fibres—valuable in inertia, in a relaxed state of the stomach and bowels, which give rise to loathing of food, nausea, vomiting, colic, atony of the stomach and liver. Its general action as a stimulant to the nervous and vascular systems renders it a valuable tonic to aid digestion, to overcome a sluggish liver, habitual constipation.

The dose is variable from a few drops up to fifteen of the common tincture, added to water, thrice daily, before meals.

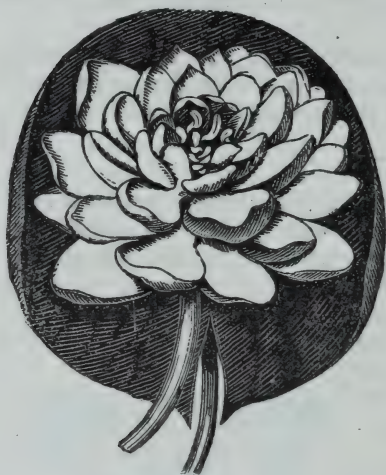


Nux Vomica. Branchlet, leaves and flowers.

The root of the white pond lily has been in use for several hundred years, pulverized and incorporated into poultices, and ointments for an antiseptic in gangrenous and phagedenic sores; an infusion has been very generally used as a wash in leucorrhœa.

The root has been recently subjected to a rigid chemical analysis, and a very peculiar astringent, different from tannic and

gallic acid isolated, which contracts connective, muscular and mucous tissue. Its action is most energetic on sphincteric fibres.



White Pond Lily.

If the urine is kept neutral or alkaline in incontinence, and this remedy administered, it causes the sphincter to contract; locally it contracts the walls of the vagina or rectum, if relaxed, and restores them to their pristine condition.

To those suffering from prolapsus of the rectum, it is invaluable; to ladies suffering from falling of the womb, or lost contractility of the vaginal walls; whose generative system has lost its tone and vigor, and has become callous, inoperative to sexual enjoyment, it is the remedy par excellence; to all who suffer from catarrh and leucorrhœa it is of great utility. Take it all in all, it is a great vaginal contractor and rejuvenator.

For the convenience of the profession it is put up in the form of pastiles.

One to be used every night at bedtime.

The glucoside isolated from this old and reliable remedy is attracting well-merited attention. This glucoside has an extremely bitter astringent taste, is very hygroscopic and not well adapted for internal use, but as a local remedy in all relaxed, devitalized states of the vagina it has no equal. Added to the butter of coca, it forms a most elegant pastile, tonic and astringent to the vagina and uterus. One of these inserted every other night produces a complete revolution in the tissue, and causes contraction and vital tonicity. They are specially indicated in prolapsus uteri, leucorrhœa, sexual lethargy, sterility, and whenever the reproductive organs are worn out by frequent parturition or exhausted by sexual excesses.

Ceanthe Crocata. Water hemlock, water drop-wort, or cowbane, a European aquatic plant, grows in ditches and margins of ponds. In Scotland it grows to a considerable height with a very large, fleshy white root.

The entire plant is a virulent, narcotic, acrid poison to man and the inferior animals, and produces in them when inadvertently eaten, giddiness, convulsions, coma, and profound cerebral disturbance analogous to a violent epileptic fit.

The believers in the law of *similia similibus curantur*, with their apostate brethren the specific medicationist, therefore deem this plant a specific in all epileptic seizures.

By repercolation, an alcoholic extract of great power and efficacy has been prepared from a recent importation.

The dose is small, a few drops in water, repeated at intervals of every three hours and increased with great care, so as to ward off the fits, stem the current of cerebral explosions.

It is worthy of a fair trial.



Water Drop (*Eranthe crocata*).

These "cones" are prepared from the finest butter of coca; boroglyceride, hydrochlorate of cocaine and hydrogen peroxide.

Obstetric Cones.

Their use is indicated in every case of parturition.

Simultaneously with the first pain, one should be inserted as far up the vagina as the finger can push it, and at the same time one up the rectum. These speedily melt, thoroughly lubricate the parts and produce anæsthesia of the uterine plexus of nerves, rendering the parts soft, moist, easily dilated.

In a short time two more should be inserted, and thus repeated every half hour, in accordance with the judgment of the accoucheur. At the same time the abdomen over the uterus and lumbar portion of the back should be rubbed with a mixture of concentrated ozone and chloroform. By these procedures the pangs of parturition are either totally obliterated or reduced to a cipher, the vagina rendered aseptic.

The use of these cones in all cases of parturition at full time or miscarriage, is far-reaching. When thus used there is no tedious labor; no inertia of the uterus; no hour-glass contraction; no retained placenta; no post uterine hemorrhage; no metria; no puerperal convulsions; a speedy convalescence.

These cones have numerous other valuable properties: they cure the three forms of dysmenorrhœa, specific inflammations, induration of the neck, leucorrhœa, pruritis, piles, irritable and ulcerated rectum, ascarides.

Compound oxygen, or oxygenized water, **Oxygen Comp.** is a germicide of immense power, destructive to all micro-organisms, completely annihilating the bacilli of tubercle, syphilis, cancer, fungus of diabetes, germs of scarlatina, etc. Vitalizes the blood, promotes the activity of the pink marrow and entire lymphatic system. Very efficacious in general nervous debility, nerve tire, and in debility of the respiratory organs, as in asthma, bronchitis, consumption, pneumonia, whooping cough. An invaluable remedy for impure, impoverished, germ-laden blood, or where the blood is literally swarming with myriads of disease germs from overcrowding, sewer gas; in embolism, bacteria-laden blood from imperfect action of the heart, lungs, liver, spleen or skin.

Dose: Internally. One teaspoonful three or four times daily, in a glass of cold water, is sufficient to supply the blood with oxygen—at least with all that it will imbibe, or in any form of blood disease, as chlorosis, anæmia, etc.

As a Gargle.—In scarlet fever, syphilitic, tubercular, malignant sore throat, one teaspoonful in half a tumbler of tepid water, every three hours.

For inhalation use in full strength in a hot or steam atomizer.

Prof. McFall, M. D., in his report to the Board of Health, Nashville, Tenn., says:

“When pure atmospheric oxygen is exposed to the action of electricity, it is transformed into ozone, which is an allotropic modification. Ozone, at ordinary temperature, is being constantly generated in the atmosphere by the natural electric forces. The health of all animated nature is influenced by its presence; all diseases, in which disease germs are the factor, are greatly aggravated by its absence. A locality or home in which ozone is freely evolved, is one in which contagious diseases cannot exist, while if only a small percentage exists morbid action is rampant.

Oxygen gas is inadmissible as a remedy, as it oxidizes the tissues too rapidly and hastens metamorphosis. This is true, whether the pure gas is used or its combination with nitrous oxide gas. As a medicament, compound oxygen, ozone water, peroxide of hydrogen, are remedies of intrinsic value; they are germicides; their use keeps the blood pure and stimulates all the

vital functions of the body ; they restore lost vitality, stimulate the hepatic and renal organs ; a cardiac respiratory tonic. The remedy in one or other of its three forms, if added to a little water, and swallowed, enters the blood, first acts as a scavenger, then as a vitalizing tonic.

Oxygen is respirable to a limited extent, but when greatly in excess, hastens destructive metamorphosis. It is essential to the support of animal and vegetable life, and is the most widely distributed of all the elements. It constitutes more than a fifth of the bulk and more than a fifth of the weight of the atmosphere. In combination with hydrogen it forms eight-ninths of all the water on the globe, and enters largely into combination with all the solid constituents of the globe, and is found largely in the tissue and fluids of all forms of plants and animals, none of which could maintain existence without this element.

Although a great vitalizer and a potent remedy to increase the red corpuscles of the blood, by promoting the activity of the lymphatics, and destructive to all micro-organisms in the blood, it is totally inadmissible for inhaling or breathing, as it hastens destructive metamorphosis in the lungs and other vital organs. It is very different when introduced into the alimentary canal ; there nature will absorb just what it requires to vivify and renew.

Ozone water, which is simply negative oxygen, is one of our best vehicles for the administration of oxygen, as that gas liberates itself when taken into the stomach, is speedily absorbed, and does its work in cleansing the blood and tissues of all disease germs and increasing vital-power.

Comp. oxygen, or oxygenized water, is also a germicide of immense power, destroys all micro-organisms, an antidote to narcotic poisons. It destroys the bacilli of tubercle, syphilis, cancer, hooping-cough, but is not powerful enough to kill the oidium albicans of diphtheria, although it completely annihilates the fungus of diabetes with great promptness ; of great utility in in all our fevers.

Its action upon the stomach in small doses is that of a tonic and appetizer, will destroy cancer on that viscus ; it cleanses the blood, imparts oxygen to the tissues, and has a radical effect upon the lymph canals and pink marrow."

This compound is prepared from

Ozonized Uric Acid the active principles of hydrangea ;
Solvent. cleavers ; triticum repens ; iris versicolor ;
(Antilithic.) fringe tree ; liverwort ; juniper berries ; pichi ; salts of lithia ; acetate
of soda ; nitrate of potassa, with peroxide of hydrogen.

This compound is valuable in sterilizing and destroying the bacillus amylobacta of rheumatism; neutralizing the urate of soda of gout; disintegrating uric acid crystals.

Dose: from a half to one teaspoonful, added to water every two or three hours. Most efficacious in dissolving uric acid concretions or formations, in both liver and kidneys. No remedy so effectually relieves a crippled kidney as this, it dissolves and washes the debris away, and renders the kidneys able to act as depurators of the blood. It relieves renal inadequacy by its solvent action, flushes the tubules and obviates the state of interstitial obstruction.

The great catarrh annihilator. One

Ozone et Chlorine. thorough application not to be repeated sooner than three or four weeks. *Precautions* while using the remedy by the douche: No sneezing or blowing of the nose, because the moment the amœba comes in contact with the ozone, it paralyzes them and they aggregate together into masses or colonies, leaving their abode in the head in a thick,ropy mass.

Indicated in chronic nasal catarrh, ozæna, eustachian deafness, chronic laryngitis, asthma, bronchitis, and in incipient consumption.

Before using the remedy paint with a camel's hair brush dipped in the fluid in its original strength, the tonsils, uvula, fauces. Then use the douche in the following manner: From one to two and a half ounces of the compound should be added to sixteen ounces of tepid water, and for the purpose of giving a brilliant microscopical exhibition of the contents of the nasal cavity in catarrh, with its millions of disease germs, five to ten grains of permanganate of potassa should be added to each sixteen ounces, simply to color. If no microscopical examination is to be made, it can be omitted. The douche or cup for the fluid should be made of maple wood, and placed on a stand eight or nine feet high. The cup is better to hold twenty ounces. The bottom of this receptacle should be perforated large enough to admit a piece of pine wood, which should protrude outwards. This, also, should be perforated, to which a fine rubber hose is attached, long enough to stretch to the ground, to the end of which a nose piece of pine wood, large enough to completely fill the nostril, of an oblong shape, and this is to be perforated by burning a hole through it with an ordinary knitting needle.

In applying this douche, first put in the water, then the *ozone et chlorine* mixture, and add the permanganate. Patient is to be

seated in a chair, with a newspaper pinned under his chin, securing the end, and a square slop basin between his knees, head slightly stooping, then run about two ounces or so through one nostril, which, if there is no obstruction, will find its way down the other; then change the nose-piece to the other nostril, and run through about the same quantity, changing from nostril to nostril, till it all passes through. While the fluid is running up and then down, patient must hold breath well, so as to keep it from passing down the larynx. Continue in this manner till it all passes. If there is any difficulty with the ear, and it is desirable to run the fluid up the eustachian tube to the inner ear, for the relief of deafness, then the patient must hold breath very firm, then suddenly, while the fluid is running through the nose, close the open nostril with the finger and thumb. This will draw up the fluid in the sinuses of the head; breath held well, none can go down the throat, and the superincumbent pressure in the douche will force it up the eustachian tube to the ears. In this manipulation, the nose-piece must fit accurately, so as to permit none of it running down its sides. The presence of the fluid in the ear is readily recognized by the pain in that organ.

The eustachian tube may be closed by disease-germs, by lymph, or it may not be pervious from collapse of its walls, and on the first effort it may not be successful; if this should be the case, rest a few minutes, and try again, raising the douche higher and telling patient to hold breath still more firmly. If not successful at all, give it up for about a week and make another more determined effort, and still another, before pronouncing it a hopeless case of deafness. The permeation of the tube by the fluid indicates recovery of hearing. It may have to be repeated every month for a few times. If the fluid reaches the inner ear, and the pain or distress is intolerable, an effort at emesis should be made by tickling the throat with a feather, the gagging efforts will cause the fluid to descend. If there is chronic laryngitis, with ulceration of the fauces, the back portion of the throat should be painted, or brushed over, or smeared with the catarrh fluid, in its original strength, or slightly diluted, before it is applied by the douche. During the interval of changing nostrils, and after it is completed, for several hours patient should breathe by the mouth exclusively, and sit in a stooping posture, head bent forward so as to permit a free gravitation for the discharge with its millions of amœba from the sinuses of the head. Dose: One application of from one to two and a half to sixteen ounces of tepid water sufficient to cure the worst case of nasal catarrh.

Ozonized Syrup of Tar. Indicated wherever there are bacilli or microbes or micrococci irritating the periphery of nerves imbedded in the highly sensitive and exquisitely organized mucous membrane of the larynx; thus it promptly relieves the cough of phthisis, by either sterilizing or destroying the bacilli of tubercle. Dose: From a half to one teaspoonful every three hours or more frequently, so as to relieve cough.

Ozone Tablet.—Indicated in all diseases of the skin, and is a beautifier of the complexion, an aid to nutrition, a tonic to the whole intestinal tract. Triturated, added to a little water. After meals.

Ozonized Clay. The only remedy so far discovered that will absorb internal fibroid tumors in either chest or abdomen or external infiltration; it causes absorption of effused lymph in true and false anchylosis; it has most marvellous power of absorption, it penetrates to internal parts by endosmosis, and softens and disintegrates. It is efficacious in all simple or malignant growths, tumors or swellings, of great utility in infiltrated breasts, goitre, consolidation of lungs, thickening of the walls of the stomach, ovarian and uterine tumors, enlarged liver; very large tumors disappear under its influence with remarkable celerity, no matter where located.

Dose: Take sufficient quantity of the clay, add to it cold water, and while pouring on the water, keep constantly stirring until a paste suitable for a poultice is formed, then spread on fine muslin the size of the tumor or growth. Apply for a few hours every day, not long enough to cause erythema of the cutaneous surface. It should be bandaged or strapped over the part.

Ozone Water. It is invaluable in destroying all microorganisms or disease-producing germs in the human blood, annihilates the germs of typhoid fever, of erysipelas, of diphtheria, scarlet fever, small-pox and other *contagium vivum*. It is of great value in all nervous diseases, cleansing, purifying, vivifying, vitalizing and increasing renewed molecular growth of the entire nervous system. It is true brain or nerve food, vitalizing and feeding, by promoting good blood for healthy brain. It is of great utility in all derangements of the stomach; it annihilates the sarcinæ of

gastric catarrh, corrects faulty nutrition, the outcome of indigestion and mal-assimilation of food, promotes gestation and lactation and is a true physical restorer in all cases of sexual debility. See peroxide of hydrogen, with which it is identical in chemical composition.

Dose: From half to one teaspoonful in half a tumbler of water every three or four hours.

Map out the cancer. Cover sound parts
Ozone Paste. with several layers of adhesive plaster, cut a piece of table oil cloth somewhat larger than the size of the cancer, spread it over with ozone paste one-fourth inch thick, then apply. It may remain twenty-four, forty-eight, or even seventy-two hours, but best to renew every morning till it is completely killed, or drops out, then poultice and dress as an ordinary ulcer.

Paste can be charged with ozone to any degree of strength, prepared to suit all and any special case.

This paste is the most powerful germicide ever prepared, being simply ozone gas condensed by immense pressure into an inert powder, forming a paste of marvellous oxidizing power, which has a special and peculiar affinity to unite with and chemically annihilate all disease germs or microbes or micro-organisms without pain or loss of blood.

Although it has a special affinity for the cancer germ, and will effectually destroy it by a process of oxidation, and convert the germ or tumor into an ozonoid or an inert body, nevertheless it is destructive to healthy tissue. What is claimed for this paste is, that it is the most powerful and least painful of all remedies ever discovered for the cure of cancer.

For external use only.

