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IMMUNITY AND PREVENTIVE MEDICINE.

BY

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It is scarcely four-score years since a suspicion of the bacterial causation of disease dawned on medical investigators. To-day the science of Bacteriology has already made a brilliant progress, and, because of this advance of knowledge, we conclude that there is a great deal more to come which is as yet unrevealed. But with this enlightenment has also come an improvement in the methods of healing. These improved methods of healing include not only the restoring to the normal of nature that has gone astray, as it were, but—what is of equal, if not of greater importance—the anticipation, or prevention, of nature's subsequent deviation from the path of normality. Up to the time that bacterial existence was surmised medical treatment, especially in the various infections, was almost purely empirical. As the study of germs progressed the causes of the various contagious and infectious diseases were gradually unearthed.

Lord Lister was the first to discover the bacterial causation of infection through wounds. This was really the starting-point of the true study and application of prevention in the infections. And thus the discovery of the exciting, or microbic, cause of disease supplied the missing link to what is our present system of Rational Medicine.

Now, the main aim of Medicine, as a science, is the alleviation of pain, the elimination of sufferings, and the curing of diseases. But, wherever possible, it should also be the purpose of medical study to prevent the setting in of such diseases, the subsequent sufferings, and the accompanying pain. The cure of smallpox is now possible. But the prevention of the disease is also possible, and, indeed, practised. Cancer—the dreaded *opprobrium medicorum*—is as much as possible, cured. It is cured empirically, and always by means of the knife. But the preventive cure is unknown. Why? Why is it that small-pox or

diphtheria or tetanus can be prevented, and that cancer cannot? To answer this question let us examine the course of any disease, such as diphtheria, before the anti-toxic treatment was discovered. The symptoms used to be noticed over and over again; the unfortunate results have been witnessed not infrequently; the predisposing causes were to a certain extent also known. But the exciting and most important cause, used to be a total mystery. But now we know that diphtheria is the result of the toxic action of certain complex chemical substances. These substances are the products of certain specific, minute, living organisms present in the diphtheritic membrane. These organisms are so minute that they require a magnifying power of about one thousand in order to distinguish them—slender, rod-shaped forms about 1-5000 inch long. And, since we have the whole chain complete, the way is clearer for the discovery of a preventive cure for diphtheria. In fact, the preventive of diphtheria is now known and made use of, so that even if the diphtheria bacilli do enter the body, the action of their toxins is counteracted, and their growth inhibited. Therefore, it can be understood, in the case of cancer, that since we are as yet ignorant of the true exciting cause, a priori it is impossible, if we are at all to argue rationally, to search for an immunising agent before finding out the cause. At present there are investigations on foot towards the discovery of the exact cause and nature of this dreaded disease.

But, in the meanwhile, why not observe the practical side of the motto, "What we have we'll hold?" There are a large number of infections the spread of which we have it in our power to anticipate, if only the right steps in the matter were taken. Of course, the power of the physician individually towards the prevention of infection of a whole community or of a town is quite limited. The only instruments practically that could, *with the guidance* of the physician, prevent the spread of disease, are three in number.

There is, first, the *individual* himself. The Hebrew Talmud says, Very often the sick person is the better physician than the doctor. The application is quite appropriate in this case. Each and every person should have a clear understanding of the means by which he may keep himself and his neighbours from contracting disease; and, if he is only willing to adhere to such principles, more good will be accomplished than if he follows blindly and imperfectly whatever the physician tells him to do, and of which he will, of course, have no comprehensive idea. The latter part of the paper—dealing with a special system of Preventive Medicine—will more clearly define the power of the individual in this respect.

There is, second, the *Municipal* agency. Every town should pass certain laws that shall pertain towards the protection of its inhabitants against infections. In this respect, such towns as Hamilton, in Ontario, deserve the eulogy of the Medical Science. By legally prohibiting anybody, under pain of prosecution, from expectorating on the ground within the city limits, the authorities have done a great deal to prevent the spread of tuberculosis of the lungs in their city. (Just lately a similar law has been passed in Montreal.) Similarly, a certain town in Germany has recently passed a law forbidding any women to wear long dresses when walking in the streets. For, as is well-known, one of the ways in which the tubercle bacilli are introduced into the dwelling, and thus attack the occupants, is by the trailing of long dresses in the dirt of the streets. Here, again, I cannot help mentioning the usefulness to a municipal government of enforcing such regulations as will be detailed in the part which deals with Preventive Medicine, pure and simple.

And, lastly, there is the *Central* Agency. I allude to the Public Health Department. The latter is, in fact, *the* powerful agency for the prevention of disease. The stringent system maintained in Germany has benefitted that country materially. In that land of learning all the schools both in city and country, are thoroughly inspected, and the children safeguarded as much as possible against disease. Now, it should be the duty of the Public Health Department to enforce a law which makes it compulsory that hygiene—in as elementary a form as possible, of course—be taught in all the public schools. Such a system is in force in Germany and in Austria. In those countries it is also compulsory for every child to attend school.

The printing of anti-tuberculosis circulars, and their distribution, has not accomplished half the purpose that they were intended for. Indeed, it is well known that, through carelessness and untidyness, youth is the innocent propagator of germs. And who would expect that the small boy or girl would abandon the storybook for the anti-tuberculous circular, unless it were one of the regular lessons at school? And, again, if the ordinary elementary principles of respiration, the circulation, etc., were made known to all the school-children, the number of adults, in future suffering from cardiac lesions, respiratory troubles, and circulatory disorders, would be greatly diminished. It is only too true that a certain proportion of these maladies are due to the inattention of the individuals, during their youth, to such matters as overtaxing their circulatory, respiratory, and muscular systems. Nor must it be forgotten that this inattention was primarily due to lack of informa-

tion as to whether their respective systems were competent to stand the running of a race, or as to whether the heart had the power to meet all the taxings of hard athletics, or not; and so on. It is true that exercise is beneficial; but everybody knows that there is a limit. The child, however, is unaware of this fact. Still more, certain individuals, in whom the heart or any other part of the circulatory system is incapable of maintaining equilibrium during exercise, are far from being benefitted by the same; on the contrary, they lose by it. These facts are quite undisputed, and they emphatically demonstrate the value of possessing a knowledge of certain facts; these facts including the means by which one can protect himself—if he is not already safe—or, on the other hand, the means by which one can ascertain as to whether he is secure or not.

Now, as Dr. Mills, in his book, on the voice, has said, practice and principle have been too widely separated. And, therefore, in this treatise, the object aimed at may be summarised as follows:

To impress the importance of—if not to recreate—the principle and practice combined of a number of nature's mechanical factors (reviewed in the study of Physiology) that shield the organism against non-microbial disorders, and, to a certain extent, against afflictions caused by germs.

To bring to the fore the Nucleinic Method of Immunisation against infections.

And last, but not least, to bring before the medical man's notice an actually existing system of *practical* hygiene; a system which has as yet not been universally recognised, but which after due and careful consideration would, I am sure, be acknowledged as good. It is a system that has been practised for the past three or four thousand years by a certain race. It is a system which has the advantage over *all* other systems that it can be followed by the most unintelligent laity. So simple, yet useful, is this system.

Before plunging into the essence of this dissertation, I may forewarn the reader that I have omitted most of the technical details concerning Immunity (against infections) proper. For, not only is there little room to give any satisfactory account of such an immense subject, which, in the words of Tennyson, is like—

“an arch wherethro’

Gleams that untravel'd world, whose margin fades

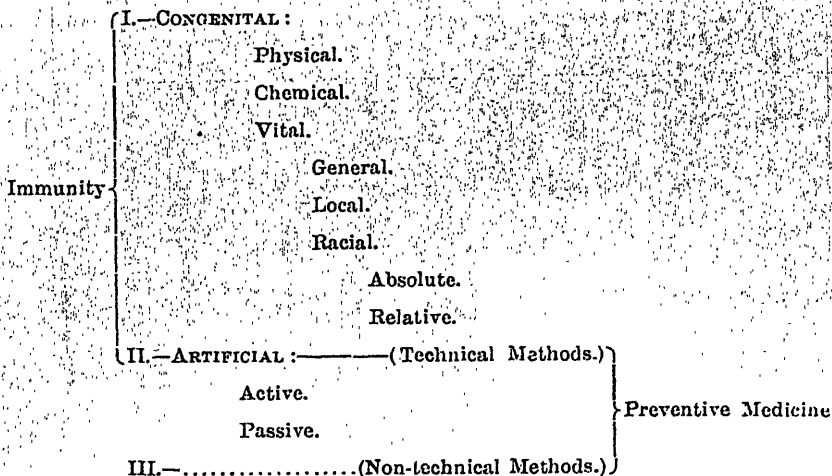
Forever and forever when I move,”

—but I would be committing the crime of reiteration. Indeed, these technical facts concerning Immunity are far better described in any

modern book on Bacteriology or on Pathology, than in any attempt of mine. And my purpose is to indicate not to teach. It will also be apparent that I am mainly confining myself to the historical side of this question. However, of modern teachings of Immunity, those that are of greatest importance will be considered also, but as briefly as possible.

Immunity may be defined, as that series of properties possessed by an organism, by virtue of which it is capable of withstanding deleterious actions and harmful influences. Immunity against the infective diseases has been defined by Metschnikoff, as the group of phenomena, by virtue of which an organism is able to resist the attack of the micro-organisms that produce these diseases. But, besides infective disorders, there are other complaints—minor and major—in which the disorder set up is caused by some mechanical or some chemical agencies, respectively. To counteract these various kinds of injurious actions, the body is endowed with certain properties, each of which meets the respective noxious influences in analogous ways.

The following is a summary in tabular form, of the construction of this paper:



By physical immunity is understood a knowledge, primarily, of the functions of the various systems—nervous, circulatory, etc. The simplest illustration is the fact that there are valves in the veins. Perhaps the value of this fact is not half realised until we meet with the uncomfortable affliction of varicose veins—when the valves, having been put out of order, do not inhibit the blood from stagnating back in the veins. Similarly, the existence of elastic fibres in the arteries acts as a natural immunity against over-distension and final rupture of these

vessels at each vigorous output of blood from the heart; such an immunity is sometimes beaten down, and we have the disease arteriosclerosis and also aneurysms—the latter of which very often lead to sudden death on the slightest exertion. Also, the compensatory functions of the heart to various conditions of the circulation is due to the nervous mechanism—both vagal and sympathetic—and is included in the list of protective means.

Another great defensive factor in the mechanism of the circulatory system exists in the arterioles, which are controlled by the vaso-motor centre in the bulb. And were it not for this caloric regulator, present in all homoiothermal animals, one would freeze to death when the atmospheric temperature happened to be a little below normal, or one would die as the result of excessive heat when the atmospheric temperature is a few degrees above the normal body-temperature.

Nor can one over-rate the advantageousness of the existence of auriculo-ventricular valves and of valves between the auricles and the large arteries; at the same time, the usefulness of the chordæ tendinæ, and the contractile powers of the muscoli papillares to which the latter are attached, must also be remembered.

The *involuntary* reflex closure of the glottis is of extraordinary importance in the prevention of the entrance of foreign bodies into the larynx—which would lead to choking and death. The elasticity of the skin serves as a great protection to the body. The value of this property is often taken advantage of by surgeons. For example, by the removal of a tumour of the breast or by excision of epithelioma of the lip or by excision of a large piece of scrotum in varicocele, a large piece of skin is necessarily removed. To make up for this deficiency, the surgeon pulls together the opposite sides of this exposed wound surface and sutures them, thus covering up the space left by the removal of the skin.

We now come to consider the question of Chemical Immunity. It must be remembered that the natural defences of the body are also partially composed of substances whose mode of action is chemical, as opposed to such whose mode of action is of a physical or of a vital nature. A very good illustration of what is meant by this form of immunity, is a factor which plays an important part in the protection of the individual. I allude to the clotting of blood. This is almost a purely chemical action. And, were it not for the clotting of blood, surgery, even of the slightest kind, would be dangerous. Unfortunately, the lack of this coagulating property of the blood exists in hæmophilics. But, very fortunately, hæmophilia is rare.

The system is guarded against bacterial invasion through the alimentary tract by the presence of hydrochloric acid in the gastric juice, and, it is said, that also the bile is antiseptic. The acidity of the urine prevents putrefactive processes in the bladder. The alkalinity of blood of the body to perform their oxidative processes. And, venous blood, on account of its greater alkalinity, is more germicidal than arterial blood.

Nor must we disregard the natural compensatory activities of the body as manifested in Diabetes. In the later stages of this systemic disorder—when acetonemia sets in—the blood becomes impregnated with poisonous acids. Now, the body compensates by producing less urea (proportional to the amount of urine) and more ammonia, instead. So that, as a result, we find the ammonia in the urine quite excessive. The natural self-preservative properties are also exemplified by the mucous membrane lining the alimentary tract and the various ducts that convey the digestive juices into the intestine. For the cells have been stimulated so as to naturally produce some chemical substance which indurates or immunises it against the digestive activity of the various juices with which it is in contact unintermittently.

The next subdivision, according to the classification presented above, is vital Immunity. By the word "vital," in Physiology, is meant a certain series of phenomena which take place in the living animal body. These phenomena we are able to observe, yet unable to specify their primary causation; they are spontaneous, yet we cannot artificially reproduce them, even with the most ingenious uses of chemicals and electricity at our disposal. Such a series of activities is constantly taking place, normally, for the purpose of protecting the body against disease. In the investigations that are made towards the solution of this mystic problem of "vital" activity, it has been found invariably that the nervous system—peripheral, intermediate, and central, but mainly the latter—plays the most conspicuous part in these activities. Pathology teaches us that the nerves supplying the various tissues, organs, and joints, contain (besides sensory, motor, and secretory fibres, respectively, also) so-called "trophic" filaments. In fact, the belief is held by some that even those filaments not designated as such, are to a certain extent "trophic" also. The word "trophic" as applied here, must not be understood as meaning nutritious only. The trophic influences have also a protective influence on the part supplied by the nerve. And, if anywhere along the line of this trophic nerve-system there be a lesion (due either to traumatism or to disease), then the trophic influences to the part are intercepted, sometimes wholly, sometimes partially, according to the degree of injury. This fact is

very important to remember. For, if the trophic influences to any part be deranged, the reduced defensive power of that part would render it susceptible to the attack of living or dead destructive agents. Thus, as already mentioned, above, the lining mucous membrane of stomach and intestines resists "auto-digestion," as it were, when its nerve-supply is unbroken. But, in Neurosis the trophic influences to this region are so interfered with that the hydrochloric acid and pepsin are able to exert their digestive activities and so produce, what is called gastric ulcer.