Indicated in all breaches of continuity
Ozone Ointment. as a dressing to protect, heal and kill disease germs. The best application for wounds, cuts, bruises, burns, piles, ulcers and cutaneous eruptions. Its action is unexcelled in the bites of insects, ivy and sumach poisoning, boils and erysipelas. It annihilates the germs of variola on the face, nose, mouth and throat; sterilizes diphtheric and aphthous patches in the mouth or on the nipple.

When the tubercular bacilli have invaded lung structures, it can be spread on chamois or linen and applied over the germ colony, aiding the internal remedies in promoting the dissolution

of the germs. The range of action of this ointment is immense, from the most malignant cancerous phagedenic or syphilis ulcer, to the simple form of abrasion.

Ozone ointment is a most efficient remedy in tinea capitis. A species of epidemic of this parasite recently occurred in one of our reformatories, which resisted ordinary remedies, when this was successfully applied. The disease was accompanied with severe itching and irritation, which at times became so intolerable as to make the patients lose all control, and in five minutes undo the effect of a fortnight's treatment. All the usual remedies, including internal sedative treatment, were tried without avail for over two months. Ozone ointment was then resorted to, and the result was most satisfactory. The disease soon passed out of the acute stage, the itching was relieved, the red papules speedily disappeared, and the discharge ceased. In a very short time the patients became convalescent.

Dose: The most efficacious ointment ever introduced. To be spread on linen and applied twice or three times daily.

Papoid.

(*Carica Papaya*.)

This tree grows in all tropical and subtropical countries to a height of from fifteen to twenty feet, with leaves only at the top, where also the fruit grows close to the stem. The leaves are from twenty to thirty inches long. The fruit is of a green color, very similar in appearance, flavor, and odor to a small melon. By the natives it is eaten raw or boiled. The seeds are round and black, and when chewed they have the odor of cresses, bitterish to the taste. The powdered seeds and juices of the unripe fruit are most powerful anthelmintics. The juice of the fruit and the sap of the tree have powerful germicidal properties: even the exhalations of the tree will preserve beef, mutton, poultry, game, keep them fresh for an indefinite time if hung up near to it, or on it; besides, it renders the toughest meat tender in a short time. It is a tree of rapid growth, exceedingly prolific, bearing fruit all the year round.



Papaw Tree (*Carica Papaya*).

The juice of the fruit contains a principle called papoid, a peculiar soluble digestive ferment, which is destined to supersede pepsin, as it will dissolve fibrine in the presence of acids and alkalies, and in neutral solutions.

The juice of this remarkable fruit has a tendency to undergo butyric fermentation, which is prevented by adding glycerine to it.

The active principle is worthy of universal use, as a drug to displace pepsin, very valuable in chronic gastric catarrh; all forms of dyspepsia.

Papoid digests better in the presence of a small quantity of fluid than when much diluted, thus possessing a greater advantage over pepsin and pancreatin, which in order that they digest well, require a large amount of fluid.

It is a remarkable solvent to the false membrane of croup and diphtheria, more recently it has been used as a solvent for fibrous growths in the bladder, stricture of the rectum, cutaneous cancer, epithelioma of the lip. Still more recently, it has, by continuous administration, opened an œsophagus closed by carcinoma, by its powerful dissolving action.

Intestinal indigestion may be greatly relieved, and in many cases practically cured, by the judicious exhibition of papoid. It is useful in all forms, but its value is more especially noticeable in those cases where constipation is a prominent factor, accompanied by distension within a couple of hours after taking food. The method I have adopted, consists in the administration of two grains of papoid powder in capsule before meals, the dose to be repeated two hours later, if flatus occurs. One particularly valuable application which should not be overlooked, is its use in the treatment of attacks of a dull, disagreeable headache, depending upon indigestion; a common affection amongst literary persons. Two grains of papoid powder, dry in capsule, will disperse it generally in from three to five days.

It converts five times as much albumen into peptone as the best animal pepsin. It increases the flow of gastric juice by stimulating the peptic glands, acts as well with an acid as an alkali. With ozonized boroglyceride gives excellent results in gastric catarrh, as it kills the sarcinæ. It is the greatest galactagogue known in medicine, also an abortifacient. Dissolves the germ colony or false membrane of diphtheria.

This is comparatively a new hypnotic, and
Paraldehyde. one that promises to be of much interest and value in the treatment of the various causes of wakefulness. It stands in the same rank as chloral, but is much safer, acts quicker and gives a more natural sleep. Several have written in high terms of its utility and safety. Like all new remedies, it is somewhat expensive. This dose is from one to

two drachms. The name indicates its oily nature, and this is a difficulty which has to be met in prescribing. It is usually made into a draught by suspending in tragacanth powder, sweetened with syrup. I generally give it with whiskey or brandy in the proportion of one to three. The oiliness disappears when mixed with the stimulant, which is, I am convinced, a most useful adjunct to every hypnotic. In its action it is gradual, and should it fail to produce sleep, it does not excite. Its use is not followed by headache or gastric disturbance, but it continues to be excreted by the lungs for many hours afterwards. This is by some considered a great objection. Now it may be, and no doubt is, an objection, but as one writer very truly says: "Should we not rather look upon the disagreeable breath as a safeguard against the clandestine use of the drug, and not in the light of an objection?" There is no accumulative principle in paraldehyde, and I have not met with a case of intolerance. It, however, is a much more valuable hypnotic than sulfonal.

Probably the best American authority on this subject is *Prof. W. H. H. Crandall, M. D.*, of Des Moines City, Iowa, who says:

"Aldehydes have a strongly irritant action upon mucous membranes, and this is a great objection to their use as hypnotics. But they have a power of uniting with themselves, or polymerising, as it is termed, and these polymeric forms are less irritant. Ethylic aldehyde unites with itself, and when three molecules of it combine it forms a paraldehyde. When several molecules, the number of which is unknown, combine, it forms metaldehyde. Paraldehyde is a useful hypnotic, which does not depress the action of the heart like chloral, and does not give rise to discomfort next day. The chief objection to it is the unpleasant smell, which it imparts to the breath and which hangs about the patient for many hours."

This medicament is excellent to

Passiflora Incarnata. relieve the nervousness and insomnia in convalescence from fevers. We have been employing it in some cases of spinal meningitis after the acute symptoms had subsided, when the patients were unable to sleep either day or night, could not endure the bed, and were unable to maintain the sitting posture, with highly satisfactory results. It is administered in small doses. Add ten drops of the mother tincture to half a tumbler of water, teaspoonful every two hours.

They are of the greatest efficacy in all uterine diseases, and are an invaluable boon to both single and married ladies, if they are suffering from any disease of the womb. They positively cure whites, falling and ulceration of the womb, induration, granular erosions and catarrh of its neck, all forms of painful menstruation, neuralgia, dragging in the back, and every morbid condition incidental to that potent organ, the motive power of the universe. They also overcome the condition of sterility and impotency, impart great tone, strength and vigor to the sexual organs.

They should be inserted when in the recumbent posture. It should be inserted up the vagina as far as possible with the finger and allowed to remain; shortly after its introduction it will dissolve and come in contact with the diseased parts. The vagina should the following morning be washed out.

Discontinue the use of the pastiles during the menstrual period; when they disappear resume their use again, until the affection is cured for which they were originally used.

Peppermint.
(*Mentha Piperita.*)

Extensively cultivated for its fragrant, bactericide oil, which is obtained by distillation.

The oil of mentha piperita is one of the most valuable germicides. The pure oil painted on the diphtheric membrane instantly kills the streptococcus, causes it to shrivel up, completely annihilating the micrococci and spores; the membrane peeling off eventually, leaving a healthy, healing surface behind.

All varieties possess the same invaluable properties.

It has a wide range of action, being a stimulant and carminative.



Water Mint.

A fluid extract of the common pellitory is a **Pellitory.** bactericide of considerable power. In doses of from ten to twenty drops it is very efficient in clearing the alimentary canal of all forms of microbial life.

Two species of streptococcus have been found in the pulp of decayed teeth, both agents of lactic acid fermentation. They are in the form of cocci, diplococci and chains, and are the cause of toothache. The old germicide remedies, creosote, cloves and

arsenic are entirely superseded by a saturated or mother tincture of the common pellitory.

This is a germicide of great power, in all cases it destroys the micro-organism in the cavity of the tooth. Besides the internal use of the drug, it is of great value as a diuretic, refrigerant and lithontriptic.



Pellitory.

This is a grate-
Pennyroyal. ful aromatic, car-
 minative and dia-
 phoretic—stimulating the stomach,
 bowels and kidneys, and an elegant
 efficient diaphoretic. The greatest
 care should be exercised in prepar-
 ing the infusion so as to retain its
 volatile oil, which escapes altogether

if permitted to boil. The essential oil is inimical to microscopic life. So the remedy may be used in mucilage of gum arabic as a powerful germicide. The oil possesses all the antiseptic properties of the peppermint and eucalyptus, and hence will destroy fungous growths.

It is an antidote to the stings of the mosquito and other insects.



Pennyroyal.

A digestive solvent of great
Pepsin. value in all forms of dyspep-
 sia, as it supplies a direct de-
 ficiency in the animal economy.

A most eligible form is the wine of pepsin, made by cutting up a cleaned calf's stomach and covering with good sherry wine, macerating for two weeks, then percolating, and to every pint of it add half a pint of brandy to preserve.

A teaspoonful after meals.

The ozonized pepsin prepared by peroxide of hydrogen is the best for general use.

The field for the use of pepsin seems constantly extending

with the improvements made in the quality of this agent, and it may now be employed with greater certainty as to results than ever before. The application of pepsin to digest away the membrane in diphtheria and membranous croup is not new, and is more or less commended and resorted to by physicians in the treatment of these diseases.

Naturally, however, its utility depends entirely upon its digestive activity, and on account of the many preparations of pepsin of feeble or no digestive power heretofore at the disposal of physicians the results obtained have been in some cases discouraging.

As to the value of pepsin, however, in these affections when of proper purity and strength there can be no question.

It is to be hoped, and it is certainly highly probable, that the further study of digestive ferments will lead to a pepsin still more active.

If the false membrane could be easily digested, and there seems no reason why it might not be with a pepsin of high digestive power, we could expect to have fewer grave cases of interference with respiration and blood poisoning from absorption of septic material, now alas so frequent.

The three agents which have been most extensively used as local solvents for the false membrane of croup and diphtheria are papayotin, trypsin and pepsin.

Papayotin is a vegetable agent recently introduced, claiming to have the same digestive properties as pepsin. Dr. Cannon treated forty cases of diphtheria with papayotin and gives the following conclusion: First. It exercises a feeble solvent action when the membrane begins to decompose. Second. The delicate new membrane is not affected by it. Third. It exerts no effect on the mortality of the disease. Its present high price is also somewhat against it.

In the use of trypsin it is necessary to maintain an alkaline condition of the throat, as trypsin acts only in alkaline solutions. The secretions of the mouth and throat in these diseases is strongly acid, and tend to neutralize and destroy the power of the alkaline solution of trypsin.

Permanganate Potass.—Emmenagogue, kills microbe of snake bites and the fungus of diabetes. The best preparation of manganese.

Dose: One-half to one grain in water.

The fluid extract of pichi is indicated in all affections of the urinary organs; especially useful in all catarrhal states of the bladder and prostate. It is the primary agent in the uric acid solvent. In that formula it allays irritation, causes the disintegration and expulsion of calculi in the uric acid diathesis. Dose: From a half to one teaspoonful every three hours.

Peroxide of Hydrogen. The great value of this very excellent remedy is being seriously injured by its indiscriminate manufacture by irresponsible parties who have been supplying the drug trade with a highly impure article. To such an extent has this been done as to render its employment in medical and surgical practice extremely dangerous.

A remedy like this, which is indicated in all microbial diseases, should invariably be of the highest possible standard of purity.

There is no morbid state, acute or chronic, in which this remedy is not indicated; in all fevers its use is indispensable; in mumps, hooping-cough, cholera, dysentery, by killing the microbe, diseased action ceases; in burns, boils, cuts, wounds, and gangrene, it destroys every vestige of germs.

Physicians would do well to keep it in every family who are under their professional care, its employment is safe, its application never can injure, and it can always be depended on to kill the microbe of membranous croup, and thus save human life. Mothers can readily be intrusted in its use.

Aphthæ, follicular sore throat, œdema of the glottis, a gargle of from two to four volumes rapidly effects a cure by the destruction of the germs.

In nasal catarrh, after the mass of germs have either been annihilated or caused to migrate by a douche of the ozone et chlorine, following in a few days with a douche of one ounce of a fifteen-volume strength of the peroxide of hydrogen to seven ounces of tepid water, and repeating this occasionally, a most excellent cure is the result.

In epistaxis, an eight-volume solution immediately arrests hemorrhage by coagulating the blood, and causing contraction of the blood vessels.

The eruptive fevers are deprived of all their malignancy and danger by their treatment with germicides. What a saving of human life is effected in diphtheria and scarlet fever by the use of the glycerite of sulphur internally; what a destruction of

germs, what a speedy recovery if the child is daily bathed with peroxide of hydrogen. It destroys the germs on the skin, prevents the peeling, which is the most infectious media.

A ten or fifteen-volume solution applied to any venereal sore or chancre, instantly kills the microbe syphilitica. For inhalation it excels all known bactericides, sterilizes speedily all the tissues with which it comes in contact, stimulates the reproduction of healthy epithelium.

The peroxide in an atomizer by the bedside of the patient, yields good results in all cases of diphtheria and malignant sore throat.

In addition to other forms of microbic disease, the result of sewer gas poisoning, numerous cases of diarrhea and albuminuria are clearly traceable to that cause, sewage poisoning, intestinal irritation, nephritic congestion.

An epidemic of typhoid, or diphtheria, or metria, or erysipelas, naturally excites attention to the drainage, but no attention is paid to that terrible feeling of goneness experienced by eighty per cent. of the population of our large cities, who are suffering from exposure to its morbid agency. Diarrhea and albuminuria having such an origin, are the result of a physiological effort by the bowels and kidneys to eject the germs and their noxious products from the system.

Such states are promptly relieved by the internal exhibition of the dioxide of hydrogen, which acts as a scavenger to diseased blood.

The injecting of boils, abscesses, with a few drops of the peroxide, instantly kills the streptococcus pyogenes; healing the abscess by one application.

Dose: half a drachm of the solution mixed with an ounce of distilled water, every four hours.

There is a brilliant future for peroxide of hydrogen. In addition to its great bactericide properties, it has a most remarkable property of aiding the absorption of fibroid tumors by a chemico-electric process—by simply keeping the electrode over the tumor constantly moist with C. P. medicinally pure peroxide of hydrogen; by endosmosis it enters the tumor, excites an absorptive action, by a withdrawal of its water and oxygen, at the same time liberating positive ozone, a bacterial destroyer. Electricity is thus a medicament of ponderous value. After each treatment there is a feeling of great comfort and freedom from pain, and eventually complete recovery. The method was first brought to the attention of the profession by Prof. John J. Siggins, M. D., of Philadelphia, and more elaborately carried out by his pupils, A. Parks, M. D., 517 W. Twenty-third street, New York, and F. A. Tuttle, M. D., 233 Main street, Springfield, Mass.

is the acetyl of phenetine, *i. e.*, of the ethyl-ether of the paramidophenal. Its crystals have a great resemblance to those of antipyrine; they are white, odorless and tasteless. This absolute tastelessness renders the administration of the drug very easy. Similar to antifebrine it is very slightly soluble only in water, more so in hot water, but on cooling it is precipitated again. It is more readily soluble in glycerine, most readily in alcohol. The physiological action of the drug is that of a powerful cerebral stimulant; *as such* it acts as a reliable antipyretic in all fevers and inflammation; *as such* it soothes the pain of neuralgia, as headache, angina pectoris, sciatica, ovarian irritation; *as such* it is of great value in vasomotor neuroses, in the lancinating pains of locomotor ataxia; it is a strong analgesic, does not produce cyanosis, like antifebrine; acts very rapidly in spite of its insolubility in the gastric juice, and its administration is free from all untoward or depressing influence whatever. As it has a direct action upon the central nervous system, it exercises a powerful effect upon the circulatory system, its use being followed by a copious sweat.

Phlorizin, a glucoside, prepared from the root of the apple tree, is a peculiar germicide, sterilizing the blood for quite a number of microbes. It should be administered in small doses, in a high state of trituration. It is most efficacious wherever ordinary bacteria are present in mal-assimilation. It, in a most remarkable manner, increases the transformation of sugar in the liver, and will produce glycosuria. It does this by lessening the normal process of oxidation, by which it should be converted into carbonic acid.