Another important fact well worth the reader's attention is the following:—In the lower animals, such as the dog, the rabbit, etc., it has been found that recovery from an operation on any part of the abdomen takes place within three or four days—five days at the outset. In man it takes at least three or four weeks—sometimes as long as six weeks—until health returns. Again, it has been shown that even when very little attention has been paid to the disinfection of a wound in the lower animals, no appreciable ill-effects result; in man, ninety-nine cases out of a hundred, septicemia (and often death) is the consequence. This is, in fact, a concrete case of the laws regarding Conservation of Energy. For, in man the mental power and the dexterity of actions are the most developed and pre-eminent; in the lower animals, however, this is almost altogether absent. Consequently, the difference is required by a more highly-developed *protective* nervous system which serves for the purpose of eliminating all noxious materials.

Next shall be considered (as briefly as possible) what is included under the heading of racial immunity. The latter refers to that specific congenital immunity (against the various infections) possessed by different species of animals. Thus, according to Lazarus Weyl, the chick is immune (even at birth) to the most virulent culture of the anthrax bacillus. Insusceptibility to the same infection is possessed also by frogs, rats and pigeons. Dogs are not attacked by the tubercle bacillus, nor rabbits by that of glanders. And all kinds of animals (excepting man) are congenitally insusceptible to measles, scarlet and typhoid fevers. And, since these immunities are congenital (as seen in the insusceptibility of the new-born chick to anthrax), therefore this racial form of immunity must be a property of the parent-cell.

Also the human species possesses natural resistance to certain disorders to which some of the lower animals are subject. But we can yet subdivide the human species into many races which possess varying immunities, yet they cannot be accounted for. But, just as habits, environment, and modes of living, bear an influence on any kind of heredity, so they may be said to bear an influence on the heredity of immunity

to infections. Thus, the Chinaman is immune to typhoid fever—not that typhoid is unknown in China. However, on inquiring into the habits of these people and their modes of living, the fact is laid open as to the most potent factor which tends to guard them against the disease. It is that for hundreds of generations back they have rarely used milk; and, similarly, have they abstained from eating vegetables, or if they did help themselves to the later they were always cooked beforehand. And it is now well-known that the typhoid bacillus can subsist for a very long time in vegetables; and milk is a good medium for its growth and multiplication. It may also be well to mention here that during the late South African war statistics compiled with regard to typhoid fever showed the following:—Of the British soldiers who contracted the disease the large majority were immigrants to South Africa, whereas the minority were natives (or, at least, those who had lived there for a very long time). Similarly, the statistics of the Royal Victoria Hospital and the Montreal General Hospital show that the majority of typhoid cases are Englishmen and people who came only lately to Montreal. That is, those who have lived in the presence of the disease all their lives have gradually become inured to these bacilli, and thus they have been able to resist the attacks better than strangers.

According to the teachings of Waismann and his school, acquired properties are non-hereditary. The above expositions, however, tend to gainsay this statement. Another distinguished investigator, who also upholds this theory, gives the following statement to prove the point in question. He says that if a mouse's tail were cut off, it would be necessary to keep cutting off the stump, just as fast as it grows, in thousands of generations, in order that a hereditary tailless mouse be born. This illustration is quite valid. Indeed, we have it exemplified in a practical manner among the Jews and Turks. For, although their male children have invariably been circumcised for the past three or four thousand years, yet each male at birth still possesses the prepuce, just the same as the uncircumcised gentile's offspring. But this simply proves the non-heredity of acquired properties that are of an *anatomical* character only; and it does *not* eliminate the possibility—nay, the probability—of the heredity of acquired *physiological* properties. The third division of this essay attempts to prove the latter. As to whether it has succeeded will be left to the reader's own judgment.

The preceding congenital immunities (that have been detailed in brief) may be termed absolute immunities. In other words, the individual members of certain respective species possess the same, unchangeable, respective immunities. But, there is a further sub-division of

racial immunity—that of relative immunity—in which some of the individuals of the same species are endowed with greater degrees of immunity (to the same disease) than others. Thus, field mice are quite insusceptible to tuberculosis and glanders, whereas the white and house mice are very little immune to these diseases. Similarly, in man, the adult is partially immune to scarlet fever and is comparatively immune to diphtheria and measles, whereas the child is quite susceptible. But, even when so-called absolute immunity is present it must not be taken for granted—

“As if this flesh which walls about our life
Were brass impregnable.”

Even the adult can be made susceptible to diphtheria, the Chinaman to typhoid and cholera, the negro to malaria, or the chicken to anthrax, provided that certain conditions are present. (Indeed, when we say absolute immunity we really mean comparatively absolute, if such an expression be permissible). These conditions are, that the general constitution be run down, that the exposure to the disease be long enough, and, lastly, that the virulency of the culture or of the infection be strong enough. Thus (to give at least one example), in man malnutrition—either through lack of food or through mental anxieties or some disturbance of the central nervous system—predisposes the individual to any disease to which he is otherwise immune.

Let us now take an insight into the virtual focus of immunity (against infections) as it is understood to-day. I mean so-called general immunity. General immunity is the term applied to that property (or series of properties), in virtue of which the system as a whole is able to cope with and destroy any intruding deleterious material. This injurious material may be of the nature either of living or dead bacteria, or of the toxins of these bacteria, or of the venoms (or deadly enzymes) of poisonous snakes. One of the most important influences controlling general immunity is, again, nervous. Next to the nervous influence, the blood is of prime importance in the maintenance not only of life but of health also. Even the Bible has said—a couple of thousand years ago—that “blood is life,” and we are, indeed, gradually coming to prove this fact in all its vital details.

As to the hypotheses that have been advanced to explain the causation of General Immunity against infections, the following deserve consideration.

The earliest—the Exhaustive Theory—was brought forward by Pasteur and Klebs. They believed that in the body there are certain substances of nutritive value to bacteria, which substances are used up after

some time by the germs, and that the resultant immunity is due to the absence of food for these micro-organisms. In other words, one possesses natural immunity, when his body does not harbor such substances as are of nutritive value to that specific bacillus. In contradiction to this theory is the fact that we use blood-serum, as being the best medium for the development of cultures of most pathogenic organisms. Still more, for the purpose of producing *artificial* immunity (which, as will later on be explained, is similar in character to natural immunity) we inoculate into a susceptible, the serum of an immune animal. This means that simply the absence of food-material (for the bacteria) in the serum employed is not sufficient to cause immunity.

The Retention Theory—promulgated by Chauveau and Wernich—claims that, during their growth, bacteria produce certain substances which are inimical to their own development. Of some bacteria this is certainly true, when the culture is in an artificial medium, and in a test-tube; or, it occurs in the body, sometimes, when that part in which the bacteria have ensconced themselves, is cut off from communication with the rest of the body, that is, when the “auto-toxic” (to coin a word) products of the organisms remain centred around the latter. But, these men claim that, *a priori* the animal is rendered immune, even after the disease has disappeared. However, the fact that immunity to a certain disorder may exist for a very long time, and, in fact, be transmitted to off-spring disproves such an extreme view as is supported by this theory.

Still another theory—that held by Buchner and Wolffberg—regards an immune animal as possessing only those cell-elements which are strong enough to eliminate the germs and poisons of the infection. For example, in an individual attacked by small-pox, the weaker cell-elements would be gradually destroyed, and only the stronger ones (i.e., those able to cope with the germs) remain. However, even this theory fails to conform absolutely with the results of numerous investigations.

Modern teaching, however, upholds the Phagocytosis Theory of Metschnikoff as explaining the signification of natural immunity (with which Behring's name is connected). As stated earlier in this paper, dearth of space hinders a complete exposition of these two theories against infections. Another school supports the humoral theory (which, however, are efficiently taken up in most of the modern text-books on Pathology). Suffice it to state that the Phagocytosis Theory has for its basis the fact that leucocytes ingest (and thus destroy) bacteria. On the other hand, the Humoral Theory holds that bacteria are killed by certain bactericidal substances present in the fluids of the body (and not in the leucocytes).

The last subdivision—according to the tabular summary given above—treats of local immunity. In the various diseases it is often noticed that some parts or organs become invaded with the infection, whilst others are quite undisturbed. Thus, to give one illustration, at least, the mucous membrane lining the mouth and pharynx is quite competent to destroy any bacteria that find their way there. On the other hand, the endothelial lining of the alveolar air-sacs of the lungs is often quite susceptible to the attacks of invading bacteria. And, again, if the pharyngeal mucous membrane have its continuity dissolved—either through excessive bacterial activity or through traumatism—the bacteria are thus given free ingress into the deeper tissues where they can grow and produce their toxins; the latter enter the circulation and bring about the specific toxæmia, as in diphtheria. If the bacteria themselves enter the blood, as in pneumonia, it is termed a *bacteriemia*, or a *septicæmia*.

Having presented (very concisely) the various facts and explanations connected with immunity as it is found existing naturally—i.e., congenitally—we will now explore, just as briefly, the second part of this essay. The question now presents itself, How can a disease—whether it be of microbic or of non-microbic origin—be prevented? This question will be answered in a practical manner in this (the second) and in the next (the third) parts of this paper. In this part, there will be explained summarily the more important methods of inducing an artificial immunity by *technical* means (requiring the skill of a physician only.) This system shall *not* necessitate the physician's skill directly; the means are non-technical, i.e., so far as the medical man's services are required.

Artificial, or Acquired Immunity is, therefore an immunity induced into a susceptible individual. And in inducing such an immunity it is always borne in mind that the susceptible individual himself, already possesses the potential but not the kinetic properties of being immunised. All the doctor has to do is to supply the agents by means of which the body-cells are stimulated to act more forcibly in the direction of immunity than they have done until now. Artificial Immunity is subdivided into two classes, active and passive.

Active Immunity is induced by the inoculation of bacteria or of their toxins. This incites the cells of the animal to reaction and counter-action. This reaction means the production of anti-bacterial or of anti-toxic substances, respectively. In such a form of immunity it is the cells of the individual, himself, that manufacture the defensive products; and, once the immunising power of the cells has been stimulated, their activity is often quite vigorous. The methods of "active" immunisation are—

First, Nature's own method. That is, after recovery from one attack of a certain infectious disease, such as small-pox, the individual is immune to a second attack for the rest of his life, or (in some other diseases) for a very long period only.

Vaccination, the second method, is popularly specified to mean the inoculation in the human subject of the virus of cow-pox, in order to produce immunity to small-pox. However, this term may be applied to the preventive inoculation against any disease by the introduction of the organisms causing that disease. Vaccination is accomplished in a variety of ways, viz.

By the inoculation of sublethal doses of the living bacteria in virulent form. This inoculation has to be repeated a few times with successively increasing doses.

By the inoculation of living germs attenuated in virulence. This is true of vaccination. This method is preferred to the last, for the attack produced from inoculating by this method is quite mild and scarcely noticeable, in fact, it is local—at the site of injection.

By the injection of the dead bodies of the specific bacteria.

The third and last method of producing active immunity, is by the injection of the toxins of the specific bacteria. This method is especially employed in immunising against diphtheria, tetanus, and streptococcic infections.

It must not be forgotten that immunity—whether active or passive—produced by any of the technical methods is gradually lost, also that immunity against one disease does not prevent the attack of another. Thus, immunity to tetanus does not exclude diphtheria; and so on.

Frenkel believed that artificial immunity is due to the presence of certain specific "immunising substances" which are produced by the bacteria themselves. This "immunising substance," he said, was quite different from the toxin of the bacterium. (This is, practically speaking, similar to the Retention Theory). He proved this by showing that, if the filtered products of the bacterium were heated, the toxin would be destroyed at a temperature of about 55°C to 60°C, and that the "immunising substance" was only destroyed when the temperature reached 70°C, or higher. He also said that by heating the toxin, the latter could be transformed into the "immunising substance." However, the true explanation of these experiments is that the virulence of the toxin was lessened by heat at 60°C. The oppositions to the Retention Theory have been discussed under general immunity.

And now the question presents itself, What is the explanation of the manner in which antitoxins, bacteriolysins, hæmolysins, etc., are formed

in the body, and what is the respective modes of action of these? To explain the terms just alluded to: When the blood of one animal, say a rat, is injected into the blood of another animal, say a sheep, it not infrequently happens that the red blood-corpuscles of the rat become disintegrated, and their hæmoglobin is liberated—a process termed “laking of blood.” This is said to be due to the presence in the blood of the inoculated animal—the sheep in this case—of a certain specific substance. This substance is named hæmolysin. The term bacteriolysin is applied to that substance which has a similar, deleterious action on living bacteria.

Also, it has been observed that if typhoid bacilli, for example, enter the blood-stream, they stimulate the body-cells to produce Agglutinins. These agglutinins exert a negative chemiotaxis on the bacteria. As a result, the bacteria assemble in clumps, and, accordingly (as some observers affirm), their spread in the system is to a certain extent limited. Agglutinins are always specific. This feature of Agglutination forms the essence of Widal's Test for typhoid fever. I shall not discuss the nature of Precipitins, etc., as these have no direct bearing on Immunisation (in its practical application.)

Perhaps the most widely accepted theory with regard to the formation of these anti-bodies and their characteristics, is Ehrlich's Side-Chain Theory. Every text-book on Bacteriology contains a detailed delineation of this universally accepted explanation. So that it would be redundant on my part to tax the reader's patience with an unnecessary rehearsal.

The second kind of Artificial Immunity is Passive Immunity. Passive Immunity is of a more artificial character than Active Immunity. This sounds pleonastic. But, I mean that whereas in Active Immunity something is injected into the circulation and this something induces a reaction of the body-cells in *manufacturing* the anti-bodies, on the other hand, in Passive Immunity another kind of substance is introduced. This substance is *in itself* the anti-substance; and neither does it require nor does it stimulate, the body-cells to produce anti-bodies. It is for this reason that Passive Immunity is *never* permanent (indeed it often does not last long) whilst Active Immunity may last long or may be permanent.

Passive Immunity is produced—

By the injection of an Anti-toxic Serum. This is obtained from the blood of an animal that has been “actively” immunised (against that specific infection) by the inoculation of gradually increasing doses of the specific toxin.

By the injection of an Anti-bacterial Serum (prepared similarly to the anti-toxic serum).

By the injection of a solution of nuclein. Investigations in this have been made by Wassermann, Brieger, and Kitasato, in Europe. In America the chief experimenter was Vaughan, of Ann Arbor, Mich. The underlying principle of this method is that the nucleinic material of almost any kind of cells is germicidal. Thus, in the blood there are floating two kinds of cells, red corpuscles and white corpuscles. Of these the red corpuscles have been shown to be non-germicidal, whereas the white corpuscles are found to be extremely destructive to bacteria. Now, the red corpuscles are deficient of nuclei, whilst the white corpuscles contain a larger amount of nucleinic material, proportionately, than any other type of cells in the body. On still further experimentation it was demonstrated that if extracts are made of nuclein from those glands which are rich in nuclei, such as thyroid, testicle, etc., and if bacteria are inoculated in this extract, they die off very soon. The researches of Vaughan have amply proved this. This method has as yet not been adopted. For, since we are as yet not sufficiently acquainted with this branch, it would at present be unwise to employ the method.