Phytolacca.—Next to saxifraga the best vegetable alterative in the *Materia Medica*; when ozonized it destroys the microbes of syphilis, cancer and tubercle. Dose: One teaspoonful every three hours.

Platinum Chloride.—Useful in syphilis. Dose: One-thirtieth of a grain triturated in sugar of milk, thrice daily.

Pimento. A germicide, warm, aromatic stimulant, used as an adjuvant to tonic and purgative medicine, the taste of which it serves to disguise, while it increases their warm, their antiseptic properties, and renders them more acceptable to the stomach.

It is specially indicated in dyspepsia with flatulence.

It is an excellent remedy in feeble heart, gives it tone, strengthens its contractions; valuable in all cases of heart failure with passive hepatic engorgements.

The tincture of pimento is of great efficacy in chilblains.

The resinoid is a most useful auxiliary to sulphate of quine in the treatment of rebellious paludal fevers, and even in paludal dyscrasia. Useful also combined with solid extract of black willow in leucorrhœa, gonorrhœa, and in constipation due to torpidity of the liver.



Pimento.

**Phosphated
Tincture of Oats.**
(*Avena Sativa*.)

This is really the only genuine preparation of oats, differing from all others in containing the entire amount of the glucoside "avena" in a given portion of the grain; it is prepared from the genuine Scotch oats, and before being tintured and ozonized, is made to undergo acetous fermentation, so as to evolve its entire phosphatic elements; this mode of preparation gives it a strong acid reaction, and holds in it unimpaired, and in a concentrated form, the *avena* or phosphates.

This preparation retains the full amount of nitrogen of the grain, which is the best criterion of its quality.

In this form, it is the most nutritious of all agents prepared from the cereals, being strength-giving and sustaining, as well as flesh-forming, besides being the great brain and bone fertilizer.

From among all cereals, oats give us the most perfect and highest stratum of brain growth and development. The amount of brain matter in this preparation excels all known compounds of the phosphates or hydrophosphites, and in a most assimilable form.

This, the true essence of the grain, is a brain fertilizer, supplying that organ with its own constituents; besides it has a most marvellous action in blood formation, stimulates the lymph canals, rebuilds, recruits tissues and forces lost in the destructive metamorphosis of the body.

Our entire nation is neurasthenic. This poverty of the nerve force, this tissue-starved nervous system is chiefly due to

mental work, to sexual excesses, to the destruction of the phosphates in our food, etc.

Retarded and difficult dentition, nearly all the cerebral diseases of childhood, are due to those causes and are promptly relieved by the administration of *avena*.

That mysterious languor, that depressing lassitude, undefinable headache and neuralgia, wandering pains, that feeling of goneness and dyspepsia, are traceable to defective phrenal nutrition, and are speedily relieved and cured by the administration of *avena*.

The immense area of nervous diseases—the brain wearing out sooner than of old, civilization being unfavorable for healthy brain growth, and the like—is untrue, for it is to the vices, the excesses of our present state, to the improved methods of adulterating food, destroying its phosphates, which is aiding in the production of cerebral starvation, and pushing upon us an offspring with dwarfed brains and paucity of intellect; all this can be rectified by the use of "*avena*."

The decided increase of all nervous diseases is plainly traceable in the large proportion of cases to defective cerebral nutrition, such as epilepsy, chorea, insomnia, brain softening. When no organic lesion exists, the use of *avena* is curative, because it is reconstructive.

The phosphated tincture of oats is a direct stimulant, permanent tonic to the sexual appetite at the base of the brain, increases virile power, and more too, its use promptly replaces the drained-off nervo-vital fluid upon which the brain rests (which is frequently exhausted by great mental effort or sexual excesses), it is the antidote to that terrible base of the brain pain, peculiar to libertines.

A tissue-starved brain gives rise in all cases to nervous bankruptcy, to depravity eccentricities, suicidal mania, crime, masturbation, the creation of habits. It is doubtful whether or not all vice, immorality, or crookedness of life, may not be due to a condition of tissue-starved brains; all our nation needs the use of *avena sativa*.

This preparation, being a reliable brain food, may be presented in paralysis, epilepsy, chorea, nerve exhaustion, insomnia, cephalalgia, in the alcohol, chloral and morphia habits, with the best results.

The tincture, or fluid extract, prepared from the freshly crushed oats, is not nearly so active a brain fertilizer as that prepared by permitting the grain to undergo acetous fermentation.

All who have been disappointed in the use of the remedy should try the phosphated tincture.

All varieties are germicidal. This property resides in all parts of the plant. The fresh leaves applied to wounds, ulcers, buboes, germinal swellings, by their anti-bacterial, antiseptic properties, discuss or heal them.

A saturated tincture destroys the ordinary microbe in the mouth, and thus relieves toothache.

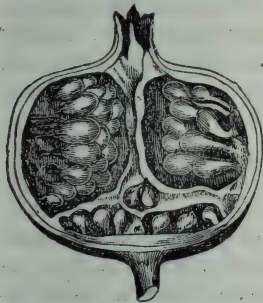
It is prescribed internally in incipient phthisis, bronchitis, leucorrhœa and hemorrhages, but its action is too feeble to be of much efficacy.

The seeds of the *plantago ispaghula*, two drachms to the dose, taken in an uncomminuted form, in a little jelly, passing through the intestinal tract, destroy the bacteria and sarcinæ of intestinal catarrh, and heal ulcerations.



Greater Plantain (*Plantago major*)

Pomegranate.
bark of the root.



Section of the fruit of the Pomegranate.

One of the best and most powerful of the vegetable germicides and parasiticides, much cultivated in warm climates for its fruit and bark of the root. In its wild state it is a thorny bush; when cultivated it is a low tree with twiggy branches. The fruit is as large as an orange, with a thick leathery rind of a golden yellow color, with a rosy tinge on one side. The fruit consists of innumerable berries densely packed together in the orange-sized globe, the juice of which is highly germicidal, pressed with hot water forms a cooling antiseptic, a decoction of which is of the greatest efficacy when the oidium albicans is evolved or deposited on the fauces or tonsils, or the bacterial malarial germ of dysentery.

The bark of the root is used as an anthelmintic in tape worm. A decoction four ounces of the pulverized bark to one pint of boiling water, reduced to one-half pint. Very efficacious taken in two doses, half an hour apart; some add calomel, ten to twenty grains, to stimulate the biliary secretion.

Sulphate and Tannate Pellelerin.—The alkaloid pellelerin, sulphate and tannate (the latter is usually preferred, as being most active) is administered in doses of five grains, more or less, according to the constitution of the patient, observing the precaution of a sweet-milk diet the day before, with no food the day of administration. Thirty minutes after administering the pellelerin a brisk cathartic should be given, as an ounce of the comp. tincture of jalap, and the same quantity in another half hour. The worm usually follows. Valdivine is a glucoside from the same root, equally efficacious.

Another popular formula is: pulverized pomegranate red bark, half an ounce; crushed fresh pumpkin seeds, one ounce; ethereal extract male fern, one drachm; powdered ergot, half a drachm; powdered gum arabic, two drachms; croton oil, two drops; add to the whole one pint of boiling water. Simmer down to half a pint, which is to be taken in two divided doses, one hour apart.

Valdivine, a glucoside from pomegranate root bark, pumpkin seed, male fern, koussa, kanula and other tænicides. This preparation is identical with the alkaloid "*pelleturin*;" put in extract of gentian and capsules, ready for administration.

The patient should take very little food for two days, and that little should be of a fluid nature. On the evening of the second day, he should take a purgative (castor oil is best) of sufficient strength to cause an evacuation of the bowels; in the morning, after the castor oil given the previous evening has operated, and while still fasting, the patient should take seven or eight capsules along with a full dose of castor oil, or other purgative; follow that with another eight capsules to another dose of castor oil. The worm generally comes away within two hours after taking the second dose of capsules.



The ozoniferous properties of the buds and bark

Poplar. of this tree are too well known to require a description. The leaf-buds are covered with a resinous exudation, which has a peculiar ozoniferous balsamic odor, with a bitter pungent taste. This exudation is highly antiseptic, is present in all species of the poplar and is most abundant in the buds. Poplar buds are as ozoniferous as turpentine, and make a most valuable tincture, liniment and ointment. The formula for the poplar ointment which is so popular is by simmering the leaves and buds for twenty-four hours in lard; then removing

the crisped leaves and buds and adding more, and so on till the lard becomes saturated. This is to be done over a gentle fire.

To this same ointment some add poppy heads, belladonna and henbane leaves, and digest them for twenty-four hours. It makes an excellent anodyne ointment for irritable or painful ulcers.

The poplar bark makes a very superior tonic, very valuable in indigestion and all debilitated states of the system. It has a special tonic action on the liver and kidneys and corrects their deficient action. It is one of the most serviceable remedies in the *Materia Medica*.

The bark yields largely of salicin, benzoic and other antiseptics.



Poplar Buds.

This remedy is indicated in all states of nervous bankruptcy. It is both in liquid and crystalline form, containing nitrogen and phosphorus. It does not differ chemically from kephaline. It is called protagon, as it was the first definitely ascertained specific constituent of brain. Dose: ten to thirty drops of the liquid, one to three grains of the crystals, after meals, every three hours.

An invaluable non-alcoholic compound, containing all the tonic, vitalizing properties of the wild cherry bark, with its innate hydrocyanic acid unimpaired, and four volumes of the dioxide of hydrogen.

The preparation is of great efficiency in some cases of pulmonary tuberculosis, being a bactericide of average power and operating most actively upon the bronchi, pneumogastric and vagus.

It has been found of utility in pneumonia, pulmonary tuberculosis, bronchitis and other forms of microbial affections.

The average dose is a teaspoonful every three hours.

One of the leading physicians of Iowa, *R. Small, M. D.*, of Decorah, in speaking of prunia, says: "The compound known as prunia is the most perfect sedative and lung tonic ever introduced to the profession; mitigates the intensity of all pulmonary affections, and aids the action of other bactericides.

This plant, in the form of a mother tincture, or **Pulsatilla**, an alcoholic extract by percolation, yields a most efficient germicide, alterative and cerebral sedative of considerable power. Alone or combined or alternated with the tincture of kalmia, it is most efficient in destroying the syphilitic germ in the blood, and is a remedy of great value in chronic cutaneous affections. It was first brought to the notice of the profession as a therapeutic agent to calm the reflex centres, in uterine and genital irritation transmitted, which gives rise to morbid states termed hysteria, melancholia. Take it all in all, it fills a gap to which the bromides do not reach.



Pulsatilla.

In order to illustrate the remarkable action of this drug on the genito-urinary system, a trial of two-drop doses every three hours is suggested in spermatorrhœa, metritis, epididymitis.

It exerts a special influence upon the reproductive organs of both sexes, restores normal menstruation, relieves the wandering pains incidental to gestation, and even exceedingly useful in neuralgia of the testes.

is a colorless liquid, of a peculiar odor, readily soluble in water and of a strong alkaline reaction when in solution. It is a product of the dry distillation of organic substances containing nitrogen and carbon, such as coal, bones. It absorbs water rapidly on exposure to the air.

This is an invaluable remedy for inhalation in asthma and dyspepsia associated with disease of the heart. A few drops poured upon a plate, the patient with down-turned face inhales it for a few minutes. This can be repeated three or four times daily; it affords prompt relief, and continued persistently for a few weeks effects a cure.

is an antipyretic drug, the active ingredient of **Pyrodin** which is acetyl-phenyl-hydrazin. It is in the form of a powder, sparingly soluble in cold water; having neither an unpleasant taste nor smell, causing no irritation of the stomach. When administered it acts promptly and powerfully

in reducing temperature by destroying the germ, the factor of fever; hence it is of great utility in all fevers in which a disease germ or microbe is present. It acts well in all cases, but it must be carefully watched. It neither causes nausea nor vomiting, acts quickly and more powerfully than antipyrine, antifebrine, phenacetin.

The leaves of this plant
Raspberry. yield their medicinal properties freely to water. They contain a large amount of tannin and gallic acid; a decoction, used tepid, possesses in a most remarkable degree, one of the finest astringents in the *Materia Medica*.

It is an excellent vehicle for the administration of bactericides, thus: add some boroglyceride to it, it is an infallible eye lotion in all forms of ophthalmia; add a small quantity of the eucalyptus distillation to it, most efficacious in gonorrhœa and leucorrhœa.



Raspberry.

One of the derivatives of benzol, a germicide of the highest rank: a one-per-cent. solution will retard, and a two-per-cent. solution will arrest fermentation and coagulate albumen.

These strengths do not irritate the skin, but stronger solutions might. Internally, five-grain doses may be readily taken three times a day in any simple vehicle; but in larger doses, say from ten to thirty, it produces a striking resemblance to the effect of alcohol and other stimulants, quickening the pulse, causing flushing, giddiness, tinnitus, sweating, increasing the secretion of tears and saliva. It is an invaluable germicide, being specially inimical to all microbes on the mucous membrane of the mouth, stomach, intestines, and bladder. If administered in aphthæ, or *sarcinæ ventriculi*, or cholera infantum, or typhoid fever, or injected into a tubercular rectum or bladder loaded with fungus growths, it annihilates colony after colony of the germs, with a brilliant precision. By killing microbes it reduces heat.

You can watch the physiological effects more plainly than of other drugs of this class.

When the temperature is down, you can keep it there by reduced doses, one or two hours apart.

Being a valuable antiseptic, it would seem to be especially indicated in fevers of septic origin.

It will be particularly valuable if proved clearly, as circumstances now tend to show, that it deranges the organs of digestion less than the other antipyretics.

Its great solubility renders it of intrinsic value in otorrhœa and purulent ophthalmia, nearly as active a microbe killer as the ozonized boroglyceride.

In various skin affections, put up in ozone ointment, or oil of boroglyceride, it gives great satisfaction, being more energetic than the best mercurial preparations. Gelatinized bougies of resorcin and boroglyceride will kill the gonococcus of gonorrhœa, and one of them introduced into the uterus in a chronic case of intra-uterine catarrh, will effect in a few minutes what years of treatment could not effect.

Most gratifying results can be relied on in cholera infantum and typhoid fever, and in ophthalmic and aural cases; but its great anti-microbe properties fail before the giant germ of syphilis.

The doses of resorcin may vary from ten to fifteen grains a day in light attacks, up to seventy-five grains as a maximum. It should be dissolved in about twenty parts of water or any other excipient, for which orange syrups, glycerine, brandy, etc., are suitable. It will also form good emulsions with almond, etc., or may be given in wafers. Used as a cleansing agent, it produces neither rust, nor does it affect the edges of knives. The odor of iodoform is almost entirely destroyed by it.

Resorcin is used with much success in the treatment of epithelioma, and other cancerous diseases. Mix resorcin and ozone ointment in equal parts, and use locally to the diseased part, after a day or two, apply a milder ointment of two parts of resorcin and three parts ozone ointment. After the eschar is formed, then clean and dust over with iodoform; boric acid, equal parts. Dress the wound with an ointment, one part resorcin to ten parts ozone ointment.

Resorcin rubbed up in ozone ointment, by its reducing or withdrawing oxygen power, applied in eczema, coagulates the serum and produces a firm germicidal covering, under which a rapid healing takes place.

Thio-Resorcin is a combination of sulphur with resorcin, in the form of a powder, without smell and entirely non-poisonous. It is used as a substitute for iodoform, and usually applied as a dusting powder and often made into an ointment with ung. petroleum of the strength of from ten to twenty per cent., for eczema, psoriasis, scabies, and other vegetable or parasitical skin diseases.

For barber's itch, etc.—Resorsin, one drachm; glycerine, water, of each one ounce; lac sulphur, one and a half ounces; cologne, a half ounce; alcohol, four ounces. Mix. Apply to the affected parts several times a day, using a soft sponge. Bath the parts every morning in hot water. Ether, half ounce, to dissolve the sulphur before adding the latter, makes the prescription more pleasant to use.

Reduced by the most careful trituration and sifting to an impalpable powder, it is highly recommended by the most eminent dermatologists as superior to any other germicide in eczema or irritation of the skin.

It is insoluble in water and very sparingly soluble in ether or alcohol.