The third (and last) part of this paper deals with a system of Preventive Medicine that, in my opinion, at least, would for all practical purposes suffice not only to keep the individual safe against disorders—infections and non-infections—but will even protect a whole community, provided that the regulations as laid out below were obeyed to the letter. And, letting alone the sufferings, time lost, or even deaths incurred, I say that if this system were carried out and practised universally, it would save the doctor's bill again and again for hundreds of thousands. I allude to a sanitary (although not known as such) system that has been maintained for over a hundred generations by the Hebrew race. One prominent writer on medical subjects has said, "From epidemics the Jews have often escaped as if they possessed a charmed life." Indeed, on inquiring into their customs—traditional, religious, etc.—one finds that their caste does not merely serve for the purpose of keeping them distinct and separates from other nations—although 'tis true, according to the Bible, that this was the purpose of the Almighty, primarily—but it also tends to protect them against disease, notwithstanding the fact that, to a great extent, they are unconscious of the fact.

Now, in relating the various Hebrew laws that have a bearing on Medicine, let it be understood that it is not for the purpose of making

proselytes. Far from this! The intent is to let the reader have the benefit (hygienic) of the facts *per se*, and, if possible, to let him profit by them from a medical point of view. And, in order to have a systematic and practical knowledge of the Mosaic Sanitary Laws, and to obviate, at the same time, the risk of encroaching one part upon the other, I shall first relate some of the various minor and sundry observances and customs, and then the regulations regarding Diet will be considered.

One of the most striking features of the Mosaic Laws, that are brought to the notice of the reader, is the number of times that the words, "to wash the hands," are repeated. Thus, among orthodox Hebrews the hands are always washed after micturating or after defecating. When one has been in the presence of a dead body or has touched the corpse, he or she is prohibited from entering another house till they have washed. An orthodox Hebrew is required to wash his hands immediately before taking of food. On rising from bed, after sleep, he is commanded not to touch any part of his face, such as, in rubbing the eyes, the nose, etc., until he has washed his hands, at least. After cleaning or paring the finger-nails, it is also enjoined that the hands be washed. And an orthodox Jew is expected invariably to have his head covered, when eating. There is also a custom that, after eating fish, one must wash the hands, and rinse the mouth, before eating meat.

All these regulations, as is now apparent, are incorporated in the religion of this race, i.e., they are, therefore, more obeyed than if left to the option of the individual. And they have an important bearing on hygiene. Even that medical student who has but the rudiments of bacteriological knowledge can immediately grasp the sanitary significance of these few sundry laws which I have selected from a multitude. What person is there, medical or lay, who is not aware of the fact that, in the act of micturition or of defecation, the hands, while coming in contact with the external genitals, invariably become infected? And who cannot understand that, unless the hands be washed, he will thus contaminate his food or he will bring contagion to any other part of his own body, if not of another individual? The same explanation also suffices for washing the hands on awakening from sleep. As for cleansing after being in proximity to or in contact with a corpse, it is quite well known that it takes only twenty-four hours, at most, before the body (after death) becomes wholly invaded with all kinds of bacteria, chiefly putrefying; and the animal body is by no means a bad medium for the growth of the majority of pathogenic bacteria. So that these rules so far as the average, uninitiated laity are capable of carrying out,

without the physician's aid, suffice adequately, it must be admitted, in preventing contagions both to the individual himself and to his fellow-creatures. The average layman would find it both troublesome and expensive to cleanse his hands with alcohol, oxalic acid, and other such disinfectants and antiseptics, although it is certainly in the line of the medical man. But, what will even the medical man say against pure, clean water and a towel?

Lastly, but not least, is acknowledged the fact that the preventive medicine of that dreaded scourge, leprosy, is wholly contained in the Bible. And the injunctions, that have been meted out by Moses, are admitted by all modern physicians to be the best that have so far been devised. The preventive medicine of leprosy was in full force during the Israelitish *regime*, but nowadays it has been abandoned by the Jews. And, again, the rite of circumcision, far from being barbarous, is being practised by modern surgeons for the cure of phimosis and paraphimosis. And, without plunging into the moral protection that the circumcised individual indirectly enjoys (for this is outside the scope of this essay), the protection against these two affections certainly justifies this custom—performed on the eighth day after the birth of the child. And, besides I have never seen (or heard of) a child dying as the result of being circumcised at the hands of a rabbi.

It would be quite in order, I believe, to mention here, that infective diseases among the Jews are comparatively mild and, in some specific disorders relatively rare, or absent. Still more is this wonderful since (as the world knows) the Jew is notoriously an inhabitant of the slums, on account of the weighing persecutions which he was subject to (and is, even to day, in some so-called civilized countries). I say, it is a wonder that he is not the paramount harbinger of disease. Writers have ascribed this—very accurately, it will be seen—to their habits and modes of living. It is for this reason that I have brought this matter up to have due and fair consideration for its practical application to Public Hygiene.

Now for the second part of this system. Everybody is aware of the fact that the orthodox Hebrew abstains from the use of pork. The layman ridicules this custom—not unlike the way in which his contemporaries ridiculed Paracelsus. But will the learned man of medicine follow such a lay example? One of the very first agents known to be the cause of digestive troubles is the ingesting of undigestible, or comparatively undigestible food. We know that pork, on account of the superabundance of inter-fibrillar fat, is noted for the difficulty of its digestion. This fact

per se—without discussing the danger of Trichinosis from eating certain pork invaded with the *trichina spiralis*—is sufficient to throw the choice in favour of beef, or other such more easily digestible food.

It will further be remarked that almost all those animals, which are prohibited to be used for food, are carnivorous. The latter fact explains the preventive medicine entailed in this prohibition. The explanation is supplied by a knowledge of the starting-point of our modern study of Bacteriology—I mean putrefaction. It is too well-known, to reiterate the process, that all animal matter has a tendency to putrefy, and putrefaction of proteid food always takes place in the intestines of carnivorous animals. The products of this putrefactive decomposition are ingested, very often, with the meat; in fact, it is these very products of putrefaction that supply the flesh of carrion-birds with this distasteful odor (which thus unsuits them for food). And, I may say, there is “death in the pot” (as Dr. Osler has mentioned) for those who choose to slight this rule. Nor can any skeptic deny the merit of the command that all reptiles, such as the snake, the frog, and the toad, are to be abstained from. There have been cases reported of Cantharides poisoning as being (indirectly) caused by the ingestion of frogs. The interpretation of this lies in the fact, as now established, that frogs can consume, with impunity, insects, including the so-called Spanish Fly.

Let us now observe how the Hebrews prepare their meat, from the animals that are permitted them. It will be noticed that never will they eat the meat of an animal that has not been slaughtered by one of their rabbis. Still more, the animal absolutely must be killed in one certain and only way, viz., by cutting its throat. The detailing of the method is too diffuse to permit of being treated here. Suffice it to mention that the incision is planned so that the average ox or cow loses almost all its blood within three minutes or less, as I have timed it. But this is not all. For, before the rabbi may send the meat to the housewife, he is compelled to excise all the macroscopic veins that the meat is supplied with. It will be further seen that the housewife receives certain directions (which directions will still further remove the blood from the meat.) This consists of first soaking the meat in water for, at least, half an hour. After this, the meat is salted, and allowed to remain thus for another half hour. Then the meat is washed in water. Then, and then only, is the meat ready to be thrown into the pot, and cooked.

To the bacteriologist this elimination of all the blood is quite significant. He knows that blood (or blood-serum) is the best medium, so

far as is to-day known, in which to grow any bacterium. And, it is a well-recognized fact that twelve hours, or even less, are quite sufficient to permit of the formation of a beautiful culture of some of the more dreaded bacteria.

And yet, these are not all the precautions that are observed with regard to meat. Very often after every measure has been taken to kill the animal by the precise process prescribed by the Talmud, the animal is rejected. You will ask, Why is this? The answer lies in the following. After the animal is dead, the slayer is invariably directed to examine the heart and lungs, and also to make an inspection of the abdomen. I have seen animals rejected, because there was a tumour in the stomach wall, and, in a few cases, where the latter was perforated by some foreign body, such as a nail, etc., (thus opening the peritoneum to septic infection). Indeed, if there be a tumour or a manifest inflammation of any of the abdominal organs, or of the diaphragm, or of the thoracic viscera, the animal is similarly condemned. Again, if there be anything suspicious about the heart or the lungs, more especially the latter, there is a total objection to the consumption of any part of that animal's body. I remember an animal being refused for the reason that, on inflating the lungs, one of them leaked, and allowed a very tiny stream of air to whistle through, ever so slightly.

On the other hand, I remarked an animal that the rabbi declined because there was a dirty, grayish solid patch in one of the lungs, but the Gentile butcher was not so scrupulous, and sold the meat of the animal to his customers. Who knows but that he gave them their money's worth of tubercle bacilli, at the same time? And I was also present when an animal whose lungs contained over a pint of virulent-looking, greenish pus, was rejected by the rabbi, but accepted and profited by the Gentile (though not gentle) butcher.

Now, it cannot be said to be sufficient to reject the affected organs only, and to accept the muscles of the animal. After death it does not take long before the bacteria travel even into muscular tissue; for, although the capillary endothelium in muscle is protective when the animal is alive, one cannot say the same of it when life is extinct. Often, on perusing the weekly reports of the Public Hygiene Department of Montreal in regard to this, I used to notice so many livers, such a number of lungs, and a few animals totally, confiscated. Anybody who is aware of the fact that bacteria travel very often by the blood-stream should deem it unsafe to trust to the chances of the bacteria having failed to "diapedese" through the endothelium of the capillaries. And, once the effects of that specific bacterium are manifested on the particu-

larly susceptible organ, one cannot be safer than discard the whole animal.

Tuberculosis, the "White Plague," is partly transmitted by inattention to these important points. A study of the resisting powers of the tubercle bacilli still more strengthens this argument. Muir and Ritchie, in their text-book, state that "raising the temperature to 100°C kills the (tubercle) bacilli in fluids and in tissues," and then they go on to say that "in the case of large masses of tissue care must be taken that this temperature is reached throughout." It is well to note the latter statement. For, it happens not infrequently that the housewife not having time enough, fails to cook the meat completely. What man or woman can deny that he or she has not eaten unsufficiently cooked meat, scores of times? It is true that if the bacteriologist, himself, always did the cooking, he might be safe, but I should not like to trust the cooking of tuberculous meat to the ordinary, uninitiated housewife. There is also the danger that, in the butcher-shop, one tuberculous meat might infect clean meat.

In this conclusion, I take the liberty of stating the fact that statistics of the leading hospitals go to prove that Tuberculosis—and especially phthisis—is, on the average, rarer (proportionally) among the Israelites than among the Gentiles. The actual statistics are, again, too voluminous for this paper. But the evidence of such an authority in Medicine as Dr. Osler is far more than an iota in proving this assertion. He says:

"The influence of race (in Tuberculosis) is probably *not* due to any inherent differences but to the conditions under which the individuals live. . . . The Hungarians, Russians, and Poles, who are nearly all Jews, show a very low death-rate according to the United States Census." The general practitioner is apt to forget this fact, and in a doubtful case the diagnosis could certainly be reached more easily by a remembrance of this fact.

Another principle adhered to, even to-day, among Hebrews, is that after eating meat the orthodox follower waits five or six hours before he partakes of milk or food pertaining to it. But if he uses milk he has only to keep his patience for one hour before he may ingest meat. It is quite apparent that this regulation is for the purpose of preventing excess of proteid being taken.

These are, therefore, the more important of the dietary laws of the Jews. And, were it not that I must bring my dissertation to a close, I should be glad to describe also the various rules concerning the hygienic deportment of girls, married and pregnant women, and also of married

men. Indeed, the gynæcologist would find that it would amply repay him to inquire into the Hebrew customs, regulations, etc., with regard to obstetrics.

And now that I am bringing to a close this short (yet long) essay, I repeat that in no part have I attempted to unduly influence the reader, beyond letting him give his own decision of the facts as related and discussed. He will see that my attempt has been to still further fortify the truism, "An ounce of prevention is worth a pound of cure."

BRONCHIECTASIS WITH BACILLUS INFLUENZÆ—REPORT OF TWO CASES.

BY

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The following cases have been under the care of Dr. W. Molson and Dr. G. Gordon Campbell during the past few months.

These cases are not brought forward as illustrating any new clinical or bacteriological phenomena, but because they are well-marked examples of a condition which perhaps is not sufficiently borne in mind by the majority of practitioners.

Case I.—G. B., aged 45. Indefinite history of "grippe," severe cough and expectoration; signs of pulmonary consolidation and cavity, fever, sweats, no tubercule bacilli in sputum. B influenzae in sputum. Progressive weakness and emaciation; death after six weeks' illness. Autopsy: anatomical diagnosis—bronchitis, bronchopneumonia, multiple miliary abscesses, bronchiectasis.

Patient, a Russian, admitted to the Montreal General Hospital, April 13, 1907, complaining of pain in left side and epigastrium. cough and expectoration, weakness and loss of appetite; no headache, no vomiting. For weeks before admission the patient had suffered from above mentioned symptoms and had been unable to work. He is poorly nourished and prostration is marked; skin moist, sweats frequent.

Respiratory system:—Patient suffers from severe cough and very profuse, foetid, yellowish green, watery purulent expectoration. The cough is more marked in the morning and upon change of position, especially when patient turns from his back to his right side cough is at once induced with the expectoration of a large quantity of characteristic sputum.

Chest:—Very emphysematous; expansion poor and limited. Over the left lung posteriorly from the fifth rib down, the percussion note is

very impaired. Over this area can be heard metallic blowing breathing accompanied by loud blowing moist rales. Percussion over front of chest gives resonant note. Throughout both lungs breathing is very harsh, and loud moist rales are very numerous. At times the blowing quality of the breathing over the left lung is absent and replaced by very distant breath sounds. After violent attacks of coughing and expectoration the blowing breathing becomes more distinct. Repeated examination of sputum by different individuals was uniformly negative as regards presence of tubercle bacilli.

Patient gradually failed, cough, expectoration, sweats, dyspnoea continued and became more marked until upon May 12th, (six weeks after beginning of illness) patient died in a condition of most extreme emaciation.

Autopsy was performed by Dr. White, from whose report we quote. There are very firm adhesions over the posterior and external surface of left lung. Right pleural cavity is normal. The left lung is large and voluminous, very firm throughout except along the anterior border. The pleura over the posterior surface is greatly thickened and shows imprints of the ribs. The interlobar fissure is completely obliterated by firm adhesions. On section the tissue is airless and friable. The cut surface is of a reddish grey colour, studded with small greyish white nodules, each surrounded by a zone of hyperemia. Many of these nodules chiefly in the lower lobe, are broken down, forming small abscesses. In the posterior part of the lobe, just above the root, are seen several large and small irregular-shaped cavities communicating with one another and with the larger bronchi. On further examination these cavities are found to consist of sacculated dilatations of the bronchi; they extend upwards through the interlobar fissure and communicate with smaller cavities in the upper lobe.

Right lung: the posterior half of all three lobes is consolidated. On section the consolidated part is found to be airless. The surface is studded with innumerable small irregularly-shaped nodules, varying in size from 3 to 6 m.m. in diameter, and each surrounded by a wide dark red zone. Many of the larger of these nodules are broken down forming small abscesses similar to those in the left lung. The anterior half is voluminous and crepitant.

Examination of the materials from the lungs is negative as regards the presence of tubercle bacilli. The *B. influenzae* is found in the lungs. Microscopic examination of sections from the lungs shows no evidence of tuberculosis, but the characteristic lesions of broncho pneumonia and miliary abscesses.

Case II.—A. W., aged 52. Report May 21st, 1907. Cough and fever for eight months; cavity and consolidation; profuse fetid expectoration; no tubercle bacilli in sputum; *B. influenzae* in sputum; progressive weakness and emaciation. Alcoholic and specific history. Patient has suffered from severe cough and expectoration since September, 1906. Poorly nourished; weakness marked. Respiratory system. Severe cough, especially upon change of position. Profuse expectoration; sputum has always been extensive in amount and of a sickening rather than a fetid odour; it has been characteristically mummular, the small masses being suspended in a watery pus.

No tubercle bacilli found after repeated examination. Injection into guinea pig negative. *B. influenzae* isolated from sputum.

There is dulness from the fifth dorsal spine in the mid-line and seventh rib in the posterior scapular line to the base. Over this area breath sounds are diminished and accompanied by numerous loud moist rales.

Repeated examinations of the sputum in both these cases always failed to demonstrate the tubercle bacilli stained by Gram's; however, large numbers of a very small bacillus decolourising with this method were found situated mainly within the pus cells.

In Case I., in addition to this organism, large numbers of Gram positive cocci and bacilli could be made out and Gram negative cocci.

Material taken from the lungs in Case I. at autopsy, showed a smaller number of Gram positive organisms, but remarkably large numbers of spirochaetae were seen which resembled in morphology the spirochaetae pallidae. Cultures from these three sources—surface seeded upon blood agar plates after washing in saline solution in order to get rid, as far as possible, of extracellular organisms, gave a mixed growth made up largely, however, of the gram negative small bacillus noted in the smears. Other organisms isolated and differentiated were, staphylococci aureus and albus, strepto—and pneumococci, micrococcus catarrhalis and a short Gram positive bacillus growing in moderate sized creamy colonies producing a most fetid odour. This last organism was found in Case I., especially in the culture from the lungs and apparently has no special significance.

The small bacillus grows in very minute colonies upon blood agar, growth being much more profuse and rugged in commensal relationship with the staphylococcus. Attempts at culture upon other media have been uniformly futile, although control cultures upon blood agar always gave profuse growth.

That the bacillus of influenza was the cause of the pathological processes we cannot definitely state, however, the presence of *B. influenzae* in

large numbers in chronic pulmonary conditions is usually taken as being very suggestive of the primary infecting organs.

Owing to the death of Case I and the sudden departure from the hospital of Case II, we are unfortunately unable to report the result of the agglutination reaction.

Osler mentions in a brief manner the presence of late complications in chronic infection due to the *B. influenzae*. Pfeiffer when first describing the organism, spoke of late serious effects of the infection.

In 1903, Lord, of Boston, isolated the *B. influenzae* in a large number of subacute and chronic "coughs," some of which later came to autopsy.

In November, 1905, Boggs, at that time house physician with Dr. Osler, reported a series of six cases, two of them with autopsy, occurring in Dr. Osler's wards in the space of a few months. In all of these cases the pulmonary conditions, clinically and pathologically, were very similar and closely resembled these two cases.

Clinically, the course of the cases is in many respects the same as the ordinary chronic ulcerative form of pulmonary tuberculosis. There is usually a large amount of more or less foul-smelling sputum, hæmoptysis is not uncommon, there may be a history of chills and sweats, with progressive emaciation and weakness. The physical findings are those of acute bronchitis with cavity formation and consolidation. Repeated examination of the sputum will usually reveal the absence of the tubercle bacilli, and the presence in comparatively large numbers of a very small Gram negative bacillus which on cultivation will be found to be the *B. influenzae*.

Blood from patients suffering from this infection will produce an agglutination reaction similar to that commonly made use of in the diagnosis of typhoid.

A CASE OF MOLLUSCUM CONTAGIOSUM.

BY

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The patient was a gentleman, aged 65, who first noticed a small papule about the size of the head of a pin in the centre of his forehead in September, 1906. It continued to gradually enlarge until April, 1907, when he came to me and asked to have it removed. It presented the appearance of a small white "pearl button" papule the size of a pea, with a slight depression in the centre and an opening into the interior from which a cheesy material could be expressed.

After removal the specimen was hardened in formalin and paraffin sections made and stained with hæmatoxylin eosin, Van Gieson's methylene blue and eosin and carmine. The sections resemble a racemose gland in appearance, showing diverging lobules opening into a central cavity. The lobules are separated by fine fibrous septa and lined by palisade cells continuous with those of the rete. The cells are cuboid or rounded nucleated epithelium arranged in layers. The deeper cells, or those bordering on the rete, appear normal, but as one goes higher the cells change, some appearing swollen and nearly all show a clear halo around the nuclei, as if a shrinking of the protoplasm were taking place. Still higher, the nucleus seems to be pressed to one side of the cell and the protoplasm shows a fine reticular mesh. In the upper layers the nucleus cannot be detected and the cell takes a homogeneous bluish-violet stain with hæmatoxylin and is surrounded by a thickened capsule. These cells, the so-called "molluscum bodies," now separate from the mass and are seen lying free in the centre.

As molluscum contagiosum is somewhat rare, it may be of interest to give a short review of the subject.

Molluscum contagiosum is the name given to these growths by Bateman, who first described them in 1817, and although the majority of pathologists do not consider them contagious, the name is still used in preference to others such as sebæcum, epitheliale, verrucosum.

They occur as small growths like "mother of pearl shirt buttons" (a term used by Hutchison) and are generally multiple. Jacobs states that a single one is rare. They are round in shape, flat on top with a slight depression, in which is a small aperture leading into the interior, from which whitish cheesy material can be expressed. They are of firm consistence, and although usually sessile, may become pediculated. The colour is white or pink.

The common situations for them are the face—especially the eyelids, neck, chest, genitals and about the anus. They occasionally occur on mucous membranes as in a case reported by Abrahams of one on the tongue, and also a case reported by Dr. Colcott Fox.

Most authorities state that they never occur on the palms of the hands or the soles of the feet, but Balzer and Alquier report a case on the sole of the foot in a boy. Although they are usually small, they may reach the size of an orange and be mistaken for malignant growths.

They occur most frequently in the young and poverty seems to be a predisposing cause. In England they are believed to be contagious, and there are numerous facts to support this view such as the occurrence in several members of the same family, epidemics in asylums, (Allen reports a case in an infant asylum and inside one year forty-two

children were infected), infants lips to mother's breasts, (Dubois-Havenith reports a case), the use of Turkish Baths (Morris reports 6 cases from the same bath). Accidental inoculations, and successful experimental inoculations are reported by Vidal and Pick. An incubation period of from 10 days by accidental inoculation to 12 weeks by experimental inoculation is given by Stelwagon. The greatest difference of opinion prevails as to the origin of the growth and as to what the "molluscum bodies" really are. Rokitansky, Hebra and others considered the growth to be an enlarged sebaceous gland. Hutchison and Vidal also held this view, as they never occur in the palms of the hands or the soles of the feet where sebaceous glands are absent, but Caspary pointed out that such bodies are never seen in sebaceous glands, and Boeck says that chemical and physical tests showed that cells did not contain fat. Bizzozero and Manfredi state that these bodies were insoluble in hot ether or acetic acid.

Virehow believed the growth to arise from a hair follicle and likened the cells to swollen starch bodies, being a peculiar degeneration of epithelial cells. He considered the growth to be a lobulated granular epithelioma.

Kanosi was the first to consider the question of the contagiousness of the disease, but believed the bodies to be an alteration of cell protoplasm. Renaut believes that the growth originates from a sebaceous gland, but the bodies are produced by a hyaline degeneration in the perinuclear cell protoplasm. Geber states, "they are a hyaline degeneration of a hyperplastic growth of the interpapillary rete cells."

Unna calls the growth epithelioma contagiosum and says that the "bodies" are the result of a colloid or hyaline degeneration.

Weisser and others considered them to be coccidia developing in the epithelial cells. Benda thought that in some cases they arise from hair follicles, but considers the "bodies" to be parasites.

White and Robey, of Boston, made a very thorough investigation. They were unable to find bacteria in the sections and cultures only yielded *staphylococcus epidermidis albus*. They consider the growth to be the result of "two or three down-buddings of the rete Malpighii" and the molluscum bodies to be "a very extraordinary metamorphosis of rete cells into normal keratin. They conclude by saying "nobody has demonstrated up to this time any parasitic body in the growth and the change is not a colloid or hyaline degeneration but extraordinary metamorphosis into keratin."

It is quite evident then that the cause has not been ascertained. The different investigators are divided as to the origin. 1. Follicular or sebaceous. 2. Origin from rete. As to the contagion:—1. Contagious.

2. Non-contagious, and as to what the molluscum bodies are:—1. Degenerated epithelial cells. 2. Parasites. The diagnosis is simple. Pearly growths with a central depression and small opening are characteristic. When they occur on the genital they have been mistaken for a hard chancre. They sometimes disappear spontaneously or they may suppurate and become destroyed.

Touching with pure carbolic acid or curetting out the contents destroys them. If these measures are not successful, they may be removed.

In conclusion I wish to express my thanks to Dr. C. B. Keenan, for advice in the pathological examination of the growth.

A CASE OF PERICHONDRITIS OF THE LARYNX, OCCURRING DURING THE COURSE OF TYPHOID FEVER.

BY

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AND

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This case presents an unusual and serious complication of typhoid fever.

The patient, K. B., is a labourer, aged 21 years; he is a native of Austrian Poland, and has been in this country for a little over one year.

He was admitted to the medical ward of the Royal Victoria Hospital with typhoid fever, on October 31st of last year, in Dr. Martin's service.

The disease ran a severe course. His respiratory tract seemed highly vulnerable. In addition to the usual bronchitis, he suffered from repeated attacks of epistaxis, and twice developed broncho-pneumonia. Other complications were intestinal hæmorrhages, and subcutaneous abscesses. He was delirious for one week.

Laryngeal symptoms began to manifest themselves early in December; his voice became hoarse, and his breathing noisy. Examination of the larynx, three days after onset of the condition, showed an acute perichondritis with involvement of the cricoarytenoid joints; the left cord was fixed and ulcerated, the right limited in movements of abduction and adduction; both false cords were œdematous.

By the use of steam and the vapour of the compound tincture of benzoin, he gained temporary relief from his symptoms.

On the sixth day of his laryngitis, he began to show great inspiratory distress, his breathing becoming stertorous, his pulse rapid; his facial

expression was one of great anxiety. These symptoms developed between three and five o'clock in the morning. A rapidly deepening cyanosis forbade further delay, and a tracheotomy was performed in the ward by one of us (H.S.M.).

The after course was wholly satisfactory. Although the wound edges sloughed a little, there was no cellulitis. The patient could swallow easily, and soon accommodated himself to the altered method of breathing.

This was the last complication he developed. After its relief, his recovery was steady. In two weeks he could sit up in a chair. The necessary tracheal dressings kept him in the ward longer than would otherwise have been the case. He was discharged on February 26th, 116 days after admission.

He attended the laryngological out-patient department more or less regularly after his discharge. Early in April he presented this picture: the true cords were fixed in adduction, but hidden in their posterior half by a smooth, globular mass, grey in colour, apparently adherent to the left arytenoid cartilage. His voice was very hoarse, but his articulation intelligible.

In the course of six weeks this mass underwent a slow change, gradually decreasing in size and uncovering the previously hidden part of the rima.

Repeated attempts at dilatation were made under local anaesthesia. Nothing larger than a laryngeal probe could be passed.

The patient was re-admitted to the hospital on May 20th. It was his own urgent wish to be rid of the tube.

His condition at admission was as follows: Except for a small button of granulation in front of the left arytenoid, the laryngeal mucosa was clear; the vocal cords were adherent in their anterior half, but movable to a limited degree posteriorly; through the narrowed rima the subglottic portion of the larynx appeared narrowed by a symmetrical thickening of the mucosa on each side.

Exploration of the trachea, under a general anaesthetic, showed a considerable narrowing of the lumen from granulations along the track of the tracheotomy tube.

All things considered, and notwithstanding the patient's own wishes, it is felt that further operative treatment for the relief of the stenosis is not justified.

His voice is much stronger than it was two months ago, and he should be able to do light work without embarrassment. He is advised, for the present, at least, to reconcile himself to wearing the tube.

THE

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CANADIAN MEDICAL ASSOCIATION.

Prospects are bright for a good meeting of the Association in this city on September 11, 12 and 13, 1907. Notice of interesting papers from all parts of Canada have been received. The Address in Medicine will be delivered by Dr. H. D. Rolleston, physician to St. George's Hospital, London, Eng., and the Address in Surgery will be given by Dr. Ingersoll Olmsted, of Hamilton. The subjects for discussion in medicine and surgery will be respectively, Epidemic Cerebro-Spinal Meningitis and Enlargement of the Prostate. Many matters of vital interest to the society will be discussed, and a series of clinical demonstrations at the various hospitals has been arranged. By the courtesy of the Corporation of McGill University the Arts and Physics Buildings and the McGill Union have been placed at the disposal of the Association, and the meetings will be held in those buildings. The social part of the meeting has not been neglected.

ASYLUM APPOINTMENTS.

We have seen repeated editorial comment upon the speeches at the recent meeting in Toronto, at which Dr. Barbart, of New York, spoke strongly against the political aspect of appointments to asylums in Canada. This is ground that we have often before held in these columns, and we make no apology for reproducing the words used on that occasion by Dr. T. J. W. Burgess of Verdun.

"In an address, "The Insane in Canada," delivered at San Antonio, Texas, two years ago, as President of the American Medico-Psychological Association, I summed up my remarks by saying, that while with respect to custodial care and ordinary treatment, moral and medical, Canada, generally speaking, was well up to the times, she was doing little toward the solution of the many problems connected with the scientific aspect of insanity, and, in this respect, she presented a sorry picture when compared with the good work being done in many hospitals elsewhere.

With the erection of a Psychiatric Hospital, as outlined by Dr. Clarke, such a reproach can no longer be made, and, as a native of this province, I am proud to think that Ontario should be the first to take a step that will place her not only foremost as regards this Canada of ours, but foremost as regards the whole vast continent of America.