Rhigolene.—This is the impure hydride of amyl, and is the lightest fluid of the petroleum series, and is well adapted for producing local anesthesia, and its bactericide properties render it very useful as a local application wherever a germicide is indicated.

in incontinence of urine has passed into household words. In Europe the medicament is becoming a well-known agent in the treatment of this affection, and its greatest success is in children. A great deal of trashy stuff is put on the market and sold under this name. When made of the recent article the medicament is well-nigh specific in enuresis and diabetes insipidus. It is also a grand heart tonic and valuable in chronic cystitis of old men who suffer from enlarged prostate and chronic catarrh of the bladder.

Rhus tox. in incontinence of urine is said by *Dr. J. H. Moon, M. D.*, of Montpelier, Idaho, to be a reliable medicine. He gives several cases of this disease cured with the remedy. In a simple uncomplicated case the following was prescribed: Rhus tox. three drachms; glycerine, two ounces; water, q. s. ad four ounces. Mix. Teaspoonful four times a day. Iron was given for the anæmia. The rhus and iron treatment was continued three months, a complete cure was effected.

Rhus tox. is also a very valuable medicament in cases when patients (mostly women) complain of the urine scalding the urethra and meatus. It is often a really curative medicament in the severe back ache some women are so much tormented with.



Rue Graveolus.

one of the oldest germicides, was **Rue**, held in high favor as a great ozone liberator, and preventive to contagion. It is also a tonic, diuretic, laxative and vermifuge, but its real intrinsic value in fluid extract, decoction, essential oil, or emulsion is as a bactericide; it kills the *oidium albicans*, neutralizes, or checks the chemical action of the ptomaines in cholera infantum.

A decoction, sweetened for children, cleanses the entire intestinal tract of microbes, thus wards off convulsions or fits, epilepsy due to reflex irritation.

Although but a simple herb it is a valuable stimulant and antispasmodic. Still it must not be administered in large doses, as it produces gastrointestinal irritation, cerebral derangement, and acts energetically on the uterus.

A sweetening substance two hundred and eighty times greater than cane sugar. A white crystalline powder soluble in two hundred and thirty parts of water, but very soluble in alcohol or ether. It has a faint odor of bitter almonds, which is more perceptible on heating. Chemically and physiologically totally different from cane sugar, being a powerful bactericide and unfermentable. It is indigestible, inert, non-toxical; passes out by the urine unchanged. Its chemical reaction is that of a weak acid.

In diabetes, where cane sugar, starch and other products feed the glucose fungus, it may afford the patient sweet nutriment, but in all other respects, that is as a dietary and medicinal agent, it is worthless.

The eminent T. H. Goodman, M. D., of East Saginaw, Michigan, says on this subject:

"Saccharin is not a food in any sense; but it is recognized that there are many circumstances under which it is necessary to have a sweetening agent to take the place of sugar. As to the non-toxic nature of saccharin the experimenters have no doubt, since their experiments confirm those of reliable investigators on the Continent. Saccharin has decided antiseptic properties, and in sufficient quantities is capable of stopping the action of organ-

ized ferments. As regards its extra-corporeal action on the soluble ferments, as regards the peptic digestion of fibrin 0.1 per cent. of saccharin has no retarding influence, while 0.25 per cent. slows the process decidedly, and 1 per cent. greatly retards it; 0.1 per cent. of saccharin is equivalent to 30 per cent. of sugar, which may be said to be a dietetic impossibility. The diastastic solution of starch is not hindered by two per cent. of saccharin. The addition of saccharin to urine hinders ammoniacal fermentation, as does ingestion of saccharin."

As regards the intra-corporeal action of saccharin, it was found that a gramme of the substance, equal to more than eight ounces of sugar, did not interfere in the least with the gastric digestion of the dog. The article used in the experiments was "soluble saccharin," equal to about nine-tenths its weight of pure saccharin. It is as soluble in water as table salt, and when properly diluted is scarcely to be distinguished from cane sugar. Dr. Goodman concludes that (1) saccharin is quite innocuous when taken in ordinary dietary; (2) it does not interfere with nor impede the digestive processes when taken in any practicable quantity; (3) it may be taken during an extended period without interfering with the digestive and other bodily functions. There is, then, no reason to think that its continual use may be in any way harmful.

Dose: Thirty to seventy-five grains in water every three hours. The syrup is thus made: Dissolve ten parts saccharin, twelve bicarbonate soda in one thousand parts of water, at a temperature of 80° Fahr. Useful in diabetes.

The compound, as is well known, consists of 40 per cent. carbolic and 60 per cent. salicylic acid, and is decomposed into its components by the action of the pancreatic ferment.

This is a germicide of immense potency. It is a white crystalline coarse powder, rather like damp table salt. The odor is very marked, and is identical with that of glycerite of wintergreen, which is chiefly salicylate of methyl. When taken into the mouth a fainter impression of the smell is received on the palate, and the taste of carbolic acid is just suggested.

The internal administration of salol is certainly devoid of many of the objections that may justly be urged against the salicylic acid. It is well borne by the stomach, is tasteless and devoid of odor, readily administered in water, and but seldom gives rise to the troublesome tinnitus that constitutes one of the drawbacks to salicylic acid.

It is eliminated from the body very largely by the kidneys, the urine assuming, however, the characteristic appearance and reaction of carbolic acid urines, being dark green or almost black in color. Its reaction remains acid, it is free from albumen, and it deposits no sediment. The characteristic alteration in the color of the urine is manifest after a single dose of ten grains, and persists for a long time, so that when salol has been given for some time, the color of the urine remains black five days or more after the remedy has been discontinued, showing that it accumulates in the system and is eliminated very slowly. The salicylic acid of its composition appears first as salicylic acid, the carbolic acid being responsible for the changed color of this fluid.

The advantages which are claimed for salol over salicylate of soda, for which it is prepared as a substitute, are dependent first of all on its insolubility in water and the juices of the stomach, and secondly on the ease and completeness with which it is decomposed after passing the pylorus. Being insoluble in water, it is free from the repellant and nauseating effects of salicylate of soda, which some patients find so objectionable that even syncope has sometimes supervened on ingestion. Passing through the stomach unaltered, it undergoes decomposition in the duodenum, where it comes into contact with the pancreatic juice and is broken up into salicylic acid and phenol.

Salol can be used with good effects in all rheumatic affections, in chronic urticaria, in sub-orbital neuralgia, as an antipyretic, in diabetes, in intestinal catarrh, in typhoid fever, in cholera, against intestinal parasites, in catarrh of the bladder, in ozæna, in otorrhea; as a local application in gonorrhœa, and as a mouth wash.

It is insoluble in the gastric juices, and consequently better borne by weak or irritable stomachs; its solubility is obtained by the action of the pancreatic secretion, and hence its more pronounced local effects upon the intestinal tract, chiefly upon the duodenum. The buzzing and ringing of the ears, produced by salicylic acid and salicylate of soda, are hardly noticeable with the use of salol.

In articular rheumatism it allays both fever and pains better than the respective amount of salicylic acid that it contains. In neuralgia it succeeds fully as well as salicylic acid.

Salol will kill the cholera bacillus, and thus prevent the formation of a poisonous ptomaine.

The ordinary dose is five grains every hour, and decrease in frequency as an improvement takes place.

Salicylate of Soda in uric acid diathesis is to be considered, and often is prompt in bringing about a cure. Many cases of persistent pruritus, resisting all other approved treatment, yield to ten grain doses of salicylate of soda, and repeated every two to four hours. These are cases in which uric acid abounds in the urine, and often there are manifested other nervous symptoms. The excellence of this medicament in sick headache is now well known. The fact of most of these cases being complicated with uric acid in excess, or rather the former, may be taken as resulting from the latter. It will be found a valuable remedy, administered in decoction of black cohosh in many cases of chronic rheumatism, uric acid in marked excess in the urine in many of these cases. Recently a case of dry pleurisy came under my care, the urine contained much uric acid. Salicylate of soda, ten grains, dissolved in ammonia acetate, one and one-half drachms, and repeated every two hours. The pain was relieved completely in six hours. Before the second dose was taken, marked relief of pain was obtained.

In acute tonsillitis, ten-grain doses of salicylate, repeated every hour, are almost sure to give rapid relief to all the acute symptoms in a few hours, and a cure promptly brought about.

Added to the liquor ammonia acetatis it is a most effective remedy to sterilize and destroy the bacillus amylobacta, the microbe of rheumatism, and protect the heart from the ravages of the micro-organism.

Valuable in diphtheria to sterilize the germs in the throat.

is a crystalline substance, neutral in reaction,
Santonin obtainable from the unexpanded flower-heads of certain species of artemisia. The flower-heads, which can, at first sight, hardly be distinguished from seeds, have a strong odor and bitter taste. To obtain santonin, these are bruised and boiled for a time with water and lime. To this fluid hydrochloric acid is added till the whole becomes curd, when it is set aside for the santonin to subside. The precipitate is well washed and otherwise purified till it is brilliantly white and crystalline. It must be kept away from the light. The crystals have but little taste and no smell, insoluble in cold water, but soluble and subliming with a moderate heat. These brilliantly white crystals become yellow by exposure to light. Nitric acid converts it into succinic acid.

Santonin, if given in any quantity, colors the field of vision yellow, so that the patient sees everything of that color. Sometimes green takes its place.

Being tasteless, energetic in the destruction of the round worm, it is easily and readily taken by children.

The crystals in trituration with sugar and milk. Lozenges and a glycerite are most eligible forms. Dose: one to two grains.

Sandal Wood

is the product of a tree growing in India and Ceylon, and also in the South Sea Islands.

It occurs in billets of a dark brown color externally; internally the rings are well marked. The powder is blood red, and has a slightly astringent taste. It is mainly used for the coloring matter, which may be extracted by alcohol or ether, and by alkaline solutions. It is sandal wood which gives the red color to the compound tincture of lavender and to Fowler's solution of arsenic. An oil of sandal wood has recently come into use as a remedy for gonorrhœa. Fifteen or twenty drops are usually given for a dose: but a good many people it does not suit; many cases are not benefited by it. In all instances it gives rise to a good deal of pain. Often it is very effectual.

The *mistura santal comp.*, highly ozonized, a combination of pure sandal oil, oil of cubebs, copaiba, kava kava, terebene, with tincture of hyoscyamus, with peroxide of hydrogen.

A useful, reliable preparation for the destruction of the gonococcus.

It forms, when diluted, an elegant and pleasant mixture, which does not interfere with the digestive organs, and may be given without producing the offensive eructations which follow the administration of copaiba.

Its use is especially indicated in the advanced stages of gonorrhœa, and in protracted or chronic gleet, though it may be given with equally good effect in the earlier symptoms, unless contra-indicated by an inflammatory condition.

If given as soon as possible after the appearance of the discharge, the effect is usually most gratifying both to patient and doctor. The discharge disappears, the scalding ceases, and by continuing the medicine, with attention to collateral treatment, a cure may generally be effected in from two to five days.

Saponaria Officinalis.

(*Soap-Wort.*)

This remedy has been in use throughout Europe and America as a bactericide, chiefly for killing the venereal bacillus, and parasite affections of the skin. It is nearly as powerful a remedy as *comp. saxifraga* and *phytolacca*.

For its alterative and germicidal properties, best given as a decoction, or in the form of a fluid extract.

It does kill the gonococcus by slow degrees, in about two weeks.

Saponin, a proximate principle obtained from the root in large quantities, is extremely poisonous; although a glucoside, it unites with acids and forms crystals.

A germicide and parasiticide, belonging to the **Savin.** cypress section of the fir family, has an extended sphere of action, both externally and internally. A cerate prepared in the usual manner is most efficacious in tinea capitis; applied to indolent gangrenous ulcers, destroys the microbes present, and they heal promptly, the savin cerate being equally germicidal to ichthyol. It is all efficient as a lotion, fomentation or powder.

The fluid extract internally administered in small doses, frequently repeated, annihilates the microbe of rheumatism; rouses up the dormant functions of the torpid liver.

In cases of tape-worm, the oil, with a little chloroform added, rubbed over the abdomen for a few minutes, by endosmosis so paralyzes the parasite that it is expelled. Its action on the uterus is that of a drastic stimulant.



Sabina.

The berries contain diuretic, sedative, nutritive, and gland-stimulant properties; and in the form of a fluid extract are invaluable, and have a special and decided action upon the glands of the reproductive organs, as the mammæ, ovaries, prostate, testes, etc. Its action is that of a great vitalizer, tending to increase their activity, to promote their secreting faculty, and add greatly to their size.

It is specially indicated in all cases of wasting of the testes, such as follows varicocele, or is induced by masturbation, or which is often present in sexual impotency.

In atrophy of the prostate, so very common in cases of sexual perversion, this drug operates in a most remarkable manner, in overcoming the withered, blighted state of the gland; so in

uterine atrophy dependent upon ovarian blight, its action is unexcelled. In gynecological practice it is much used to promote the growth of the mammae.

But it is on the prostate gland that this remedy exercises its best effects. Great medical authority states, that when "the hair becomes gray and scanty the prostate gland becomes increased in size," and this, irrespective of age. Nine men out of every ten have enlarged prostate, and one atrophy, ages varying from thirty-five to seventy-five, respectively, the result either of early indiscretion, as masturbation, or excess, or perversion of the sexual act, or sedentary habits, or from improperly cured gonorrhœa.

The prostate is composed of two lobes and a median portion. Sometimes one portion or all may be enlarged; the part affected influences the function of micturition, whether it be wasted or enlarged. A patient may have enlargement as great as a small cocoon, and no obstruction to micturition, provided the median portion is only but slightly enlarged.

A man with prostatic trouble has always impaired sexual power, verging on partial or complete impotency, with wasting testes; with urinary trouble, either a frequency, or a dribbling, a lack of power of propulsion. The dribbling, or lack of power of retention is altogether different from stricture, for in the latter the power is good, strong; although it may be as fine as a thread, or split, or twisted like a cork-screw.

Prostatic disease, acting reflexly on the brain, gives rise to innumerable cerebral affections.

Indicated in syphilis, cancer and tuberculosis;

Saxifraga. one of the most powerful vegetable alteratives known to medical science; stands in the front rank of therapeutics as a great vegetable germicide. It would be impossible to successfully combat syphilis, cancer and tuberculosis without this remedy.

Saxifraga, Comp. Oz.—This preparation is purely vegetable, composed of the active principles of saxifraga, blue flag, tag alder, dulcamara, kalmia, corydalis, phytolacca and yellow parilla, prepared by a process of distillation and highly ozonized, after which five grains of iodide of potass and five grains of chlorate of carbon are added to each drachm. The preparation is endorsed by the entire medical profession, as the best of all alteratives.

It is not only the best of alteratives, but a potent germicide when it enters the human blood. It annihilates all disease germs,

sterilizes their micrococci and thus cleanses germ-laden blood, while it has the faculty of stimulating the springs of life, the vital elements of nutrition in aiding in the formation of pure and more vitalized blood. It is a true blood scavenger and tonic, strengthening the system in a remarkable degree.

It has a special faculty when it enters the blood, lymph canals and pink marrow of destroying the microbes of cancer and syphilis and the bacilli of tubercle.

It completely supplants the use of mercury, antimony, arsenic, the iodides and other deleterious mineral agents in the removal of morbid action, destruction of myriads of germs which are always present in chronic maladies.

As a great blood purifier and germicide, (the most efficacious in the whole range of therapeutics), it acts as a stimulant to the skin, liver, kidneys and every gland in the body.

Dose : One teaspoonful every three hours.

As a remedy to sterilize all disease germs or microbes, this one is too much neglected by the profession, especially in the treatment of all nervous diseases. It is a remedy of rare value, being a tonic, diuretic, anti-spasmodic. It has been used chiefly in convulsions, chorea, epilepsy, dysmenorrhœa and debility. It allays all irritation of the nerve centres, imparts tone and quiets cerebral excitement. It is esteemed as our best remedy in hydrophobia. In this disease, to be effectual, it must be given in large doses until it produces a sort of paralysis or suspension, and if this is effected the germ dies or is sterilized.

The remedy has also the same effect on the vibrios of nervous disease.

It yields its properties freely to water, and in the form of an infusion it should be drunk freely, until there is a feeling of pins and needles experienced over the entire body.



Skullcap.

Senega Root

Polygala Vulgaris.

is a famous germicide, possesses important medicinal properties, being a stimulant, diuretic, diaphoretic, and in large doses emetic and purgative. Its administration in catarrh, bronchitis, rheumatism, has a most sterilizing effect upon the germs of those respective maladies.

Even the mycelia of whooping-cough are thoroughly paralyzed in its presence. The following formula is effective: Syrup senega, syrup of tolu, of each one ounce; resorcin, half an ounce. Mix. Dose, from a half to one teaspoonful every two hours.

A most wonderful remedy in the cure of diabetes, Bright's disease, cystitis, sciatica, gout, rheumatism, dropsy, neuralgia and carditis is the ozonized uric acid solvent.

The addition of pichi and dioxide of hydrogen to the compound has given it a world-wide

reputation in all renal diseases arising from defective assimilation and an excess of uric acid. Physicians using it should see that they have the genuine ozonized.

Virginia snake
Serpentaria. root is a stimulant tonic, acting also as a diaphoretic and diuretic. On account of its peculiar stimulating action on the skin, its use is extremely beneficial in all forms of eruptive fevers; it has the peculiar faculty of driving all the micro-organisms of those fevers to the surface, thus relieving cerebral and visceral congestion. Of great efficacy when the kidneys are blocked up by solid bodies, as the urates or triple phosphates. It



Virginia Snake Root.

promptly relieves that sensation of weight and dragging in the loins, fulness in the chest, difficult respiration incidental to nephritic congestion.

It augments vital force, increases the power of vital resistance.

The comp. tincture and fluid extract are the most eligible forms for administration.

Siegesbeckia Orientalis.

applied locally, it either completely annihilates or sterilizes all micro-organisms. For internal administration, a syrup is prepared by pounding the green plant, adding sugar and straining, or by adding one drachm of the tincture to two ounces of simple syrup. This is the best form for prescribing in syphilis and cancer, and in cases where any microbes inhabit the human blood. It acts most efficiently upon the syphilitic germ, even exceeding in its germicidal action bichloride of mercury, iodide potass., saxifraga, kalmia, etc.

As a spinal stimulant it excels nux vomica, ignatia, rhus; hence its value in aphasia, stammering, and in incontinence of urine or irritable bladder.

As a local remedy to ulcers or sores, syphilitic, gangrenous, it promptly destroys the germs present, then stimulates rapid cicatrization.

A very small quantity of the tincture added to a jelly, prepared from glycerine of starch, destroys the oidium aphthæ and sore nipples.

The tincture is a valuable cure, locally, for all forms of tinea, and can be prescribed with invariable success.

Apply it in ring-worm, tinea circinata, tinea sycosis (tinea tonsurans), tinea versicolor, typical, well-marked cases, even of the most aggravated form in broken-down subjects; the result is marvellous in the extreme. The drug acts as a stimulant and a parasiticide, and the mode of cure, after it is applied, is that the diseased patch becomes broken up into a series of small patches, with sound skin intervening. Then the re-application of the drug causes it to break up into still smaller pieces, when it dis-

Undoubtedly the most powerful and valuable of all vegetable germicides. Administered internally or

for prescribing in syphilis and



Siegesbeckia.—The great vegetable Bactericide.

appears altogether, and in their place a small red blush. This only remains for a day or two, and the most stubborn case is thus cured.

The prescription in all forms, even the most aggravated and stubborn, is: equal parts of the tincture of siegesbeckia and glycerine, well rubbed into the affected area morning and night.

At present it is a high-priced drug, but the dose is small, and its use, if indicated, brings colossal results.

The learned leading physicians of Canada are adopting the germ theory of disease with great avidity.

Dr. Cannon, of Sharbot Lake, is pushing bactericides with great energy in his extensive practice. In one of his recent essays, he says:

"The siegesbeckia orientalis in typhoid has not received the attention it merits. The time has arrived to lay before the profession the results of an experience in its use extending over two years, comprising a series of seventy-nine cases.

The general management of all those cases was: the patient was confined to bed in the recumbent posture, in a well ventilated room, rigid hygiene, and every effort made to maintain the nutrition of the patient by fresh milk alternated with beef tea, etc.

In the entire number of cases, no matter what time I was called, I ordered one-drop dose of a saturated tincture of siegesbeckia orientalis in a tablespoonful of water in which a teaspoonful of the syrup of orange peel had been dissolved. The good effect of the remedy was immediate; the pulse slowed, temperature fell, tongue cleaned, diarrhea ceased, and the general condition of all the patients improved so much that, as a rule, all anxiety as to the future of the cases was at an end, as they all proceeded to speedy recovery.

What induced me to try this drug in typhoid fever was that, in my experiments in the cultivation of the typhoid bacilli and the effect produced upon the micro-organisms when the siegesbeckia tincture was introduced into the cultivating media, perfect annihilation of microbe growth took place.

So internally in typhoid.

Another reason was, I had applied this tincture in gangrenous ulcers (*oidium albicans*) with most marvellous results, and had demonstrated most clearly the destruction of the germs and the establishment of healthy, healing action, so I obtained similar results upon the germ-eaten bowels, so much so that I noted over half the cases were aborted on the second week. My seventy-five cases were treated all alike, the prevailing idea being to destroy the germ, and heal the ulcers on the bowels; just as

this great vegetable germicide was administered, so febrile disturbance ceased.

This remedy owes its antipyretic action directly to its germicidal power, to its power over the germ before destroying it—that the germ being destroyed, no ulcers form on the intestines; recovery from the fever is certain provided no accidental or adventitious cause arises.”

Silico-Fluoride of Soda. This is a strong bactericide, non-poisonous, unirritating to the tissues, inodorous, non-volatile, non-corrosive, and not destroyed by oxidation.

This remedy is very useful for washing out the peritoneal cavity after laparotomy, here using ten grains to the pint; in cases of strangulated hernia; in the radical cure for hernia; in excision of joints; in amputation of the arm, leg, and thigh; in washing out the pleural cavity; in the removal of tumors; in excision of veins; in ligature of blood vessels; in compound fractures; in osteotomies; in washing out the bladder; in washing out the uterus after curetting the interior, and after the removal of septic retained membranes; as a vaginal douche before and after Apostoli's operation for fibroid; in the irrigation of extensive ulceration in the rectum, where a poisonous antiseptic could not have been employed; in washing out the stomach; as an injection in gonorrhœa (ten grains to the pint); as an injection in otorrhœa; in syringing out large pelvic abscesses; as a gargle in hospital and in diphtheritic sore throat; as a nasal douche after removing polypi; for syringing out empyema of antrum; and in many other cases.

Simabacidia, an invaluable ozonized compound, composed of cedron seed, coto bark, Jamaica dogwood, manaca, tonga and black cohosh, a specific for *neuralgia*. These remedies are a special combination of peculiar efficacy and highly germicidal. The preparation was first introduced by us, and on submitting it to the profession, it was found to possess extraordinary power in relieving neuralgic pain. Neuralgia is caused by the presence of living microbes in the blood, impoverishing the nerves. The theory of pain, caused by microbes, or their poisons, was anæmia.

Cedron seeds have obtained quite a reputation in the treatment of snake bites and other venomous reptiles. They are of undoubted utility in headaches and neuralgias due to the pres-

ence of sewer gas, foul emanations, or microbe-laden atmospheres.

A tincture or fluid extract of the coarsely ground seeds may be used, but for general use the simabicia answers the purpose best.

There is still another explanation which on many grounds has recommended itself, as accounting more satisfactorily for the phenomena observed, both to chemists and biologists. It is that the injurious effects produced by microbes on special nerves are due, not to what they take or to what they excrete, but to what they leave, and this is closely associated with the imperious demand they make for oxygen. Being in many instances anaerotic—that is, living and multiplying without direct exposure to air—they must obtain the oxygen they require for the process of life from the tissues by which they are surrounded; but when oxygen is withdrawn from such complex chemical compounds as those of which our bodies are constructed, the elements enter into new combinations, and then, under the name of ptomaines, are believed to be the really poisonous agents. Attempts have been made to isolate these compounds; and it has been shown that they are of the nature of alkaloids, and resemble, both in their constitution and



Seeds of Simaba Cedron. Quarter natural size.

in their effects, those deadly poisons that may be extracted from digitalis, conium, tobacco, delphinium, and other noxious plants, and that it is its action upon those poisons, in neutralizing or antidoting them, that is effectual and invaluable in all nerve pain.

Dose: From half to one teaspoonful in water, three times a day. Relief generally follows the third or fourth dose. No ill effects from larger doses.

This drug has been highly extolled as a remedy

Simulo. to sterilize the microbe of neurasthenia and epilepsy.

In the estimation of one of our best and most successful physicians in the treatment and cure of nervous diseases, *Thomas L. Barnes, M. D.*, of Jamestown, N. Y., simulo is entirely worthless. The learned Doctor has tried this much-lauded remedy, and in no single instance does it control any, nay, even the mildest epileptic seizures.

Solidago.*(Sweet-Scented Golden Root.)*

A germicide, aromatic, stimulant. An infusion of the herb, administered warm, is an excellent diaphoretic and carminative;

a fluid extract is valuable to cover the taste of nauseous drugs.

Its medicinal properties depend entirely upon the presence of a volatile oil which contains all the bactericide properties.

It is of great utility to sterilize or destroy all micro-organisms in the alimentary canal; by doing this it relieves pain in the stomach and bowels, flatulence. It is also of great value for inhaling in all microbial diseases of the respiratory organs.

Dose: From two to five drops, triturated with sugar, or cut with alcohol, every three minutes, until relief is experienced.



Golden Rod
(Solidago).

Speedwell, *(Veronica.)* A bitter, astringent tonic, sudorific, diuretic, expectorant, nerve stimulant. Employed in some countries as a substitute for tea, makes a pleasant beverage, restores the functions of the digestive organs, strengthens the mental and physical powers. Administered with great benefit in all cases of depression or over fatigue

or exertion, it entirely wipes out that feeling of exhaustion and is unquestionably one of the most powerful tonics to the muscular system that we possess. The remedy can be specially recommended to medical men and nurses, and all who require to keep awake and be on the alert, and enabling them to do



Speedwell *(Veronica).*

a vast amount of work with ease. Although of great efficacy in combating fatigue and drowsiness, no antidotal properties are claimed for it in any of the habits.

Solanin. A glucoside derived from the leaves and berries of the *solanum nigrum* and other plants. It has an acrid, nauseous taste; is insoluble in water, but freely soluble in ether or alcohol. It has a powerful germicidal action upon all the fluids and solids of the body, has an anesthetic action upon the base of the brain, influencing chiefly the pulmonary plexus, and diminishing the sensibility of the bronchial mucous membrane. Its peculiar action upon the respiratory centre of the brain causes it to slow the pulse, diminish respirations and lower temperature.



Common or Black Nightshade.
(*Solanum nigrum*.)

In large doses it is an irritant and paralyzer; in small doses it is of the greatest efficacy in destroying the micro-organisms of whooping-cough, bronchitis, carditis, asthma, emphysema, rheumatism, gout, sciatica and cystitis. By its peculiar sedative action on the pneumogastric, it relieves gastralgia, vertigo. Administered in doses of a quarter to one grain thrice daily. For subcutaneous injection the hydrochlorate of solanin is used in an aqueous solution.

is closely allied
Spikenard to the valerian family, but has a much stronger odor and is more powerfully germicide.

Simmering the sliced roots in oil or vaseline makes an embrocation of the greatest utility in the successful cure of old fetid ulcers. It is an old remedy, but one of great value, and likely to regain its place in modern therapeutics.

A tincture is the most eligible form for exhibition; being a good nerve stimulant, it affords almost instant relief in innumerable painful affections.



Spikenard.

Squill consists of the bulb of the sea onion (*Urginea scilla* or *Scilla maritima*) sliced and dried. It grows along the shores of the Mediterranean, partly in the water. The bulb is pear-shaped, and often of considerable size. It is covered with brown scales overlapping like those of the lily. The outer ones are membranous, the inner white and fleshy, these being cut across. Squill is commonly seen in small white pieces, consisting of transverse sections of those scales. Squill has a bitter taste and not easily powdered until well dried; in that state they may easily be converted into powder, but if allowed, the powder speedily absorbs moisture from the atmosphere, so that the powder becomes a solid adherent mass. Squill seems to owe its efficacy to a resinous substance, which is not, however, separated for use. Its preparations are, vinegar of squill, oxymel of squill, made by mixing squill vinegar with honey, a syrup and a tincture.

It is a bactericide of no mean order, and as it yields its properties to acetic acid dilute, we have the advantage of two germicides in one.

It is also an excellent remedy to facilitate expectoration, and for rousing up the action of the kidneys, and to promote the absorption of fluids; hence its value in dropsy. As an expectorant, use it alone, or combined with syrup of tolu, senega, wild cherry, ipecac. It is one of our best remedies in stubborn dropsical cases in alternation with strophanthus.



Squills.

Sulphate of Sparteine. Common broom, which grows so abundantly in the temperate latitudes of Europe, yields by decoction and alcoholic extract an invaluable cardiac tonic and vitalizer. This property resides in the whole plant, leaves, stem and flowers, but specially in the young tops and seeds. Besides its decided action on the muscular structure of the heart, it is an efficient diuretic and laxative.

These are the ordinary properties of the scoparius, but the alkaloid is sulphate of sparteine, which is obtained freely from

the tops, takes its place in the front rank as a most extraordinary heart tonic.

The constant physiological and therapeutic effect of this drug is to strengthen the heart's action, improve its pulsations, increase its growth.

The sulphate of sparteine is most effectively administered hypodermically in the morphia and other habits; the injection should be given when the craving comes on. Invaluable in asthma.



Common Broom: *a*, flowering branchlet; *b*, end of branchlet, not flowering, showing leaves with three leaflets; *c*, a pod; *d*, the tube of stamens cut open



Lakespur or Stavesacre.
(*Delphinium staphisagria*.)

Stavesacre seeds are emetic, cathartic and parasiticide; owing to their violent action they are seldom given internally; chiefly used locally.

The fluid extract, in small doses, exerts a favorable action upon the reproductive organs of both sexes. It quiets irritation of the testes, strengthens their secreting faculty, lessens irritation of the prostate-urethra, arrests leakages; often of utility in catarrh of the bladder.

An ointment, made by digesting over a vapor bath for twenty-four hours, three parts of stavesacre seeds, in powder, with five parts of vaseline, and then straining, may be used for the destruction of all cutaneous parasites. It is most effectual when applied in destroying the entire crop of parasites present, whatever they may be.

The alkaloid principle, delphinine, is extremely acrid; but administered in small doses it is often effectual in overcoming paralysis caused by the action of the lactic acid of rheumatism or general nervous prostration.

Stillingia Sylvatica.

(*Queen's Root.*)

A microbicide of some power. Its bactericide properties are present only in the oil, which is very volatile, hence there is none in our fluid extracts if made by heat or compression. Alcohol extracts this oil.

All comp. syrups of stillingia are entirely worthless when made with fluid extracts. Alcoholic syrups made by re-percolation contain the oil in great abundance.

The use of this syrup kills the bacillus of tubercle, cancer, syphilis; besides it is a general alterative, tonic, diuretic.

The stillingia is worthless if the oil is extracted.

The compound syrup, which consists of stillingia, corydalis, phytolacca, iris versicolor, prickly-ash, chimaphila, umbellata, and cardamom seed, made by maceration, is a powerful and efficient alterative.

The oil of stillingia, dissolved in alcohol, is invaluable as a liniment in or over joints loaded with the bacillus amylobacta.

Virginia Stone Crop.

This invaluable remedy has a wide range of action, and can be used with marvellous efficacy in a large number of diseases, but specially in nervous affections, morbid states of the alimentary canal, and in genito-urinary affections.

It stands pre-eminent and alone as a great rectal tonic and vitalizer; operates exceedingly well in all feeble or relaxed conditions, as catarrh, prolapsus, spasmodic and refractory states of the sphincter ani, and in neuralgia; of great utility in ulceration of the rectum and piles. Ascarides are effectually destroyed with it in the form of an injection.

No remedy can excel this in all diseases of the genito-urinary organs of both sexes; it operates like a charm in relieving irritable bladder and prostate; has a most beneficial action in prostaticorrhea, checks all leakages, or any oozing, even the exudation of chronic gonorrhoea or gleet; in the female, its use cures leucorrhoea, dysmenorrhoea, and that neurosis, termed vaginismus, spasm of the sphincter muscle of the vagina, and uterine neuralgia.

It exercises a most extraordinary sedative action on the kid-

neys and bladder; of great efficacy in the expulsion of calculi; in acute and chronic cystitis; in vesical tenesmus, and in incontinence of urine of all ages.

It is of great value in dyspepsia, gastric and gastro-intestinal catarrh, gastralgia, and flatulent, biliary and infantile colic. It restores the tone of the alimentary canal by its peculiar tonic action; increases the appetite, promotes digestion; gently stimulating the organs of excretion.