In praise of the wisdom of the Government for taking such an advanced view too much cannot be said; and here let me tell you that such an establishment will be not only a boon to the most unfortunate of all God's afflicted ones, the insane, but a true economy. Most of you, I have no doubt, know how very prone mental disorders are to become chronic and incurable; and some of you are probably aware that, once the acute stage is passed, lunatics are even more likely than the sane to live to a ripe old age, because protected within hospital walls from so many malign influences. But have any of you thought what each thirty or forty years of lunatic life costs, not only in actual outlay for hospital care but in the loss to the state of the wage-earning power of each insane person. It is simply an enormous sum and if the establishment of a Psychiatric Clinic increases the ratio of cures by even five percent., as I feel sure it will do, the institution will more than pay for its cost no matter how large that may be. For their choice of a superintendent for the new clinic the Government deserves no less praise. To Dr. Clarke we are indebted for our first training school for nurses for the insane, our first isolated hospital for the treatment of the sick insane, and, I think, for our first building for the segregation of the tubercular insane. In the length and breadth of the land no better or more experienced man could have been chosen. I wish I could say the same for the rest of their appoint-

ments. To get the best results in our hospitals for the insane all medical appointments thereto should be of men thoroughly trained and experienced in every branch of the specialty, and yet how rarely we see this rule observed. The appointment of outside practitioners to superintendships for political purposes is a flagrant injustice to the patients, to the taxpayers, and to deserving juniors, of whom there are many in the service. No man should be given charge of an institution for the insane unless possessed of experience in the treatment of the insane, and no junior should be appointed unless he has had special training in ppsychiatry and has shown a penchant for the work.

I speak feelingly on this subject, gentlemen, because I myself have gone through the mill. Sixteen of the best years of my life were spent in the asylum service of Ontario, and when time and again I saw myself passed over in favor of some outside man, though the senior for promotion, I thought it was time to quit, which I did. This was, of course, under the regime of the late Government. Whether the present one would have treated me any better, I cannot say, but I think it extremely doubtful.

Do not think that I blame the Government entirely for the wrong done by the appointment of outside practitioners. The men who accept such positions without previous experience are equally blameworthy. As bearing on this point I would like to quote you a few words by one of the ablest writers, himself a physician, in the city of Montreal. They appeared in an editorial, "Insanity and Politics," published in the MONTREAL MEDICAL JOURNAL. In this the author says:—"We yield to none in our admiration of the general practitioner. We are aware of his energy, his resource and his fidelity, but not even the general practitioner will lay claim to a capacity for treating off-hand and to the best advantage grave lesions of the eye and ear, or of the more secret parts of the body. He should adopt the same attitude toward the brain. In time it will come to be a shameful thing for a general practitioner to accept a position for which he is not qualified, since thereby he is committing a wrong towards his colleagues and towards his patients."

To my mind the ideal asylum service is that which exists in New York State. There, all superintendents are appointed by the Boards of Management of the various institutions, and must be selected from men who have served at least five years in an institution for the insane, and have proved their capacity by passing an examination for a superintendency. The assistants are appointed by superintendents, their selection being restricted to the three names first on the list of these eligible for the vacancy. No step in advance can be won unless the candidate has had

previous experience in a lower grade of the specialty, and proven his fitness by passing an examination before promotion.

In conclusion, gentlemen, I would urge upon the profession that they should combine to right this wrong in the matter of asylum appointments. If only the medical men of this province, as a whole, would say, "We wish the system of the promotion of deserving juniors to be established," no Government dare gainsay them. It is for this Association, representing as it does the very pick of the profession to set the ball rolling, and I sincerely trust that ere the close of your sessions some steps towards that end will be taken. In this way, better than any other I know of, you will put yourselves in a position to attain the ideals for asylum work in Ontario, a height which I feel sure you all aspire to see to see the service reach.

THE LETTER AND THE SPIRIT.

Several years ago the North American Life Assurance Company subscribed \$500 in one year to the National Tuberculosis Association, and the following year the same sum to the Gravenhurst Sanitarium, expressing their intention of contributing this annually. By a communication from the Commissioner for Insurance from Ottawa, they were forbidden to do this, and they ceased further subscription. In the Report of the Royal Commission on Insurance, these facts are stated, and if we mistake not, the findings of the Commission reflected on the Company for this proceeding. The manager stated that two policy-holders had derived great benefit from treatment at Gravenhurst and the company directors considered that it was a good investment to support the institution on behalf of the body of their policy holders.

We agree with them. Germany agrees with them. The magnificent sanitarium at Gerbersdorf was built by an insurance company who considered that thus they were making a good investment: this their government allows them to do. Their government has probably given a good deal of thought to the problem; our government, judged by results, has given none. Who is likely to be the better informed on the subject? Germany, we think.

Now it must be stated that the Commissioner of Insurance and the Government spoke according to the law and were technically right. So, according to the law, were the Priest and the Levite who passed by on the other side, while the Samaritan who did not trouble about the legal bond that tied him to his fellow man, became a by-word for disinterested

well-doing. We are tired of the government which says: "We cannot interfere with provincial governments:" we are tired of the provincial government which says: "It is the business of the municipality"—and we can commend scarcely any but the philanthropic private citizen. Is it the business of the Government? Certainly it is! We seem to think it the business of the Government to stimulate immigration, to build post-offices and armouries, to give prizes for architect's plans for new buildings—but to preserve the lives of Canadians, to stamp out a pest in our midst—to save lives that are, financially, worth several thousand dollars apiece—no, not a cent! And if you, directors of a company, seek to represent the best interests of your policy-holders, and at the same time take a share in the fight in which every man, woman and child in Canada must be concerned, if it is to be won,—we shall step in and prevent you! You are doing an unlawful act! The sooner the intellects of our statesmen wake to the fact that it is a national duty to preserve the lives of the nation entrusted to them the better. It is and *must be* the business of the Federal and every other government.

It is announced that Staff-Sergeant Ayres of the Royal North-West Mounted Police has left the force to become veterinary inspector under Dr. Hilton, who was recently appointed by the Dominion Government to represent the Dominion Department of Agriculture in Saskatchewan in the carrying out of the Contagious Diseases in Animals act. This work is controlled from Ottawa by Veterinary Inspector Dr. J. G. Rutherford. In most provinces the department has had special representatives, but in Saskatchewan and Alberta the work has hitherto been done by officers of the Royal North-West Mounted Police under the supervision of Inspector Burnett at Regina. The appointment of Dr. Hilton is thus a departure from the hitherto prevailing practice. It is, however, probable that most of the veterinarians on the staff of the Royal North-West Mounted Police will be employed under the Contagious Diseases in Animals act as heretofore and the appointment of Staff-Sergeant Ayres seems to confirm this view.

Dr. Hilton's headquarters will be at Regina. He will arrange for a separate organization and staff in each province as soon as possible.

The Supreme Court of Canada has rendered a judgment declaring the Alberta medical act, passed by the Alberta legislature and assented to on May 19th, *ultra vires* and reversed the judgement of the Superior Court of the North West Territories. The judgement affects a number

of medical men who registered in Alberta subsequently to the passing of the Alberta Medical Act, and previous to the announcement of the judgment of the Supreme Court of Canada with respect to its legality. It remains with the medical council to decide whether these men will be admitted as medical practitioners in Alberta. What the decision of the council will be is not yet known. It is very likely, however, that those who registered within the above mentioned date will require to register again and pass an examination of the medical council.

Dr. N. E. Mackay has resigned from the position of Professor of Surgery in Halifax Medical College. He is succeeded by Dr. Hogan. Dr. George R. Morse writing to the *Halifax Morning Chronicle*, July 5th, says:—

“When Dr. Mackay has time, I trust he may see his way clear to make a statement of the trouble between the College and himself. Various rumours are in the air, and we as graduates would like to know the real cause of his withdrawal from the school.”

At the last meeting of the Ontario Medical Council held in Kingston, there was a discussion upon the advisability of asking all Canadian universities to extend the medical course to five years. When the Council meets in Toronto next year this important proposal will again be considered.

Dr. Pyne has resigned the office of registrar of the Ontario Medical Council a position which he occupied for twenty-seven years. During that long period he gained many friends and admirers by the courtesy and efficiency with which he performed his difficult duties. He is succeeded by Dr. J. L. Bray, of Chatham.

THE SCURVY AT MONTREAL IN 1534-5.

(Translated.)

In the month of December we became aware that a fatal disease had attacked the people of Stadacona and that, according to their own accounts, more than fifty of them had died. For that reason we shut them out of our fort and forbade them to come among us. In spite of this, the disease broke out among us in a surprising and mysterious manner. Some lost flesh and their legs became large and swollen, the sinews were drawn and turned black like coal; others became cov-

ered with purple coloured spots of blood. Then the disease spread to the hips, thighs and shoulders, to the arms and neck. All who were attacked had their mouths diseased and their gums became so rotten that the flesh fell away from their teeth down to the roots, and in nearly all cases the teeth fell out. The disease took such a hold on the crews of all three vessels, that, by the middle of February, there were not 10 sound men out of the 110 of our number. It was pitiful to see them and to think of the place in which we were, for one could not assist another. The savages came every day before our fort but saw few of our people about, for eight were dead, and more than fifty had no hope of surviving.

Our Captain, seeing our miserable state and the extent to which the disease had spread, ordered all to make prayers and supplications, and he had an image, in remembrance of the Virgin Mary, carried and placed upon a tree about the distance of a bowshot across the snow and ice; and he ordered mass to be said at that place on the following Sunday. And he ordered that all, sick or well, who could walk should go in procession, chanting the seven psalms of David and the Litany, praying to the Virgin that she would entreat her dear Child to have pity upon us. After mass was said and celebrated before the image, the Captain made a vow of pilgrimage to Our Lady of Roquemado; promising to go there, if God gave him grace to return to France. That same day Philip Rougemont, a native of Ambroise, died, aged 22 years.

And, inasmuch as the disease was unknown to us, the Captain had his body opened to see if we could discover anything to preserve, if possible, the remainder of the party. The heart was found to be white and withered and surrounded by a lot of reddish water. The liver was healthy, but the lungs were black and mortified, and all the blood was drawn back over the heart; for when the body was opened a great quantity of black, corrupt blood issued out from over the heart. The spleen also near the spine was a little affected for about two fingers breadth, as if it had been rubbed upon a rough stone. Afterwards we opened up one of his thighs. It was black outside, but the flesh within was fairly sound. When all this was over we buried the body as best we could. May God in His blessed mercy pardon his soul and all his sins. Amen.

And after that the disease went on from day to day to such an extent that at one time there were not three healthy men in all the crews of the three ships. In one of the ships there was not a single man able to go below deck to get anything to drink, either for himself or for a comrade. Sometimes several died at once, and, on account

of our weakness, we had to bury them under the snow, for we were not able to dig the frozen ground, so feeble were we and devoid of strength. We were also in great fear lest the people of the country should perceive our misery and weakness. To conceal the existence of the disease, when the savages came near the fort, our Captain (whom God kept all through in health) went out with two or three men, sick and well, following him in their sight. When they got outside the fort he made pretence to wish to beat them, and he shouted and threw sticks at them to send them back to the vessels, telling the savages by signs that he was keeping all his men at work in the ships; some to caulk, some to make bread and to do other necessary work, and that it was good for them to leave the vessels. The savages believed him and the Captain set the sick men to make a noise with sticks and stones, as if they were caulking.

Our people were so overwhelmed with this disease that they had almost lost hope of ever returning to France, when God in His infinite goodness and mercy had pity upon them, and gave them knowledge of a remedy against all diseases, the most excellent remedy which was ever seen or found in the world—as will now be related.

From the middle of November to the 15th of April, we were continually enclosed in the ice which was more than two fathoms thick. On land the snow was over four feet deep, so that it was higher than the sides of our vessels. This continued up to the above mentioned time. All our drinkables were frozen in casks and inside the ships, from top to bottom, the ice was four inches thick against the sides; and all the river was frozen as far as it was fresh water, to beyond Hochelaga. During this time twenty-five of the chiefest and best of our people died, while at one time more than fifty had given up all hope of life and all the rest were sick excepting three or four. But God in His blessed grace had pity on us and sent us the knowledge of the remedy to bestow health and healing in the way and manner now related.

One day our Captain, thinking on the height the disease had reached and the hold it had on his people, had gone out of the fort and was walking upon the ice when he saw a band of Stadacona people coming. Among them was Domagaya whom, ten or twelve days before, he had seen very ill of the same disease under which his people were suffering. At that time one of Domagaya's legs was swollen at the knee to the size of a two year old child and all the sinews were shrunk. His teeth were fallen out and his gums mortified and diseased.

The Captain seeing Domagaya sound and free from disease was glad in the hope of learning how he had been cured, so that some means

might be adopted for the relief of the crew. When Domagaya got near the fort the Captain asked him how he had recovered from his disease. Domagaya replied that the juice and residue of the leaves of a tree had cured him, and that it was a specific remedy for the disease. The Captain asked if there were any of these trees near that he could point them out, so that he might cure his servant who had caught the disease while staying with Donnacona at the Indian town, for the Captain wished to conceal the number of his people who were sick. Then Domagaya sent two women to find some, and they brought nine or ten branches, and showed us how to peel off the bark and the leaves, and how to put both into water and boil it all. Then they told us to drink the liquid every other day and to apply the residue to the swollen and diseased limbs and they said that this tree, which was called in their language Ameda, would cure them entirely of the disease.

Soon after the Captain made a brew for the sick people to drink, but none of them would try it saving one or two who drank it on chance. As soon as they drank, they experienced the benefit of what they found to be a real and evident miracle, for, after having drunk two or three times they recovered health, and were cured of all the symptoms with which they were afflicted. So much so that some of the crew who five or six years ago had contracted venereal disease were cured completely by the remedy. When the men saw and realized this, there was such haste to get it that they would almost kill one another to be first. In that way they used up in six hours a tree as thick and high as an oak in France. The remedy was so effective, that if all the doctors of Louvain and Montpellier had been there with all the drugs of Alexandria they would not have done as much in a year as this tree did in six days, for we employed it with so much success that, thanks to God, all those who would use it recovered health.

The Oxford University press has entered the field of medical publication. Mr. Henry Frowde and Messrs. Hodder and Stoughton have united their forces to produce a series known as the Oxford Medical Publication, and the announcement is made that in the choice of authors and subjects, the publishers have had the advantage throughout of the advice and assistance of William Osler.

The Oxford Medical Manuals are edited by J. Keogh Murphy, M.A., M.D., M.C., (Cantab.), F.R.C.S.; and G. A. Sutherland, M.D., F.R.C.P. Of these, nine volumes are now ready, and they deal with Diseases of the Larynx, Treatment of Diseases in Children, Surgical Emergencies,

Skin Affections in Childhood, Heart Disease, Anaesthesia, Diseases of the Male Generative Organs, Diseases of the Ear and Diseases of the Nose and Throat. The uniform price is five shillings net. Amongst other Oxford medical publications are Functional Nervous Disorders in Childhood, Operations of General Practice, Enlargement of the Prostate, Physical Diagnosis, and Cancer of the Womb. The same publishers are issuing Osler's System of Medicine, and they announce a system of Syphilis in five volumes edited by D'Arcy Power and J. Keogh Murphy.