It vitalizes the respiratory organs; good in colds, hoarseness, or in elongation of the uvula, chronic laryngitis and pharyngitis, aphonia, and the lack of tonicity of the vocal chords.

It is of great efficacy in all nervous disease, as chorea, epilepsy, lumbago, nervous cough, whooping-cough; its use overcomes all habits, as the desire for liquor, morphia, etc., and it may be given with decided benefit in anæmia, chlorosis, incipient consumption, convalescence from fevers.

As a local remedy in contusions, ecchymosis, incised wounds, indolent ulcers, it has no superior.

Dose: Internally from twenty to sixty drops added to water, three times a day; for local use, one ounce to four ounces of water; as an ointment, one ounce of the extract to three ounces of vaseline.

J. J. Crider, M. D., Ottumwa, Iowa, in an elaborate dissertation on our indigenous remedies, says of stone crop:

"The most highly vitalizing of all tonics for the gastro-intestinal mucous membrane, operates efficiently from the tip of the tongue to the verge of the anus. The most effective remedy we possess in an ulcerated, germ-eaten rectum.

Stone crop is an effective remedy in relaxation of the uvula, chronic pharyngitis and hoarseness, dependent upon a lack of tonicity of the vocal chords. The fluid extract may be given in these affections in half-drachm doses, four times daily, and employed also as a gargle when diluted with four times its volume of water. It is also of value in gastro-intestinal catarrh, and the catarrhal gastritis of beer and alcohol drinkers. It lessens the desire for liquor, restrains the secretion of mucus, and restores the normal tone of the alimentary canal, and re-invigorates the depressed nervous system.

Constipation, hemorrhoids, rectal neuralgia, vague pelvic pain, are cured by inserting a suppository made of the glucoside prepared from the stone crop.

Add half an ounce of resorcin to four ounces of fluid extract stone crop, and we have an invaluable remedy for chronic gonorrhœa, leucorrhœa, prostatorrhœa, infantile and biliary colic.

As a general tonic, increasing the appetite, promoting diges-

tion, and gently stimulating the fountain of life, it is useful in very many diseases."

When taken either in small or large doses, **Stramonium.** produces symptoms, analogous to those produced by the use of belladonna.

It is used with some success in puerperal mania; beneficial in neuralgia. It has acquired quite a reputation in spasmodic asthma. It is only employed during the paroxysm, which it either alleviates or subverts. It may be used either in a pipe or cigarette.

Externally, stramonium is used advantageously as an ointment or cataplasm in irritable ulcers, inflamed tumors, swelling of the mammæ, and painful hemorrhoidal affections.

The green leaves simmered in lard, until saturation, form an ointment of rare value in parasitic affections of the skin. It, like belladonna, sterilizes all disease germs.



Common Thorn-apple (*Datura Stramonium*).

or styrax, is a kind of liquid balsam obtained from **Storax,** the bark of a tree, *liquidambar orientale*, growing in Asia Minor. This balsam is afterwards purified. It occurs in two forms; a thick liquid of the consistence of honey, and brownish red, nearly solid masses, softening with heat.

Storax contains, as do all balsams, cinnamic acid, which, when pure, occurs in flat crystals; also styracin and styrol. Styracin is a compound containing cinnamic acid and styrone. It is crystalline when pure, and insoluble in water. Styrol is a colorless oil which by oxidation may be converted into benzoic acid. Its odor is aromatic.

Storax if pure should be soluble in alcohol or ether, and is by chemical means capable of being broken up into a variety of products. Storax is not nowadays much used in medicine, but belongs to a group which the bacteriologists highly esteem. The whole family of balsams are active germicides, killing the various forms of germs.

Styrone, prepared from liquid storax and balsam of Peru, has intense germicidal properties. It possesses several excellent advantages, it is efficient, non-poisonous, and its odor is agreeable. It may be used to an ulcerating surface in the form of a spray, styrone one drachm to one ounce of water, and one of glycerine, or applied to raw surfaces in the form of an emulsion, with olive oil, petrolina. From experiments made by us, the germicidal properties of styrone are considerable, completely annihilating the micro-organisms of putrefactive bacteria; comma-bacilli; streptococcus pyogenes, and staphylococcus pyogenes aureus.

is a reliable hypnotic, possessing none of the peculiar effects of the narcotics on the nervous and circulatory systems; it has no injurious secondary effects, and may be taken in proper doses with impunity, to produce the most quiet, uninterrupted, refreshing natural sleep for eight or ten hours. It possesses neither taste nor odor.

It has a decided action upon the insomnia of the inebriate; upon the delirium of the typhoid, and upon the raving mania of the insane.

The drug can be administered in wafers or capsules, or if the patient refuses the remedy, it can be mixed with soup, wine, water, coffee, or strewn on bread, or any dish the patient may be eating. The dose is from thirty to forty-five grains.

Paralysis from phrenal anæmia, cerebral softening, and other grave pathological brain lesions, are becoming amenable to remedies. By the use of sulfonal we can prolong sleep in the raving maniac to twelve or sixteen hours in the twenty-four; by the use of the glycerite of kephaline we can supply the blood with adequate brain matter, from which even the bankrupt cerebrum of the insane can, during prolonged repose, recuperate.

The two remedies are being tested in several of our insane asylums with brilliant results.

Nervous affections are essentially infectious and contagious; all lesions, whether inflammatory or not, are but a mass of microbes. In sulfonal we have a drug which produces a *quasi suspension*, during which germs either die or become sterilized; in the glycerite of kephaline we have a true brain essence and germicide. The pulse, temperature, and digestion are unaffected by the remedy.

Indicated in the prevention

Sulpho-Carbolate Sodium. of ingress and destruction of the oidium albicans of diphtheria, the microbes of small-pox, the bacteria-vibrio of puerperal

fever, the bacteria of erysipelas and boils and all forms of rectal ulcer caused by eroding germs. It renders the blood aseptic, making that fluid a habitat into which no disease germ will enter while the patient is taking that drug.

Dose: For children, one to two grains; for adults, three to four grains, added to water or dry on the tongue or rectum, every four hours.

**Sulpho-Carbol,
the New Antiseptic.**

The antiseptic and antifermentative properties of this compound are remarkable, and it has the advantage over carbolic acid of being soluble in water in all proportions, and of being neither poisonous nor caustic. It is a syrupy, rose-colored liquid, of a pungent odor, but no wise disagreeable in solution. It is volatilized in a water-bath, and may be used for fumigation. It may be given internally also, in syrup and water, in doses of from one to five grammes daily. Indeed, being an inoffensive product, its doses may be increased *ad libitum*, which of course is not the case with carbolic or salicylic acids.

**Soluble Gelatine
Urethral Bougies.**

Three varieties serviceable: First, to kill the gonococcus; second, to arrest seminal leakages; third, to rouse up erections in profound impotency. To insert one after urinating and allowing it to dissolve direct, immediate cure of a recent gonorrhoea; of marvellous efficacy in checking all leakages or seminal losses; as a remedy in impotency they have no equal; imparts to the virile organ all the force and ardor of youth.

Insert in urethra every night.

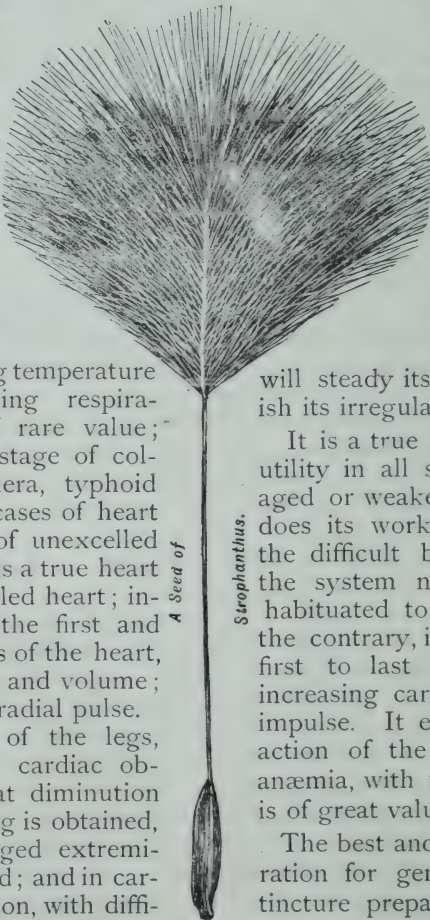
Strophanthus.

This plant is very widely distributed over equatorial Africa. It produces pods or follicles from nine to twelve inches in length, in which are contained from 100 to 200, or even 300, oval seeds, characterized by bearing beautiful comose appendices, which give it an arrow-like appearance. The active or medicinal part of the plant is in the seeds, which are generally used in the form of a tincture, which contains about 8½ per cent of a crystallizable principle termed "strophanthin," which has an intensely bitter taste and an acid reaction, readily soluble in water and

alcohol, but insoluble in ether, benzol, etc. This substance is found also in smaller proportions in the leaves and bark. The action of this very remarkable drug in medicinal doses, when introduced into the human stomach, is to increase the contractile power of the heart, and to render its contractions more complete and prolonged—a true cardiac tonic and strengthener. By the regulation of the dose, a most distinct physiological influence may be produced on the heart, while the other muscles remain unaffected. It is a most valuable cardiac tonic-invigorator of the heart muscle, accompanied by a rise in blood pressure, increased secretion of urine and reduction of temperature. In its action it bears a strong resemblance to *digitalis*, but it is a much more effective and safer drug for a much-weakened heart, whatever the cause of that weakness may be.

As an arterial sedative, reducing the frequency of pulse, lowering temperature and diminishing respirations, it is of rare value; also in the stage of collapse of cholera, typhoid fever, and all cases of heart failure, it is of unexcelled efficiency. It is a true heart tonic in enfeebled heart; increases both the first and second sounds of the heart, both in length and volume; increases the radial pulse.

In œdema of the legs, the result of cardiac obstruction, great diminution of the swelling is obtained, the water-logged extremities are cleared; and in cardiac obstruction, with diffi-



A Seed of

Strophanthus.

cult breathing, much relief is afforded to the laboring heart. It is the Excelsior drug in heart failure due to the use of tobacco or excessive study. It will not cure a fatty heart, but it

will steady its action, diminish its irregularity.

It is a true tonic of great utility in all states of damaged or weakened heart. It does its work well, relieves the difficult breathing, and the system never becomes habituated to its use. On the contrary, its action from first to last is uniform in increasing cardiac muscular impulse. It encourages the action of the kidneys. In anæmia, with weak heart, it is of great value.

The best and safest preparation for general use is a tincture prepared from the

seeds alone, and in doses varying from two to ten drops, added to a little water.

The method of preparing the tincture adopted by us is as follows:

Strophanthus seeds, deprived of their comose appendices, reduced to powder, and dried, one ounce or one part. Ether, freed from spirit and from water, ten fluid ounces, or ten fluid parts. Alcohol, a sufficiency to obtain one pint, or twenty fluid parts.

Remove entirely the stalks and comose appendices from the seeds, reduce the seeds to a moderately fine powder, dry the powder by exposing for twelve hours to a temperature of 100° or 120° F., and weigh. Pack in a percolator (the percolator being furnished with air valves, or being otherwise so constructed that the percolation may be arrested when desired), add ether until the whole of the powder is saturated, and a small quantity of the ether has dropped into the percolator; arrest the percolation for twenty-four hours, and then continue percolating slowly until the whole of the ether has been used. If the last ether percolate should not be almost colorless, use more ether.

Remove the powder from the percolator; expose to the air, and break up any lumps after the ether has sufficiently evaporated; and continue the exposure, heating the powder, if necessary, to 100° or 120° F., until all the ether has evaporated, when a uniform, nearly white, dry powder may easily be obtained.

Repack the powder in the percolator, add enough alcohol to moisten it thoroughly; arrest the further flow of the alcohol, and macerate for forty-eight hours, and pass alcohol slowly through until twenty fluid parts of tincture have been obtained.

In this process, the preliminary extraction with ether is for the purpose of removing the large quantity of inert oil contained in the seeds, which, if present in the tincture, would cause it to become opalescent on the addition of water.

The dose of this tincture is from five to ten minims. It may also be used in doses of half a minim to two minims, frequently repeated.

Sulphur is employed in medicine in two forms—sublimed sulphur and precipitated sulphur, or milk of sulphur. Sublimed sulphur is commonly used. It is prepared by fusing virgin sulphur, and conducting the vapor into a cool chamber, where it consolidates into bright yellow powder without taste or smell. It burns with a blue flame, and produces the unpleasant fumes of sulphurous acid. The precipi-

tated sulphur is pale yellow, and its powder is much finer. The preparations of sulphur are a confection and an ointment. The confection contains sulphur, cream of tartar, and syrup of orange-peel. It is a valuable laxative in piles, or where it is not desired to do more than gently open the bowels, as in fissure of the anus, or in stricture of the rectum. It is mainly, however, as an external application that sulphur is employed. Sulphur ointment still remains the great remedy for the itch, but it is useful in other forms of skin disease. Itch is due to a small acarus which burrows in the skin and gives rise to the intolerable itching. By rubbing the skin thoroughly with any unguent, these burrows may be broken down; but something more is required—the acarus and its eggs must be destroyed; this the sulphur or the ointment seems to do. It is important before using the sulphur that these burrows should be exposed, and nothing does that so well as a good hot bath and an effectual rubbing with soft soap. After that a single application of sulphur ointment, if well rubbed in, may cure. With delicate skins this plan will not do, as a good deal of irritation may be produced. Frequently it is enough to use this treatment to certain parts of the body, especially the hands, arms and inside of the thighs, where usually the crop of eruption is richest. Simple cleanliness may suffice for other parts, but usually the ointment should be applied every night for a night or two, and only washed off in the morning. The clothing must subsequently be disinfected by heat, or the malady is prone to return. If there has been much inflammation round the spots, a little carbolic acid lotion or ointment may be applied.

Burning sulphur is our great disinfectant and bactericide. Its effects in hooping-cough are marvellous.

It is also highly recommended in tuberculosis by *Prof. R. King*, of Georgia. He recommends the following treatment in the case of tuberculous patients. "They should be brought into a room into which small quantities of sulphur (one or two drachms) are burnt every hour over a spirit lamp or on a stove. At first coughing of a more or less aggravated character takes place, and after eight or twelve days the bacteria gradually disappears and cease to irritate the lung tissue. To complete the cure, the patients should be brought into rooms which contain some aromatic vapors."

Sulphuric Acid is the most powerful of all the acids. It is made by burning sulphur, and afterwards oxidizing the sulphurous acid by the fumes of nitre. Sulphuric acid thus prepared is a heavy oily-looking fluid, commonly known as oil of vitriol. It is intensely acid, and speedily chars any vegetable substance

added to it. Commercial oil of vitriol often contains arsenic from the use of impure sulphur. The diluted acid is used in two forms—as aromatic sulphuric acid, which is flavored by cinnamon and ginger, and dilute sulphuric acid, in which water alone has been added. The strong sulphuric acid is rarely employed, even as a caustic; it is unmanageable, and less powerful reagents are preferred. Internally the aromatic or dilute sulphuric acid is mainly used as an astringent. In this way it is of much service in the wasting sweats of consumption; and it may be of service where there is a chronic mucous discharge from the bowels. It is also of importance as an astringent in diarrhea, especially if combined with opium. The ordinary dose of dilute or aromatic sulphuric acid is about ten or fifteen drops, well diluted with water, or some such vehicle. In diarrhea that quantity ought to be given with as much laudanum, if irritating substances have been expelled.

Sulphurous Acid is a remedy of some importance. It may be prepared in a variety of ways, but it is most commonly obtained by reducing sulphuric acids by means of charcoal. It is most easily prepared by burning sulphur in the open air. It has the well-known odor of burning sulphur. Sulphurous acid is a powerful deoxidizing reagent, and is powerfully destructive of vegetable life. Applied to the skin it causes some reddening; and if any vegetable parasite is present, as is not unfrequently the case in skin disease, it is destroyed. Hence arises its value in such maladies. Internally, if there is any tendency to fermentation, and if fungi are present in the stomach, it does great good. Used as spray in certain forms of sore throat, sulphurous acid is also of great use. It may be freely applied, and subsequently used somewhat diluted as a gargle. Sulphates and hydro-sulphates, especially of soda, are frequently given internally in its stead.

Glycerite of Sulphur ozonized.—This combination of sulphur with ozone possesses most remarkable, energetic germicidal properties, so much so that when administered internally it is most destructive to all microbes in the blood and tissues.

Its use is specially indicated in diphtheria, hooping-cough, cerebro-spinal meningitis, small-pox, scarlet fever, erysipelas, rheumatism, etc., whenever disease germs are present in the vitiated secretions of the body.

To the streptococcus of diphtheria it is a decided specific, killing and sterilizing the germ and its micrococci.

Dose: From one-half to one teaspoonful to be taken every hour or more frequent. The dose varies with the age of the patient and the intensity of germ development. As microbes are

killed off or sterilized, which will be known by the amelioration of symptoms, the size and frequency of dose should be gradually less.

Comp. Sulphur Lozenges Ozonized.—(1.) The results obtained from large clinical practice are derived from the administration of very small doses of sulphur continued for a lengthened period of time, the dose being much smaller than those hitherto employed, often not exceeding five grains each day, and the time of exhibition much longer, namely: weeks, months, and in some cases, years. (2.) A lozenge named the Compound Sulphur Lozenge, containing five grains of sulphur, and one of cream of tartar, was usually prescribed, as being very convenient, and by no means unpleasant in taste, and it was found that patients could be readily induced to persevere in using them for an almost indefinite time. (3.) The physiological effects of these minute doses of sulphur are observed upon the alimentary canal and the organs connected with it, also on the pulmonary mucous membrane and the skin. (4.) Sulphur is not an element foreign to the system, as it is contained in the most important proximate principles of the blood and flesh, and likewise of the bile and saliva. Dose: one or two at bed-time.



The Bacillus of sulphur water.

Sulphur water, has been recognized as a valuable germicide, disinfectant and parasiticide. As a local remedy in all skin affection it is unexcelled, being inimical to all microbe existence. It is essentially destructive to the micro-organisms present in malignant and sore throat, scarlet fever, laryngeal diphtheria, croup, influenza, tonsillitis, either internally or locally applied; while in typhoid and other fevers, by its use, we diminish both their

severity and duration.

☐ Recognizing its potent germicidal action upon nearly every form of microscopic life, it has a most extensive range of action,

If administered in gastric catarrh (*sarcinæ ventriculi*), it effectually kills the fungus or microbe, provided fluids entering the stomach are limited. Concentration of fluids hinder, and dilution favors the growth of the *sarcinæ*. Because dilution favors movement of molecules, hence promotes the catalytic action of the germ.

Concentration of fluids retard mobility; all germs in a state of activity are endowed with motion; whatever hinders motion retards germ evolution.

The hybrid microbe of tuberculæ in all forms of lupus is paralyzed in the presence of sulphur water, nay, further, it is rendered incapable of existence.

In all cryptogamic affections of the skin, as the different forms of tenia; as well as in those obstinate squamous forms lepra, psoriasis, it is of the greatest efficacy.

Even in those giant forms of microbial disease, syphilis, cancer, tubercle, its occasional use is of great service.

Besides its innate germicidal properties, it has a powerful stimulating action upon the powers of life.

In the preparation of sulphur water, before and after it is ozonized, there is a remarkable bacillus found in it and the more numerous they are, in it, the more energetic it is as a microbicide.

The leading physician in Wilmington, Delaware, speaking of sulphur water in the treatment of epidemic typhoid fever which is so common in that city, says: "Nearly all the physicians made use of sulphur water in alternation with an infusion of kaki. All were much impressed with the success of the remedies. During their administration, heat, respirations and pulse were lowered and the onward progress of definite germ evolution cut short.

All were well marked, typical cases of typhoid. The sulphur water was administered in half teaspoonful doses every hour or two hours in water. It is assimilated rapidly, improvement is progressive, the growth, sprouting, or multiplication of the germ is checked by its germicide action. The drink, infusion of kaki, as well as the sulphur water, should be continued to convalescence."

By the use of germicides in typhoid we stamp out its very existence, and its formidable sequelæ, besides saving the patient and sterilizing his blood. No nurse, no washerwoman, no dear friend can suffer from the performance of their duties, as the *contagium vicium* is wiped out.

The mother tincture
Sumach. of the green leaves and ripe berries of this simple herb are most powerful germicides, and also parasitocides. It has the potency of killing the cryptogamic growths which embrace the entire family of *inea*, and thus cures those obstinate skin affections; it is destructive to the bacteria of boils and erysipelas, and to the vibrios of nervous affections; hence its utility in cases of paralysis, amaurosis, chronic rheumatism.



Sumach.

The dried leaves and berries, ground, made into a decoction, sweetened, make an excellent drink in fevers; lower heat, pulse, and diminish the respirations by annihilating the germ, the *contagium vivum*; useful also in all forms of aphthæ, as it destroys the *oidium albicans* on the tongue, gums, lips; especially useful if the germ is active, as will be seen by the diffused redness of the parts.

Sumbul,
(*Musk Root*), is the root of a plant growing somewhere in Central Asia. It reaches us mostly by way of Russia, partly also by way of Bombay. Its odor resembles that of musk, and at one time was supposed likely to become a valuable remedy. Subsequent experience has confirmed this view, and it is now regarded the standard remedy in epileptic attacks.

The peculiar character of the ozonized fluid extract renders it a most invaluable preparation of immense utility in both chorea and epilepsy if they are in any way associated with disease germs.

Dose: One teaspoonful every three hours or more frequent.

Thomas L. Barnes, M. D., of Jamestown, N. Y., who is an authority on epilepsy, says: "Musk root, ozonized extract, is

our best remedy in epilepsy; its prolonged use is curative; at first diminishes the force and frequency of the convulsive seizures, and latterly obliterating the pathological condition. In order to cleanse the blood of all microbes; while administering the musk root, it is invariably a good plan to alternate it with small doses of ozone water; later on, avena or glycerite of kephaline."



Calamus.

A tincture of the
Sweet Flag. root of the *acorus calamus* is a carminative, stimulant, diaphoretic, tonic, alterative and antiseptic. It forms a very valuable adjunct to all prescriptions, such as the following:

Fluid extract saw palmetto, three ounces; fluid extract damiana, one ounce; fluid extract nuxvomica, one drachm; fluid extract calamus, one ounce.

Mix. Dose: Half a tablespoonful every four hours, added to water. Excellent in genital debility.

Fluid extract bayberry, three ounces; fluid extract calamus, one ounce.

Mix. Dose: One teaspoonful every four hours, added to warm water. Of great efficacy in intestinal catarrh.

This remedy has acquired quite a reputation as an alterative. Next to the comp. saxifraga, it is excellent, prepared as follows: Tag alder, yellow dock, bittersweet, comfrey, dandelion—of each two pounds.; mandrake, blue flag, of each one pound.

Let all the herbs be good and fresh. (1) Then grind fine and mix the articles together; place the whole twelve pounds in a convenient vessel, cover them with alcohol of 76 per cent and macerate for four weeks.

Then transfer the whole to a displacement apparatus, and gradually add alcohol, until five pints of the alcoholic tincture has been obtained, which retain and set aside. (2) Then continue the percolation with water as long as it exhibits a sensible amount of medicinal properties with an alcoholic taste. (3) Continue the displacement with water until it has no taste. Boil down these two solutions (all except the alcoholic tincture), so that it will make thirty-two pints. (4) To these two solutions combined, add thirty-two pounds of refined sugar and dissolve it by heat, carefully removing any scum which arises as it comes to the point of boiling; and if it exceeds thirty-six pints, evaporate to that quantity with constant stirring. Then remove from the fire, and when nearly cold add the four pints of reserved alcoholic tincture. To the above, when it cools, add two ounces of the chlorate of carbon. It is then ready for use.



Alder Tree.

A valuable diuretic, tonic, stimulant and parasiticide. The whole plant possesses strong antiseptic properties, the pulverized flowers being the part generally used. In suppression of urine, due to the presence of



Tansy.
(*Tanacetum vulgare.*)

The ozonized turpentine for peritonitis has no equal as a local ozone generator.

Spirits of turpentine applied externally, or administered internally, is a great ozone generator—germicide.

There is no organic body that can absorb so much chemically pure ozone gas and retain it as turpentine. There is no physician that should be without this agent. It should be incorporated in all poultices where there is no breach of continuity, to destroy disease germs, and as a local stimulant it is never-failing in its action.

Ozonized turpentine excels in therapeutic power, tartar emetic ointment in peritonitis.

Ozonized Tar Syrup.—This is one of those medicaments concerning whose curative powers all physicians, irrespective of school, are in full agreement. Its action upon all microbes is direct and decided—either in

micro-organism and funguses in the bladder, it is of great utility.

It is a drug extremely destructive to worms, especially the lumbricoides; but its use must be carefully guarded, as it is an irritant narcotic.

The microbicide action of the oil of tansy in parasite affections of the skin is too much overlooked. Its addition to ozone ointment makes it an efficient remedy in all forms of tinea.

The pine tree in all its different species, and in every country on the globe, is a great natural ozone generator. The tree itself, and its oils, extracts, resins, all liberate ozone in great abundance.



Pine.

destroying or sterilizing them. All preparations of tar, such as antipyrine, antifebrine, kairine, thallin are stable, easily assimilable, do their work promptly, and are reliable, effective preparations—can be used with precision, and nothing can excel them in practical utility in a very large percentage of all diseases.

Recent modern pathological discoveries have suggested its more extended use, on etiological grounds, based upon its action, a pure ozone-generating germicide with a clearly defined action peculiar to itself.

The present era in the history of medicine will, as some one has aptly expressed it, be known as the antiseptic or germicide epoch, and experimental therapeutists everywhere are employed in starting "cultures" and testing the anti-microbe power of the articles of our *Materia Medica*. Not satisfied with these, however, investigators go still further, and attempt to discover not only the drugs which are active, but those whose effects are virtually negative. An example of this is well represented by a recent article from the pen of that brilliant author and scientist, *Enoch Mather, M. D.*, of England, in which he calls attention to the effect of the oil of turpentine on germs of various kinds. His method consisted of taking fresh colonies of the micrococcus prodigiosus and staphylococcus aureus. The vessels used were carefully sterilized, and agar-agar and gelatine were used as culture beds. After some hours, oil of turpentine was applied, and its effects on the life and growth of the germs noted. Under these circumstances it was soon evident that the turpentine, unless applied in large amounts and for a considerable time, produced no effect of sufficient force to enable one to use the drug in ordinary everyday life for the purposes of antiseptics. Its irritant properties, when concentrated, and its loss of the little retarding power which it possesses on micro-organisms, as regards their growth, on dilution, exclude it from use on the tissues of the patient, and confine its sphere of value to the instruments employed. Certainly, from our present knowledge of the drug, we may rest assured that it is only proper to use it as an antiseptic when nothing better can be obtained.

Distillation of the needles of the pine tree, highly ozonized, is decidedly an efficient bactericide. The needles of the pine tree, teeming with natural ozone, has yielded up its properties to the resources of modern chemistry. Its powerful vitalizing and germicidal principle has been isolated from the highly ozoniferous buds, young shoots and needles, suitable for internal administration. This elegant preparation has been distilled with the greatest care, so that its rich ozoniferous principle is preserved.

An eminent practitioner, *J. A. Hendricks, M. D.*, Summer

Hill, Pa., in speaking of this distillation, says: "It is a clear ethereal liquid, carefully distilled from the American pine, very fragrant, a powerful bactericide; it is administered internally by dropping it on sugar; used as an inhalant in pulmonary tuberculosis; for frictions and massage. It does not irritate; a valuable remedy in microbial diseases."

Equal parts of white rosin, sulphur and cream of tartar. Mix. Dose: One tablespoonful in some jelly is a great intestinal disinfectant.

Terebene.—Pure terebene is strongly recommended in "winter cough," chronic bronchitis, emphysema, phthisis, bronchorrh, etc.; in those cases aggravated with a dyspeptic element it controls the complication at once. It checks the formation of flatus so quickly, and is so efficacious in expelling any that may remain in the stomach or intestines, that I constantly employ it in cases of dyspepsia when flatulence is a prominent symptom. Patients like it, and often continue taking it for months or years. It acts as an antiseptic, probably much in the same way as glycerine, oil of cajeput and oil of eucalyptus. I am surprised that it has not come more largely into use in the treatment of flatulence. Pure terebene is of such value in winter cough that I rarely experience the necessity of resorting to other remedies. It is a powerful expectorant, and if inhaled the first thing in the morning, when the mucous membranes are covered with thick viscid secretion, will give very great relief. Pure terebene is a valuable remedy, and will in time come largely into use.

Terebene is pleasant to take, and has the agreeable odor of fresh-sawn pine. The dose is ten drops on a piece of sugar three or four times a day. It is so effective that its remedial value is apparent in a day or two.

Dose: Fifteen to thirty drops during the course of the day. As it does not mix with water, five or ten drops can be dropped on sugar at proper intervals.

C. Collin, M. D., Middletown, New York, an eminent and leading bacteriologist, in his essay on the subject, says that he has used terebene for seven years, both internally and as an inhalant in phthisis, bronchiectasis, chronic bronchitis, and other pulmonary complaints characterized by profuse purulent expectoration. "In cases where the trouble has not been of long standing, and the symptoms are slight cough, more especially at night; expectoration moderate in quantity and easily voided; no feeling of rawness in the chest, and little or no disturbance of the general health, I consider that pure terebene is almost to be ranked as a specific, so quickly is a cure effected."

Terpin Hydrate.—Colorless, inodorous, rhombic crystals,

soluble in hot water, alcohol, chloroform and ether; of neutral reaction.

A bactericide of great power, used with great success in all microbial disorders of the respiratory organs, kidneys and nervous system.

Terpin hydrate covers all that class of cases in which turpentine used to be prescribed. Dose: Two grains every three hours. Specific for bronchitis.

Dr. Collin also speaks highly of terpin hydrate. He gives the case of a lady suffering from obstinate bronchitis, and says: "After two doses (of three grains each) there was already an amelioration in my patient's condition; the cough began to loosen; expectoration became free and easy in consequence of elimination by the bronchial mucous membrane; the skin became soft, moist and natural on palpation; and there was a marked diminution in the bronchial whistling and râles." In another case—one of catarrhal congestion of the larger bronchi—treated as in the preceding case, "there was a notable decrease of the mucous râles *ab initio*, and normal vesicular murmur could be distinctly heard in a very few days after." Other cases, such as nasal and pharyngo-laryngeal catarrh from cold, have been treated with equal success. In night cough from habit, two grains of hydrate of terpin exhibited at bedtime had a good effect.

Terpinol is prepared from terpin, used in diseases of the bladder, and by rectal injection in the same class of diseases

A very highly ozonized cerate or ointment is prepared from the needles, which is one of the most healing agents in the *Materia Medica*. It is an ointment which, being prepared with very great care and skill, is pharmaceutically perfect. It possesses the curative and antiseptic properties of the pine essence in a form suitable for toilet requisite, or as a soothing and healing application to excoriated and irritated surfaces. Its efficacy in obstinate cases of eczema is testified to by hundreds of unsolicited testimonials from medical men. As an application to ulcers and raw or weeping surfaces generally it is probably without a rival.

It is highly spoken of as an adjunct to the massage treatment, lubricating the skin and facilitating the necessary manipulation.

Pine ointment is always well received by patients on account of its agreeable odor.

All preparations of the pine tree may be utilized for inhalation; they are valuable microbicides in bronchitis, pulmonary tuberculosis, asthma, catarrh. Valuable remedies to sterilize the blood.

is an antipyretic and germicide of rare value. It is generally employed in the form of a sulphate or tartrate, both of which occur in the form of white crystalline powder, possessing an aromatic taste and odor, and readily soluble in wine or water.

A very small dose causes a marked reduction in temperature, lasting several hours. It is adapted to all ages and degrees of strength, may be administered in syrup of *prunus virg.* The urine of all individuals taking thallin assumes a green or brown yellow tint.

Thallin, either in the form of an injection, or, better still, incorporated into a gelatine bougie and inserted into the urethra laden with the gonococcus of gonorrhoea, annihilates it at once. One application effects in a few minutes what requires weeks, often months, to cure. By means of these bougies the remedy is carried to the farthest part of the urethra; the germicide mass adheres to the germ-laden urethra, slowly dissolves, and by uninterrupted and immediate contact with the germs destroys them most effectually.

Thallin, combined with papoid, has proved itself efficient in digesting cancers.



The Tea Plant.

An alkaloid analogous to caffeine, of weak basic properties, variable quantities, being found in different grades of tea, two to four per cent. in ordinary qualities; very rarely does it exceed six per cent. in the best grades.

The physiological action of theine is it diminishes waste or disintegration of all the tissues of the body; under its administration metamorphosis is lessened, vital force increased.