Reviews and Notices of Books.

OSLER'S MODERN MEDICINE.—Modern Medicine, Its Theory and Practice. In original contributions by American and Foreign authors. Edited by WILLIAM OSLER, M.D., assisted by THOMAS MCCRAE, M.D. In seven octavo volumes. Volume II. Infectious Diseases. 800 pages of text. Lea Brothers & Co. Philadelphia and New York.

The second volume of this work follows closely upon the appearance of the first volume which has already gone through the press a second time, so great has been the demand for it. There are twenty-nine chapters in volume II. comprising eight hundred pages of text with a good index of twenty-eight pages. In addition to the common eruptive fevers, diphtheria, whooping cough, mumps, influenza, lobar pneumonia, acute rheumatism, asiatic cholera, yellow fever, plague and bacillary dysentery are included. The study of infectious diseases is fittingly introduced by Ludwig Hektoen in the first chapter. Here one may find a comprehensive presentation of the important subject of infection, with due consideration given to infective agents, routes of infection, dissemination in the body, elimination, associated infections and results of microbic activity, etc., etc. In the discussion of Immunity Dr. Hektoen goes carefully into the development and action of antitoxins, lysins, opsonins, precipitins and agglutinins contrasting the former with the present theories and giving an important place in the explanation of immunity to chemical and electrical activity. The writer says in summing up a description of certain experiments that they "show that toxic and antitoxic action may take place without the immediate co-operation of the living organism and that the combination toxin-antitoxin follows chemical laws." Again, to quote him,—“Pfeiffer first believed that his antibodies could be activated only by something in

the body of living animals:"...but it has been "demonstrated that the destruction takes place in vitro also when normal serum is added to immune serum." This chapter closes with the following statement:—"Agglutination and precipitation depend, then, upon the action of salts upon the electrical charges that keep the particles suspended."

Thomas McCrae writes seven chapters, five of which are devoted to typhoid fever and one to typhus fever and one to relapsing fever. The article on typhoid fever affords the reader an opportunity of tracing the development of the knowledge of this disease from its earliest recognition to the present time. In it one can see that the writer strives for clearness of views not only in our diagnosis of individual cases but in our attitude to the disease itself, which is of greater importance. Clearness of teaching characterizes these five chapters and the degree of perspicuity can only be appreciated by a reader of medical literature. It is not alone the arrangement of the text the heavy type and paragraphing but Dr. McCrae's careful study of the disease in its various phases enables him with his directness of style to show the reader the most recent views on all the points discussed—in short the article on typhoid fever is, we think, the best yet written in English medicine. The emphasis given to the more or less permanent effects of typhoid infection upon the circulation and the nervous system is timely. Dr. McCrae is well able to speak of the typhoid spine and we welcome his remarks upon "typho-malaria" and share with him the hope that the profession will cease to use the term. This article and that on lobar pneumonia by Dr. Musser occupy over one-third (270 pages) of the volume.

The chapters on small pox and chicken pox are written by William T. Councilman—than whom we know of no one to speak more authoritatively upon these subjects. The article on small pox is amply illustrated and as one turns from plate III on through the pages of serial photographs one all but sees the patient in life before one. Vaccination is clearly discussed by George Dock, M.D.

In reading the articles on scarlet fever and diphtheria by Dr. John H. McCollom one must feel that the man who writes is an observer of no ordinary type, with convictions and a gift to express them. He writes as one who knows. After giving due consideration to the etiology of scarlet fever, he says:—"There has yet been no discovery that proves definitely that scarlet fever is a bacterial disease and the work of Mallory would seem to demonstrate that the cause of the disease is probably a protozoon." A conclusion which Dr. McCollom reaches not from literature but from personal observation and clinical study is, "that the period of incubation of scarlet fever is on an average ten to fourteen days with the limits from four to twenty days."

While the article on diphtheria is written mainly by Dr. McCollom, the pathology of this disease is from the pen of F. B. Mallory, M.D. Dr. McCollom's experience is not in accord with the statement that the bacillus of diphtheria is frequently found in the throats of perfectly well persons who have the care of patients ill with diphtheria.

In that part of his article devoted to treatment the writer advocates with caution much that is old—e.g. alcohol and corrosive sublimate and calomel. In post diphtheritic paralysis the expectant treatment with rest and feeding is practically all one can recommend. The results of serum therapy are strongly set forth. "No patient ill with diphtheria in the acute stage should be considered in a hopeless condition but anti-toxin should be given in large doses until he commences to improve or succumbs to the disease. When one sees a patient with membrane covering the tonsils and uvula, a profuse serous discharge from the nose, spots of ecchymoses on the body and extremities, cold clammy hands and feet, a feeble pulse, and the nauseous odour of diphtheria, and finds that after administration of 20,000 units of anti-toxin in two doses the condition of the patient improves slightly and after 10,000 units more there is a marked abatement in the severity of the symptoms, that when an additional 10,000 units have been given the patient is apparently out of danger and eventually recovers, one must believe in serum therapy in the treatment of less cases."

"When one sees a patient in whom the intubation tube has been repeatedly clogged and the hopeless condition changes for the better after the administration of 50,000 units, one cannot but be convinced of the importance of giving large doses in the very severe and apparently hopeless cases."

Measles, Rubella, The Fourth Disease, Erythema Infectiosum, Whooping Cough and Mumps are described in three chapters by Dr. John Ruhräh. To Influenza, Deugue and Erysipelas each is given a chapter written by Frederick T. Lord, M.D., Thomas D. Coleman, M.D., and James M. Anders.

The article on epidemic cerebro-spinal meningitis is by Dr. Henry Koplik. With McCrae he points out that Kernig's sign is not pathognomonic of meningitis, but that it may be seen in pneumonia and typhoid fever. As his own observation Dr. Koplik states "that when Kernig's sign is present and an attempt is made to straighten the leg against resistance there is intense pain, and a stimulation of the Babinski reflex occurs at the time of the attempt to straighten the leg on the thigh against the resistance." Associated mydriasis simultaneous with the

movement of a rigid neck in an attempt to straighten the head is to be taken as significant of meningitis. Macewan's tympanitic percussion note over the frontal and parietal regions as a sign of hydrocephalus is frequently alluded to. We miss in Dr. Koplik's article a discussion of the prognosis and sequelæ of this important disease.

In Chapters xxi, xxii and xxiii extending over one hundred and ten pages, Drs. John H. Musser and George W. Norris give a comprehensive review of lobar pneumonia with interesting illustrations, tables, comparisons and discussions. The treatment is well reviewed and the chief suggestion is that in order to successfully combat the conditions present "we must play with Nature's cards." The writers indicate how this may be done in accordance with our present knowledge.

Toxæmia, Septicæmia and Pyæmia in Chapter XXIV. are taken up by Richard M. Pearce, M.D.

An article in *Modern Medicine* on Acute Rheumatism by Frederick J. Poynton, M.D., at once attracts the attention of all who have followed the work of this writer and that of others in their efforts to discover the cause of rheumatism. Due consideration is given to the researches and results of others some of whom receive friendly though adverse criticism at his hand. Poynton's stand on the bacteriology of acute rheumatism seems to be summed up in these words. "Acute rheumatism is a specific disease and so far as our knowledge goes, owns but one exciting cause variously called, a diplococcus, streptococcus or micrococcus. The bacteriologist would wish, perhaps, to go further and say that this diplococcus is specific; and it may prove to be the case and is probable; but the discovery of a specific test for a micro-organism is a different matter to establishing it as a cause of a specific disease."

The balance of the volume is taken up with a chapter on Asiatic cholera by W. P. Dunbar, M.D.; one on Yellow Fever by James Carroll, M.D.; one on Plague by W. J. Calvert, M.D. and one on Bacillary Dysentery by K. Shiga, M.D.

Volume II like its predecessor is an attractive book reflecting much credit upon the contributors and the publishers. The print is good, the plates and illustrations, while perhaps few in number, are especially well done and the editor-in-chief and his assistant are to be congratulated. Other important infectious diseases will be taken up in another volume.

W. F. H.

A TREATISE ON ORTHOPAEDIC SURGERY. By ROYAL WHITMAN, M.D.
Third Edition, 871 pages, 554 engravings. Lea Brothers & Co.,
1907.

The third edition of Whitman's treatise on orthopaedic surgery is now before us. It is on the whole a valuable contribution to the literature

of the subjects discussed in it but is, like the former editions, a little disappointing and most of the criticisms made of the second edition in the pages of this journal apply again to this the latest edition of Dr. Royal Whitman's book. It deals with only a limited number of the affections described as in the scope of this branch of surgery by the American Association of Orthopædic Surgeons of whom the author was at one time president, which seems from an orthopaedist's point of view, to be unfortunate because if this branch of surgery is to be isolated and considered a specialty, and it is open to doubt whether it is well to do so, it is certainly well to occupy the whole territory claimed for the specialty.

In orthopædics, perhaps more than in all branches of surgery, have the Americans maintained a strong position. The work done in orthopædic clinics taken generally comparing most favourably with that done elsewhere, and of the members of the American Orthopædic Association few have had greater opportunities than has Dr. Whitman and few have shown in their publications and the work done by them greater thought or a greater spirit of investigation.

Although the frequent use of the ego in a literary production has its disadvantages, the treatment of any subject from a personal point of view increases the interest taken in such dissertation, as, for instance, with what interest would the practitioner of orthopædic surgery have read a criticism by Whitman on the treatment of Pott's disease, and its most annoying resultant paraplegia, by hyper-extension directed to the gradual reduction of the deformity! Whitman felt the necessity of straightening or extending the spine so far back as 1892, when he wrote, "Our efforts should be directed to straightening the entire spine above and below, and thus to limit the kyphosis to the actual extent of the disease:" and again in 1893 he wrote, "the object of treatment is the prevention of deformity not only because the effect of treatment is estimated by the degree of ultimate deformity rather than by the survival of the patient, but because deformity itself, after complete recovery from constitutional and local disease, by its distortion and compression of vital organs, is a constant source of weakness and danger." Yet in this, the third edition of his work, published indeed, over fourteen years after these statements were made, the author does not furnish his readers with any clear or definite estimate of the advantages of the methods for the gradual reduction of deformity, which methods have been in use for nearly fourteen years, although on several occasions he refers to the efficacy of such forms of treatment, and although as late as 1901, he wrote, "the importance of checking the destructive process has been

emphasized and the routine of treatment is likely to be more or less modified in the future to meet this requirement." With what interest also would the surgeon, taught by these words to look forward to a modification of the older methods of treatment, have studied statistics comparing, we shall say, cases of Pott's disease of the lower dorsal vertebrae treated after the methods of Goldthwait with those treated by Sayer's method.

Of great interest are his words on the operative treatment of tuberculous joints. Orthopaedists of recent years have been freely criticized by their colleagues in general surgery because of their growing tendency to operate on joints affected by tuberculosis. Orthopaedists have been adversely criticized for their almost universal custom of correcting deformities of knees and hips even in the acute stages of tuberculous disease of these joints, and for their less frequent endeavours to eradicate the disease by operative interference, especially in adult patients suffering from tuberculous lesions. The ingrained prejudice of the general surgeons against such procedures is well combated in these words:—

"Gibney, contrasting two equal periods of thirteen years of service at the Hospital for Ruptured and Crippled, in the first of which no operations were performed on tuberculous subjects, states that in his opinion the deaths from this source have been proportionately no greater during the period of active surgical intervention than before. And an investigation of the causes of deaths among the patients treated at the New York Orthopedic Dispensary and Hospital during a period of twenty years showed that at least 25 per cent. of these were due to tuberculous meningitis." During this period there had been, practically speaking, no operative intervention, yet the proportion of deaths from this cause is certainly as great as in any statistics that have been reported. It would appear, therefore, that the danger of dissemination is not sufficient to deter one from performing any operation that seems to be indicated by the character of the local disease or by the general condition of the patient."

And then almost as illustrating the position taken Whitman remarks in his discussion of the treatment of tuberculous disease of the hip that plaster of Paris may first be applied under an anesthetic for the purpose of relaxing muscular contraction. The immediate reduction of deformity is free from danger.

The discussion of the diagnosis of Pott's disease of the spine and the general consideration of this affection is beyond reproach but the writer does not lay sufficient stress on the importance of the open air treatment

nor does he discuss treatment by tuberculin which would have been particularly interesting since the work of Wright.

The chapter on gonorrhoeal arthritis is again open to criticism. Treatment of the affection itself is too briefly considered.

Whitman cannot be accused of dispensing comfort or confidence to the surgeon treating the so-called rheumatoid diseases nor does he quote very largely from those who might give a little help.

"Motion has few supporters in tuberculous disease" well condemns the practice of certain European theorists whose suggestions are too liable to be considered inspired because of that notoriety which any new thing is liable to give to its promoters.

The chapter devoted to lesions of the hip joint is excellent. The work is full of most valuable statistics made from the records of the Hospital for the Ruptured and Crippled. The description of the lesions of the knee-joint is also perfection.

The chapters devoted to congenital dislocation at the hip are worthy of the pen of the surgeon who has done so much in the treatment of this affection.

The only criticism that can be made of the section devoted to deformities of the foot is that the author's methods are too prone to overshadow the ways of all others. If Whitman had given the methods of others in this book and followed these with a description of his own methods and his reasons for adopting them the work would have been of far greater interest, but in spite of its faults this treatise will rightly be highly appreciated by all interested in this branch of surgery.

MODERN METHODS OF DIAGNOSIS IN URINARY SURGERY. By EDWARD DEANESLEY, F.D., B.Sc., London, F.R.C.S. Hon. Surgeon Wolverhampton and Staffordshire General Hospital. H. K. Lewis, London, W.C. 1907.

This little book of something under 100 pages is written, as its author tells us, by a general surgeon for the general surgeon and with the purpose of placing more clearly before him the newest instruments and diagnostic methods in diseases of the bladder and kidneys. There are in all but four chapters: with the first, dealing with "urinary symptoms" we have no criticisms to offer.

The remaining three chapters, dealing with "abnormal urine," "physical examination" and the "differential collection of urines," somewhat perplex us. They say either too little or too much. Too little if the author's purpose is to bring clearly before the general surgeon's mind the accuracy and method of the newer instruments: too much if

he intends him not to practice what the writer preaches. Only in a few instances will examination of the urine alone reveal the source of blood and pus, says the author and we readily concur, hence learn to make use of the cystoscope and its allies. "Nephritis, acute and chronic may affect a single kidney independently," possibly very true but too sweeping a statement to stand without more authoritative support than the bald words: "Essential renal hemorrhage exists:" we wish we could be equally certain, not a word on present and past controversies on this point. The use of methylene blue, of phloridzin, the determination of the freezing point of urine and blood are all noticed but the important point that these methods are incomparably more useful, when made use of in relation to separated urines is dismissed in just these words. Surely on this matter an example or two might have crystallized the meaning of the whole latter part of the book.

The advocacy of the cystoscope is sound, Mitzel's instrument comes in for its usual praise; as the author says: Rules can be given for the use of the cystoscope but diagnosis is a matter of experience.

Finally the separation of urines is discussed and hercin lies the kernel of the book. The author is a warm advocate of the segregation, Luys in particular, and has evidently, had exceptional success in its use because he fails to give us examples of his findings that we may judge for ourselves. Why we do not equally endorse this instrument may be stated in a very few words and receives support, we venture to think from this chapter itself. Briefly then it is equally as painful or disagreeable as the ureteral catheter: it is more difficult to introduce than the cystoscope, it requires more attention when in position: it delivers urine contaminated by the bladder: except in the hands of an expert one is never sure that the urines are effectually separated and even in his hands this doubt must frequently exist. It is, however, easier to introduce the segregator into the bladder than the ureteral catheter into the ureter and consequently the instrument exists.

With several statements we concur fully e.g. general anæsthetics are to be avoided as they inhibit or diminish the secreting power of the kidneys; slight variations between the separated urines are not of pathological significance. We wish the writer had gone more into detail in discussing those diagnostic methods; the strongest part of the work is the last chapter, where his personal experience more nearly touches us and we could wish he had brought this more into prominence in earlier chapters. We offer him our congratulations on bringing this little known subject before the profession.

THE ABDOMINAL AND PELVIC BRAIN WITH AUTOMATIC GANGLIA. By BYRON ROBINSON, B.S., M.D., Chicago, Illinois, Professor of Gynecology and Abdominal Surgery in the Illinois Medical College, Consulting Surgeon to the Mary Thompson Hospital for Women and Children, and the Woman's Hospital of Chicago. Published by Frank S. Betz, Hammond, Indiana.

Not since reading Hilton's Rest and Pain, thirty years ago, have we read such a thoughtful book as this one on the inter-relation of diseases and symptoms due to the part performed by the great sympathetic nerve. In his preface the author says: I am aware that the present volume does not belong to the stereotyped, systematized text books; yet I am confident that the thinking reader will find in its pages ample reward for its perusal. The book is entirely original both in text and drawings both of which, but, especially the latter, we can well believe required a vast expenditure of time and money. The Chapters XXIX on Constipation, XXX on Shock, and XXXIX on Splanchnoptosia or falling of the viscera are especially interesting. He is one of the few writers who understand that constipation can be cured better without drugs than with them and more especially by the influence of the mind through the sympathetic. He points out that a person can establish almost any definite hour for regular defecation. Constipation, he says is a neurosis of the faecal reservoir. He also points out how defective nutrition from poor blood is followed by first lazy and then weak muscular action of the bowel walls.

The chapter on the significance of sudden abdominal pain is also most interesting. To quote just one paragraph. "Probability is the rule of life and it is just as applicable in diagnosing sudden abdominal pain as in other matters. For example, when a man is attacked with sudden abdominal pain and vomiting with rise of temperature, pulse and respiration, the probability is that it is appendicitis—not perforation of the gastrum, enteron or colon, for that occurs one hundred times less than perforation of the appendix." Then again he says: "local rigidity of the abdominal muscles indicates adjacent disease of organs supplied by the same nerves as the muscles, which exercise a protective agency, to preserve rest for damaged tissue, to assume repair, and to prevent further damage from motion, e. g. distribution of sepsis by peristalsis. Any visceral disorder is reported to the spinal cord which is at once emitted to the abdominal wall for protective purposes (muscular rigidity)."

The sudden acute abdominal pain arising from strangulation of a loop of bowel by peritonitic bands is difficult to interpret and seldom diag-

nosed. It may be asserted that when a patient is suffering from some grave disease, manifest by sudden acute abdominal pain, the nature of which cannot be interpreted, an early exploratory laparotomy is justifiable and demanded. He then gives instances from his own large experience of the many conditions found, many of them the least expected but all showing that without an early exploratory laparotomy all of the patients must have died. It is also evident that the man who makes the exploration must be prepared to resect the intestine if it be found gangrenous or to deal with a perforated ulcer of the stomach, or a ruptured tubal pregnancy of a twisted ovarian cyst.

The writer goes most minutely into the nerve supply of the organs occupying the abdominal cavity illustrating his observations with an unusually large number of drawings, those of the tractus urinarius being unique. Want of space prevents us from writing more but there is hardly a page of the six hundred and fifty of which the volume is made up that does not contain some practical deduction which would be of service in our daily practice.

A. L. S.

A TREATISE ON THE PRINCIPLE AND PRACTICE OF MEDICINE. By ARTHUR R. EDWARDS, A.M., M.D., Professor of Medicine and Clinical Medicine in the Northwestern University Medical School, Chicago. Illustrated with 100 engravings and 19 plates, and containing 1,328 pages. Lea Brothers & Co., Philadelphia and New York.

This book is in its first edition. The author, impressed with the wide range of modern practice of medicine, makes the effort to thoroughly systematize his work, and endeavours to impress upon the book the following characteristics:—blending causative pathology with consecutive clinical features, giving reasons for facts, subordinating exceptions to rules in clinical findings, and avoiding allurements of typical clinical pictures and dogmatic generalization—ever holding in his mind the conception that while dealing adequately with scientific theories and principles, the final object of the book is the application of knowledge to the cure or alleviation of disease.

The above is practically the author's "vorwort"—setting forth the aim and object of his work. How fully he has realized this object can be best understood by a careful review of the pages.

The contents are comprised under eleven sections. These are specific infections; diseases of the circulation; disease of the different systems; constitutional disease; intoxication and sunstroke, and diseases due to animal parasites. In this section (XI) are included malaria and

amoebic dysentery, already described under the first section, that of acute infections and trypanosoma.

Infections of uncertain origin, treated of at the end of section I, include febricula, glandular fever, miliary fever, Weil's disease, milk sickness, mountain fever, and foot and mouth disease.

After a general review of this book one must conclude that the author is to be congratulated on the work. He has written a good book. One is struck by the large number of authorities quoted, as the names in the text indicate; by the clear divisions of the subjects discussed, very helpful to students, and by the careful attention given to treatment—both general and symptomatic.

The illustrations are very well done and most helpful. There are a few pages, bound in doubtless by mistake, between 630 and 631, and 640 and 641, confusing the reader. The paper in the book is of that very heavy sort, with glossy surface, increasing unnecessarily the weight and making the reading of the text very difficult except in certain relations to the light. We have said this book is in its first edition. As truly we may say that it should pass through many editions.

A TEXT-BOOK OF PHARMACOLOGY. By TORALD SOLLMAN, M.D.
Second Edition, thoroughly revised and greatly enlarged. Philadelphia and London. W. B. Saunders Company, 1906.

As the author rightly says in his preface, the extensive recourse to animal experimentation has brought about during the latter half of the century just closed, the development of the study of the action of drugs along lines scarcely dreamed of formerly. With this development has come an improvement in the methods of teaching. The student no longer depends on works on general therapeutics for his knowledge of pharmacology, but in addition to modern text-books devoted to this subject alone he himself proves in the laboratory the action of many of the drugs in every day use. The second edition of Dr. Sollman's valuable work comes to us thoroughly revised and greatly extended. Part I deals with pharmacy, pharmaceutic methods and preparations, incompatibilities, etc., with a chapter on toxicology. This portion of the book is concise and well adapted to the needs of the student who has, perhaps, been too heavily burdened with this work in the past. In Part II. devoted to pharmacology, therapeutics and materia medica, we find the arrangement similar to that in the first edition with the enlargement of some sections and the addition of certain new drugs. In this new edition, as in the first, Professor Sollman has given us the benefit of his wide experience as a laboratory worker. The

final section of the work is of the utmost value to student and teacher alike. In addition to a chapter on chemic exercises and one on experiments on frogs and mammals there is a description of the author's laboratory course in pharmacology together with a list of the necessary equipment for such a course. While appreciating the value of laboratory instruction it seems to us that there is danger of too much time being given to the experimenting with drugs which have little or no therapeutic value. The work as a whole is a valuable addition to our present meagre stock of text-books and should be of interest to the general practitioner as well as to the student.

J. W. S.

ULCERATION OF THE CORNEA. By ANGUS McNAB, M.B., F.R.C.A., etc.
London: Baillière, Tindall & Cox; Toronto: J. A. Carveth & Co.
Price, \$1.50.

Mr. McNab has produced a most valuable little work on Ulceration of the Cornea, in which he has attempted, as far as possible, to classify the ulcers according to their bacterial findings. This classification without doubt is the truly scientific one, and, as our knowledge of the various germs increases, it is bound to be the classification of the future. It is only by following this line of diagnosis that a truly rational and successful treatment of ulcers of the cornea can be instituted. A great deal has been done already in this direction, but there are still many gaps to be filled. In addition to dealing exhaustively with the bacterial and pathological changes, Mr. McNab describes the treatment to be followed out in the various types of ulcer, having regard to the main sources of infection as being found in the nose, from which a secondary dacryo-cystitis is set up. He urges in most cases of intractable sac trouble the excision of the lachrymal sac, although this appears to be in many cases a rather heroic form of treatment. The last chapter or two of the book is devoted to bacteriology and to the various operations on the sac and cornea, as also the removal of material from an ulcer for examination purposes. We can only speak in terms of the highest praise of the book and recommend it strongly to the profession.

J. W. S.

THE CARE OF THE BABY. By J. P. CROZER GRIFFITH, M.D., University of Pennsylvania. Fourth Revised Edition. 12mo of 455 pages, illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net.

Four years ago the present reviewer had occasion to commend the third edition of this book. The fourth even more fully deserves commendation. The teaching is sound and the practice sensible.

MODERN SURGERY: GENERAL AND OPERATIVE. By J. CILALMERS DA COSTA, M.D., Professor of the Principles of Surgery and of Clinical Surgery in the Jefferson Medical College, Philadelphia. Fifth Revised Edition, enlarged and reset. Octavo volume of 1283 pages, with 872 illustrations, some in colours. Philadelphia and London, W. B. Saunders Co. Canadian agents, J. A. Carveth & Co., Toronto, Ontario. 1907. Cloth, \$5.50 net. Half morocco, \$7.00 net.

For quite a number of years, Da Costa's surgery has been among the text-books recommended to the students by the teaching staff of many of the medical colleges of America. This may safely be taken as a favorite criticism of the merit of the book. The number of the editions called for in the past and the present demand, indicate its popularity. It is essentially a one-man's book, and as such, it gives in a singularly clear and attractive form, the knowledge gained from a long and varied experience in both the practising and teaching of surgery. The author's aim has evidently been to present a practical up-to-date book, a happy medium between the complete but cumbrous text-book and the incomplete but concentrated compend, and we congratulate him. A somewhat extensive bibliography is placed concurrently in the text, which adds materially to its authoritativeness and usefulness. The special subjects of ophthalmology, rhinology, otology, laryngology and gynaecology have not been taken up, and in orthopedic surgery, only those conditions which must necessarily be frequently met with are considered. Fractures are treated extensively, the practical importance of this subject calling for a full discussion. Operative surgery is wisely confined to the commoner procedures required by the average practitioner. The surgery of the stomach, duodenum, appendix, prostate and thorax has been considerably added to and represents the modern ideas on these subjects. The illustrations are quite adequate and as practical as the text.

W. L. B.

CHEMICAL PATHOLOGY; being a Discussion of General Pathology from the Standpoint of the Chemical Processes Involved. By H. GIDEON WELLS, Ph.D., M.D., Assistant Professor of Pathology in the University of Chicago, and in Rush Medical College, Chicago. Octavo of 549 pages. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$3.25 net. Canadian Agents: J. A. Carveth & Co., Toronto.

This book has filled in a gap that has long existed in the English medical literature. Although pathology has given to medicine innu-

merable works concerning the appearance and nature of disease, the subject of the chemical changes taking place in altered metabolism has not been sufficiently dealt with. There are, however, a great number of chemical studies of disease scattered through the literature of different languages, and the author of this work has set about the task of compiling these under their various sub-headings.

The subject of physiological chemistry itself being in its infancy, the ordinary student or practitioner is not conversant with it. The first half of this book, therefore, has been taken up in reviewing the changes taking place normally in a cell of the body and of its products. The question of bacterial ferments and toxins is also studied, pointing out the practical application of these to human pathology. The sub-studies arising out of the subject of immunity occupy several very interesting chapters, as does also the work on the chemistry of tumours and that on auto-intoxication.

The book is to be recommended to those who do not care to enter too deeply the intricate chemical problems of metabolism. The bibliography of the individual studies is quite extensive.

A DICTIONARY OF MEDICAL DIAGNOSIS. By HENRY LAWRENCE MCKISACK, M.D. London, Bailliere, Tindall and Cox, 1907. Canadian agents, J. A. Carveth & Co., Toronto.

Dr. McKisack is physician to that excellent institution, The Royal Victoria Hospital, Belfast. He has written a book which is new in medicine. It is a study of the language of the signs which may be observed in the person of a patient, and their significance considered strictly from the observer's point of view. The methods of examination are those which may be fairly considered clinical, and exclude that routine which is performed when the body is upon the post-mortem table; though, in a technical sense that measure is "clinical" also. The subjects are dealt with in alphabetical order, as in a dictionary and the significance of each phenomenon is recorded. The illustrations are admirable. This book is likely to become a standard in the same sense as a well-known dictionary is, and it will be a stimulus to careful and keen observation. The record of signs is very complete, and the interpretation is done with much wisdom.

DISEASES OF THE RECTUM. By W. C. BRINKERHOFF. Urban Publishing Company. Chicago, 1907. Price, \$2.00.

One does not require to be very astute or to read far to come to the conclusion that this is an extremely foolish book. It appears to deal largely with "the injection method" of treating hæmorrhoids, and the

author forestalls criticism by comparing himself with the martyrs who have suffered from the denunciation and ostracism of the "professors" of their time. The case reports are amusing. One grateful patient presented to "the doctor" a package of bills, "though there was no account in the books against him," and bore this remarkable testimony: "I wish it was ten times as much." Another patient who was advised to have his hæmorrhoids treated by this method made the judicious observation: "Young man, I don't see much use of fooling with them." That is our own opinion of the method—and of the book.

A TEXT-BOOK OF THE PRACTICE OF MEDICINE; for Students and Practitioners. By HOBART AMORY HARE, M.D., B.Sc., Professor of Therapeutics in the Jefferson Medical College of Philadelphia, etc., etc. Second edition, revised and enlarged; 1,132 pages. Illustrated with 131 engravings and 11 plates in colours and monochrome. Lea Brothers & Co., Philadelphia and New York.