The use of tea is prejudicial to every young or middle-aged American; in some cases it is beneficial to the old or infirm, but never to people in ordinary health. The frequent use of strong tea in a highly oxygenized atmosphere like ours leads to utter destruction of bodily and mental vigor. The important alkaloid in tea is caffeine, which is the highly-nitrogenized crystalline principle, occurring in colorless silky needles. Caffeine is a stimulant of the medulla and cardiac centres.

quickens the pulse and respiration, and raises the blood-pressure when given in moderate doses. The effects of caffeine "are identical with those of digitalis; slowing of the heart pulsation; augmentation of its force of contraction; diuresis; no nauseous effects; no cumulative action. This drug, therefore, does not necessitate an incessant watchfulness. You can employ it in cardiac cases where the kidneys are affected." As to mode of administration. Pure caffeine is soluble in from eighty to one hundred parts of water; its solubility is increased by acids. I have generally employed the citrate, which is freely soluble. It has been objected that it is a doubtful salt, but this objection is of small importance if the proportions of caffeine and citric acid used in its manufacture are definite, the only important function of the acid being to render the salt easy of solution. I employ it in from three-grain to five-grain doses, dissolved in the ordinary saline mixture; diluted liq. ammonia acetatis. The dose is generally administered three times in the day, but in some cases once only. Instead of the citrate, the pure caffeine may be employed dissolved in solutions of benzoate or salicylate of sodium: in these it dissolves freely, and thus a concentrated solution may be made for hypodermic injection. The following is a good formula for internal administration: Pure caffeine and benzoate of sodium, of each one drachm; distilled water, six fluid ounces. Half an ounce contains five grains of pure caffeine.

A camphoraceous, powerful bactericide, derived from the oil and resin of various plants of the thyme family. The thymus serpyllum of America and Europe and the ptychotis ajowan of India, yield this principle in greatest abundance.

The germicidal properties of the oil and camphor of thyme are equal if not superior to carbolic acid, creosote, peppermint.

As a bactericide, it has an extensive field of action; its use in all fevers quietens the pulse, lowers temperature by killing the germ, the factor of the disease; its use sterilizes the sarcinæ of dyspepsia, the microbe of diarrhea and dysentery; locally, in skin affections, it is equal to resorcin, ichthyol, creolin, naphthaline; dissolved in alcohol and applied to rheumatic germ-laden joints, it instantly kills the amylobacta, and relief is immediate.



Thymus Serpyllum.

Compound thymol jelly, an infallible bactericide as a dressing for wounds, ulcers, most valuable in scarlet fever, small-pox, and all other contagious diseases.

As a disinfectant for the hands, this jelly excels in bactericide power, all known remedies. An elegant agent in obstetrical practice, and bound to come into very general use by all.



Couch Grass.

From among the class **Triticum Repens.** of remedies designated astringent diuretics, there is none that can compare with couch grass; its action upon the kidneys and bladder is much more efficient than buchu, uva ursi, queen of the meadow, pipsissewa.

In papilloma of the bladder, with frequent micturition, it rarely fails to afford immediate relief, and in alternation with the oil of thuja, is essentially curative.

It is to this remedy, combined with the pichi, that the uric acid solvent owes its most valuable properties.

This is the **Tobacco.** most powerful antispasmodic, sedative, and germ sterilizer in the *Materia Medica*. Its good and bad effects may be briefly enumerated: In either smoking or chewing, there is no doubt whatever, that its moderate daily use discharges the salivary glands of the mouth of all disease germs which may have deposited themselves in that region, or sterilizes those factors of disease; it has a most disastrous depressing action upon the heart muscles, causing cardiac failure; its use paralyzes the base of the brain, impairing the cerebral faculty of speech, giving rise to vertigo, amaurosis, color-blindness, faintness, prostration. In the draining of and vitiating the saliva, it gives rise to indigestion; it prevents salivary secretion, and the continual blunting of the gustatory nerves, which is the predisposing cause of cancer of the tongue.



Virginian Tobacco.
(*Nicotiana tabacum.*)

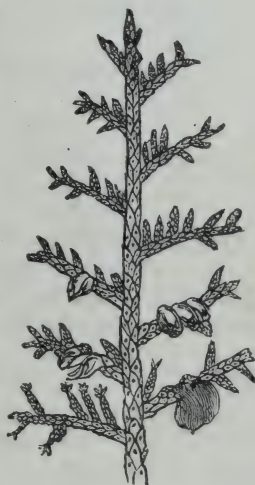
cause of cancer of

Tobacco smoke prevents the development of some micro-organisms, and retards or sterilizes others.

Nicotine ($C_{20}H_{14}N_2$) is one of the natural volatile oily bases destitute of oxygen, and constitutes the active principle of the tobacco plant, in the leaves, roots, and seeds of which it occurs in combination with malic and citric acids. It is likewise contained in the smoke of the burning leaves. It is a colorless, intensely poisonous liquid, of specific gravity 1.027 at 66° , which boils at 480° ; evolves a very irritating odor of tobacco, especially on the application of heat, is very inflammable, and burns with a smoky flame. It is moderately soluble in water, and dissolves readily in alcohol and ether. If exposed to the air, it absorbs oxygen, and becomes brown, and ultimately solid. The quantity of nicotine in tobacco varies from two to eight per cent.; the coarser kinds containing the larger quantity, while the best Havannah cigars seldom contain more than two per cent, and often less.

or arbor vitæ,
Thuja Occidentalis, a highly ozoniferous tree, yields a peculiar balsamic resin, which has an agreeable smell and high germicidal properties. The fluid extract retains all those properties in a high degree, but the ozonized oil is extremely powerful. It has a specially destructive action upon the micrococci of warts of all kinds, and its use in those affections entirely obviates the practice of burning with chromic acid or any other caustic. It is quite immaterial what the kind of wart may be, venereal warts, single or double, or in masses, or those upon the hand, all wither and die the moment it is brushed over them—it kills the spores or germs in all cases. Large masses of venereal warts in the vagina disappear after half a dozen applications of this remedy. It is a good practice to administer it internally, as well as apply it locally. The dose is from twenty to thirty drops in water thrice daily.

The arbor vitæ, fluid extract, in six to ten drops, more or less, is destructive also to the microbe of variola. It should be administered every two or three hours in water. Commence the moment the diagnosis is made.



Arbor Vitæ.

Thuja is one of our best remedies in chronic inflammation of the pharyngeal mucous membrane, especially if dark colored.



Tulip Tree.

The bark of this beautiful tree yields a bitter antiseptic aromatic, and a glucoside tulipine, which a few years ago was quite extensively used for Peruvian bark.

More recently tulipine has been used in the uric acid diathesis and rheumatism instead of colchicum, and with marvellous success. This is accounted for by its action on the liver; the latter organ being the chief one concerned in the formation of urea. The tissues in their oxidation or disintegration contribute but little. The chief source is the red blood cells, which are broken up in the liver; the coloring matter goes to form bile and urea.

The glucoside is definite and positive in its action.

The nitrate of uranium is of utility in diabetes.
Uranium. Dose: One-sixth to one-half grain every three hours.

Urethan. From fifteen to twenty grains seldom fail in producing the most profound refreshing sleep.

This is one of the best of the astringent diuretics. Its specific action is upon the genito-urinary tract as a vitalizer, a bracing tonic. It is an antilithic, very serviceable in all forms of gravel, dissolving and washing away from the kidneys and bladder small concretions. It is of great utility in chronic



Uva Ursi.

nephritis and diabetes; of great efficacy in enlarged prostate with continence or incontinence of urine; and of appreciable value in

gleet and leucorrhœal discharges. So energizing on the genital organs of the female is the remedy, that many physicians use it in labor to induce stronger, more active uterine contractions. A crystalline principle is extracted from the leaves, termed "arbutin," which has a bitter taste, and when placed under the influence of dilute acids, separates into glucose and hydrochinon. It is soluble in warm water.

Arbutin is considered a valuable astringent diuretic, and has all the properties of the uva ursi in an increased degree—positive, definite in action in restoring tone to the bladder and kidneys. The dose of the arbutin is from thirty to sixty grains.

The root imparts its properties to water, alcohol and ammonia. It owes its medicinal properties to a volatile oil and valerianic acid. It is of great efficacy in all conditions of reflex irritation, in anæmia of the brain or cord, as witnessed in the widespread state of melancholia, incidental to neurasthenia or nerve exhaustion. In this affection the triple valerianates operates like a charm, as in the following: Valerianate of quinine, of zinc, of iron, of each twenty grains. Make twenty pills; one every three hours.

The American valerian is equal, if not superior to the European. It is free from the disagreeable odor of the latter; very soothing, allays pain, promotes sleep. The so-called cypripedin is an inert, worthless preparation.

The recent importation of a so-called glucoside of valerian from a German house is also of no therapeutic value whatever.



Valerian.

American hellebore, in the form of a **Veratrum Viride**. tincture, administered in all fevers and inflammations, was the most powerful cardiac and cerebral sedative in the *Materia Medica*. It was of special utility in inflammation of the brain and lungs. Modern scientists have entirely superseded the use of *veratrum viride* in the practice of medicine by the discovery of such rare remedies as antipyrine, antifebrine, kairine, thallin—remedies definite in



Veratrum Viride.

able as a bactericide in all lung, kidney, and bladder affections.

The fluid extract has the same properties.

As the plant is extremely succulent, it yields by expression a large quantity of juice, which in its fresh state is a remarkable efficient alterative. When administered in this state it completely annihilates the bacillus of syphilis and leprosy.

Vervain, a most excellent bactericide, also sudorific, tonic, expectorant, diaphoretic, and in large doses emetic.

The juice of the green plant is as effective in expelling tape worm as the tannate pellelerin. It is an excellent drug in all the eruptive fevers. A few drops of the fluid extract added to warm water, make a most excellent drink; by its sterilizing action on the germs, it lowers heat, diminishes respiration and pulse.

Vervain, an invaluable germicide, having a very wide range of action, being of great utility, both locally and internally—in the former to wounds, bruises, ulcers, up to even the aggravated

their action, positive in their effects, will lower heat, pulse, respiration, and hold the position gained for several hours in succession. Much more efficient in ameliorating suffering and curing disease than veratrum viride, each and all of them being potent active germicides.

The veratrum viride is a valuable germicide, but as a local remedy in erysipelas is entirely superseded by the ozonized boroglyceride, still it is a most valuable local remedy to the throat in diphtheria.

A glucoside
Veronica has been re-
Beccabunga. cently extract-
(*Brooklime.*) ed from this
plant, which
has proved itself to be inval-



Brooklime



Vervain.

another half an ounce; no drink must be allowed, not a drop, as it is a pabulum for the germ. The formula for this tincture is: aloes soc. one pound; rhubarb, angelica fruit, confection of demacratia, of each four ounces; elecampane, saffron, fennel, prepared chalk, of each two ounces; gentian, zedoary, cubebs, myrrh, camphor, agaric, of each one ounce. Digest the whole in five hundred ounces of alcohol for fourteen days, then percolate, after which ten ounces of quinine is added and dissolved. Dose: half an ounce undiluted, every three hours.

forms of snake bites; in the latter to malarial fever, disorders of the stomach and bowels, and urinary organs.

For Malarial Fevers.—Fluid extract vervain and concentrated tincture of kurchicine of each two ounces. Mix. One teaspoonful every three hours.

Fluid extract vervain, two ounces; fluid extract stone crop, three ounces; fluid extract leptandra, one ounce. Mix. One teaspoonful every three hours in gastric debility and intestinal catarrh.

Fluid extract vervain, one ounce; uric acid solvent, three ounces. One teaspoonful every four hours; good in all bladder and kidney trouble.

Indicated in malaria; its administration must be preceded by a purge; then three hours before the chill, half an ounce; prior to the chill

Warburg's Tincture.



Water Plantain.

Water Plantain.—The leaves in the green state are highly germicidal and, applied to engorged lymphatic glands, sterilize

or kill the microbes, and thus relieve the engorgement. A tincture prepared from the green root is of utility in intestinal catarrh, it being destructive to both the gastric and intestinal sarcinæ.

Witch Hazel
(*Hamamelis Virginica*),



Witch Hazel.

an indigenous shrub, from five to fifteen feet high, growing usually on hills and stony places, flowers late in September, bears a fruit, a nut-like capsule, like a hazel nut. The bark has a bitter, sweetish astringent taste. Marvellous results have been obtained from a distillation of the bark, leaves, and twigs; ten parts of them to a mixture of ten of alcohol and ninety of water. All parts of this shrub possess similar properties. Of great efficacy in all hemorrhages, from lungs, stomach and bowels; a splendid remedy in all rectal affections prepared from equal parts of witch hazel, white oak bark and apple tree, in ointment form. An infusion is often valuable in incipient phthisis.

This famous remedy, as an astringent and antiseptic, has acquired great and deserving repute in all diseases dependent upon a relaxed or devitalized condition of the mucous membrane of nose, vagina, uterus, bladder, and rectum. As a topical application it destroys germs and promotes healing; it makes an excellent wash for sore mouth, ophthalmia, or rectal fissure, or ulcer;

of rare value in the radical cure of all varicose veins, whether they be on the extremities or be varicocele, or piles, etc. The internal and local use of the remedy is indicated in all diseases of veins and mucous membrane, and in those it effects a cure in the most stubborn cases.

The leaves are the part used; a tincture or fluid extract administered has a well marked influence upon the digestive organs, increasing the appetite, promoting assimilation. It is also of great value in hepatic torpor and in all states of debility dependent upon imperfect digestion or debility of the stomach.

It is an anthelmintic, being antagonistic to the lumbricoides and ascarides. Fluid extract wormwood, fluid extract collinsonia, of each two ounces; fluid extract nux vomica, tincture capsicum, of each two drachms.

Mix. From a half to one teaspoonful before meals. Invaluable in indigestion and torpidity of the liver.



Worm-seed.

Fluid Extract of the Black Willow. (*Salix Nigra*),



The Black Willow (*Salix Nigra*).
The great sexual sedative.

The properties of the black willow bark are tonic, carminative, stimulant, sedative, anaphrodisiac, astringent, germicide. Its special properties in both sexes are a powerful sexual sedative—of very decided value in prostaticorrhea and spermatorrhea—used with marked benefit in all cases of nocturnal emissions, or seminal losses. Its action is very similar to that of the bromides, without their depressing or debilitating properties.

By its peculiar sedative and astringent action, it arrests seminal emissions entirely, but it does not, in any way, diminish virile power or passion.

Its action is direct upon the genito-urinary organs, upon which it exercises a benign influence, so much so that menstrual pain

and uterine irritability are entirely relieved with it; ovarian hyperæsthesia overcome. No case of failure when it is used; it always brings about speedy and lasting relief.

It is indicated specially in spermatorrhea and prostaticorrhea whenever the seminal or ejaculatory ducts have lost their tone in all leakages.

Dose: From a half to one teaspoonful of salix nigra should be taken thrice daily.

One of England's most celebrated physicians and a specialist in genito-urinary diseases, *E. Mather, M. D.*, of Masbro, Rotherham, says of the black willow:

"A sexual sedative of the highest order, administered in from half to one drachm doses, three times a day, exceeds in therapeutic power the action of the green root tincture of gelsemium and the bromides combined, without any deleterious effect whatever.

In nocturnal emissions of our drained-out young men, the drug is used with the most marked benefit. The pollutions cease entirely, virile power and passion are not in the least diminished."

Xanthoxylum.



Xanthoxylum Fraxineum.

The prickly ash is a low deciduous tree common from Canada to Virginia. It is in high repute, both as a diffusible stimulant, as a diaphoretic, diuretic and antiseptic. Both bark and berries are used. It sterilizes the sarcinæ, vitalizes the stomach; has a most decided action on the gonococcus in the urethra, and if its use is persisted in the micro-organism will disappear.

Of utility in flatulent colic; cholera morbus; Asiatic cholera; tympanitis and chronic disease of the mucous membrane.

Xanthoxylum frax. is a powerful vasomotor stimulant. It slows the heart beats and strengthens them in a remarkable manner. Its action is not confined to the vasomotor centre, but extends to the cardiac also. It seems to regulate the rhythm of a feeble heart as much through the pressor nerve. It acts well in adynamic fevers, etc., when the heart beats are fast, weak, and the rhythm irregular. Its value in some forms of dropsy, especially that originating in heart weakness and attended with passive hepatic engorgements, is often remarkable and when combined with collinsonia does excellent service.

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