The author of this work is widely known to practitioners and students through his books on Practical Therapeutics and Practical Diagnosis—both having already gone through several editions. With the appearance of the second edition of Dr. Hare's Practice of Medicine the writer "desires to express his appreciation of the cordial reception of the work since its first appearance." Coming from the hands of one who has spent twenty-one years of active hospital and private practice, constantly teaching clinical medicine and therapeutics, the reader is led to expect good doctrine as he peruses this work, and as he may have occasion to turn to it from time to time, he will not be disappointed. The work has been enlarged and revised, and the latest views accepted as reliable are embodied in its pages. It includes several chapters on tropical medicine. As in another recent publication of Lea Brothers, we find the glossed paper very trying in certain lights.

W. F. H.

MATERIA MEDICA for Nurses. By GEORGE P. PAUL, M.D. 12mo of 240 pages. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net.

The modern nurse seems to be an industrious person, if one may judge by the number of books which are being issued for her instruction. It seems incredible, however, that a young woman in the spare moments of two or three years could master so much. The author has done his work well, and even a student of medicine would be sufficiently accomplished in materia medica if he knew all which it contains. The book is easy to read. It is not a mere compilation. The information is accurate although condensed.

THE PRACTICAL MEDICINE SERIES. Edited by GUSTAVUS P. HEAD, M.D. Vol. I. General Medicine. Edited by FRANK BILLINGS, M.D. and J. H. SALISBURY, M.D. Vol. II. GENERAL SURGERY. Edited by JOHN B. MURPHY, M.D. Vol. III. THE EYE, EAR, NOSE AND THROAT. Edited by CASEY A. WOOD, M.D., A. H. ANDREWS, M.D., and GUSTAVUS P. HEAD, M.D. Series 1907. Chicago. The Year Book Publishers.

The present volumes are three of a series of ten issued at about monthly intervals, and covering the entire field of medicine and surgery. Each volume is complete for the year prior to its publication on the subject of which it treats. This series is published primarily for the general practitioner, but the arrangement in several volumes enables those interested in special subjects to buy only the parts they desire. We have frequently mentioned this Series and always with praise. We desire now to say that the books are improving as the series extends. The material is well digested, not merely collected in a mass. The references are full and the selection is wise. A practitioner who reads these ten volumes will know the best which has been done in medicine for the year.

A MANUAL OF PERSONAL HYGIENE. Edited by WALTER L. PYLE, M.D., Assistant Surgeon to the Wills eye Hospital, Philadelphia. Third Revised Edition. 12mo of 451 pages. illustrated. Philadelphia and London: W. B. Saunders Company, 1907. Cloth, \$1.50 net. Canadian agents, J. A. Carveth & Co., Toronto.

The second edition of this book was received by the present reviewer, 28th December, 1904, and was mentioned in this JOURNAL, February, 1905. In the present or third edition, the work has been thoroughly revised and numerous additions have been made, including an illustrated system of home-gymnastics, a chapter on domestic hygiene, and an appendix, containing the simpler methods of hydrotherapy, thermotherapy, and mechanical emergencies. A concise glossary of the purely medical words in the text has been prepared for the convenience of non-medical readers. In our judgment the book will have an enlarged usefulness in its present form.

INTERNATIONAL CLINICS. Vol. II. Seventeenth series. Edited by W. T. LONGCOPE, M.D. J. B. Lippincott Company, 1907.

This is the second volume under the new editorial management. All the features which made the previous volumes so well known, and so

valuable are retained. The plates are as numerous and the text as good—which is saying all that requires to be said.

A MANUAL OF THE DIAGNOSIS AND TREATMENT OF DISEASES OF THE EYES. By EDWARD JACKSON, M.D., Professor of Ophthalmology in the University of Colorado. Second Revised Edition. W. B. Saunders, Philadelphia.

This is one of the most interesting and reliable of modern works on Ophthalmology. While it is primarily intended to meet the needs of the general practitioner of medicine and the beginner in eye surgery, any Ophthalmologist will be amply repaid by a perusal of its contents. In this second edition the subject has been brought up to date in its every phase, and has been treated in a thoroughly sound manner.

W. G. M. B.

ON TREATMENT. By HARRY CAMPBELL, M.D., F.R.C.P. London, Bailliere, Tindall and Cox, 1907. Price, \$1.50. Canadian agents, J. A. Carveth & Co., Toronto.

This book is in reality a monograph of over 400 pages, in which the author treats certain questions of therapeutics from his own point of view. The plan is so good and the execution so excellent, he may well receive the indulgence of the reader, which he asks in the modest little preface dated at Wimpole St., May, 1907. It is a book by a man who is at once a scholar and a physician; and teachers of medicine would do well to heed the harsh, yet true, things which he says of the results obtained by the excessive teaching of "minute anatomy, speculative physiology, and physiological therapeutics." Hospital Boards might also give attention to his comment upon promotion "by the pernicious principle of seniority." On treatment the book is full of matter, rich with experience and presented with skill. It is enough in itself for a summer's reading.

Medical News.

ONTARIO MEDICAL ASSOCIATION.

We are much pleased to be able to state that the last meeting of the Ontario Medical Association was one of the best which that society has known. There were present 244 members, besides a certain number of guests. Of these there were 44 new members.

The history of this association is in some respects peculiar. During the early years it was in a flourishing condition, but after 1889 interest

in the meetings appeared to decrease for a number of years. The officers for 1907 showed a very praise-worthy determination to make this meeting a pronounced success. We believe, however, it is only simple justice to say that the marked success of the meeting was largely due to the untiring work and the great popularity of the society's president, George A. Bingham.

The Committee on Papers and Business, under the Chairmanship of Dr. Gibb Wishart, did exceedingly good work in arranging for thorough discussions on eminently practical subjects, and were fortunate in obtaining the assistance of Dr. Crile, of Cleveland, who delivered the address on Surgery, and Dr. Ravenel, of Philadelphia, who delivered the address in Medicine. They were also fortunate in obtaining the assistance of our able and genial friend, Justice Riddell, of Toronto, who discussed the legal aspects of providing means for the care of confirmed inebriates.

We desire also to congratulate the Committee of Arrangements, under the Chairmanship of Dr. Herbert Hamilton, on the admirable character of the programme which they provided.

In addition to the work of these Committee's it was generally conceded that the association did a very graceful act in adding to its list of honorary members the names of Dr. Thomas T. Harrison, of Selkirk, and Dr. James R. Richardson, of Toronto. The next meeting will be held at Hamilton, under the presidency of Dr. Ingersoll Olmsted.—
The Canadian Practitioner.

ONTARIO MEDICAL COUNCIL.

The Ontario Medical Council met in Kingston, July 2nd. This was the first occasion on which the meeting was held out of Toronto. There was a large attendance of representatives. Dr. W. H. Moorehouse, of London, the president, made his annual address.

He reviewed the council's work. He said a site for the new council building was to be decided upon, the board of examiners were competent and trustworthy and that the by-law covering the election of members needed revision. He insisted that with matters of medical education there should be no lowering of the standards and urged action to forestall any such attempt.

The following officers were elected: Dr. W. Spankie, president; Dr. P. Stewart Milton, vice-president; Dr. H. W. Aikins, treasurer; Dr. J. C. Patton, auditor; Dr. J. L. Bray, registrar.

Dr. J. L. Bray, graduated from Queen's Medical College in 1863. Two years ago Queen's University conferred upon him the degree of

L.L.D., in recognition of long service to the medical profession. The new president, Dr. W. Spankie, Wolfe Island, is also a graduate of Queen's. He graduated as B.A., in 1862, and as M.D., in 1885. He has been inspector of Frontenac schools as well as a medical practitioner.

NOVA SCOTIA MEDICAL SOCIETY.

The Nova Scotia Medical Society held its fifty-fourth annual meeting at Windsor, July 3rd and 4th. Dr. J. B. Black, presided and there was a large enrolment of members. On Wednesday evening a public meeting was held at which Mayor Armstrong read an address of welcome from the citizens of Windsor.

Dr. Clark gave the presidential address. His subject was "Race Suicide with Suggestion of some Remedies." Dr. W. H. Hattie, superintendent of the Nova Scotia Hospital for the Insane presented a paper upon "The Cost of Degeneracy." Dr. Edward Archibald, of Montreal, read a paper upon "Cerebral Compression, its Physiological Basis and Therapeutic Indications."

The following officers were elected for the ensuing year:—President, Dr. J. Stewart, Halifax; first vice-president, Dr. W. Huntley Macdonald, Antigonish; second vice-president, Dr. W. G. Putnam, Yarmouth; secretary-treasurer, Dr. J. R. Corston, Halifax; executive council—Guysboro, Dr. G. E. Buckley; Shelburne, Dr. L. O. Fuller; Yarmouth, Dr. S. W. Williams; Digby, Dr. L. H. Morse; Antigonish, Dr. W. F. McKinnon; Inverness, Dr. C. H. Dickson; Richmond, Dr. C. P. Bissett.

The next meeting will be held in Halifax, as the society always holds its meetings there every third year, and the Maritime Medical Association will be in session in that city at the same time.

NEW BRUNSWICK MEDICAL ASSOCIATION.

The twenty-seventh annual meeting of the New Brunswick Medical Association was held in St. John, July 16th. The election of officers resulted as follows:—President, Dr. J. M. Deacon, Milltown; first vice-president, Dr. A. J. Ferguson, Dalhousie; secretary, Dr. R. J. Gay, St. John; corresponding secretary, Dr. C. T. Purdy, Moncton; treasurer, Dr. G. G. Mervin, St. John; trustees, Drs. A. F. Emery, W. Farwick and A. Pierce Crockett, St. John. It was decided that the next annual meeting be held in St. Stephen, on July 16, 1908. Dr. Skinner reported that there are now 273 registered physicians in New Brunswick. The population is 332,000. The financial statement of the treasurer, Dr.

Thomas Walker, showed a balance of \$1,308.27 in February, 1906, and receipts from registrar \$260, making a total of \$1,568.27. The expenditures for the year were \$559.79, leaving a balance of \$1,008.48.

Dr. Clarke, superintendent of Toronto Asylum, and Dr. Ryan, superintendent of Rockwood Asylum, Kingston, left on July 5th for Europe to visit London, Munich, Vienna, Berlin and Paris, for the purpose of studying the treatment for the insane in vogue there and to report for the benefit of the Ontario asylums.

Dr. F. McKenty, lately house surgeon in the Royal Victoria Hospital, and Dr. R. D. Forbes, formerly of the Montreal General Hospital, have recently received the degree of F.R.C.S. (Eng.). We offer them our best congratulations: we understand that Dr. McKenty passed the required examinations in an almost unprecedentedly short space of time.

Dr. Ackland W. H. Oronhyatekha, only son of the late Oronhyatekha, Supreme Chief Ranger of Independent Order of Foresters, died suddenly at his residence, the Pines, near Deseronto, on July 7th. Death was due to heart disease.

Dr. S. A. King, of Kingsville, Ont., died on July 8th, in his 63rd year. He had retired from the practice of medicine for some years, and was interested in many large financial enterprises. A graduate of Victoria University, he practiced at Kingsville for twenty years.

Dr. Joseph W. Leslie, of Toronto, died of apoplexy on July 17th. He was surgeon of the Queen's Own Rifles during the North-West Rebellion, and was in his 54th year; he was a graduate of Toronto University.

Dr. Bertrand H. Keating, a graduate of London Medical College and McGill University, died in Los Angeles, California.

Dr. John S. Benson, of Chatham, N.B., died on June 22nd, in his 69th year. He was a graduate of Guy's Hospital in 1861.

Toronto had sixteen cases of small-pox in the last month. The disease began with children, two of whom were unvaccinated.

Retrospect of Current Literature.

MEDICINE

UNDER THE CHARGE OF F. G. FINLEY, H. A. LAFLEUR AND W. F. HAMILTON.

HENRY HEAD, M.D., F.R.S., and JAMES SHIRREN, F.R.C.S. "The Consequences of Injury to the Peripheral Nerves in Man." *Brain*, November, 1905, p. 116.

HENRY HEAD, F.R.S., W. H. R. RIVERS, M.D., and JAMES SHIRREN, F.R.C.S. "The Afferent Nervous System from a New Aspect." *Brain*, November, 1905, p. 99.

HENRY HEAD, F.R.S., and THEODORE THOMPSON, M.D. "The Grouping of Afferent Impulses within the Spinal Cord." *Brain*, 1906, p. 537.

In this series of papers the authors, inspired by Head, have undertaken a reconsideration of the sensory system in man, commencing with the peripheral nerves. Their results are based on the study not only of numerous clinical cases, but on the personal experience derived from the experimental section of the radial and external cutaneous nerves in one of their number (Head). In the limited space at my command, only a very superficial idea can be given of this epoch-making work. Those interested are especially recommended to read the methods employed by the authors. They have shown that what was formerly looked upon as simply diminished sensibility produced by the division of a nerve is really a condition in which some kinds of sensibility are lost, and others retained. Thus, Head found after division of these cutaneous nerves, that while he could not appreciate light touch with cotton wool or appreciate when touched with two points of a compass, even when widely separated—nor temperature between 22° C. and 40° C., painful stimuli, as a prick of a pin, were even more unpleasant than normal, although not localized accurately. Extremes of temperature also could be discriminated, as could pressure and any movements of the parts; indeed excessive pressure or injury to the joints caused pain. He therefore has divided the sensory mechanism in the peripheral nerves into three systems: (1) Deep Sensibility, (2) Epicritic Sensibility, and (3) Protopathic Sensibility.

Epicritic Sensibility consists in, 1, the recognition of light touch; 2, the ability to localize cutaneous sensory stimuli; 3, discrimination of compass points; 4, appreciation of differences in size; 5, discrimination of intermediate (25° C. to 40° C.) degrees of temperature.

Protopathic Sensibility consists in, 1, appreciation of painful cutaneous stimuli, and 2, sensation of heat above 40° C., and of cold below 20° C

If deprived of all cutaneous afferent paths the part is still endowed with *Deep Sensibility*, consisting in the, 1, recognition of pressure and appreciation of any increase in the amount of pressure; 2, increase of pressure produces pain and the point of application of pressure can be recognized; 3, recognition and appreciation of the extent and direction of muscular movement.

In the spinal cord, however a redistribution of the sensory paths takes place.

In regard to pain, if the lesion affects these paths in the cord sensibility to pain is abolished as a rule—to all forms of painful stimuli.

Sensations of heat and cold undergo an even more complete redistribution. Destruction of the epicritic or the protopathic fibres interferes with the afferent impulses, both for heat and cold. If epicritic sensibility is abolished, the patient cannot discriminate intermediate degrees of heat and cold, but remains sensitive to the more extreme temperature stimuli. After a peripheral nerve has been divided, the protopathic system recovers first. This recovery endows the part with sensibility to cold below 20° C. and to heat above 40° C. With recovery of the peripheral nerve after injury, we get return of sensibility to both forms of thermal stimuli.

When the lesion is in the spinal cord, 1, sensibility to heat may be abolished without coincident disturbance of that to cold and *vice versa*. 2, When sensibility to heat is distributed in consequence of an intramedullary lesion, the patient no longer appreciates any thermal stimulus between 30° C. and 60° C. That is to say, insensibility is absolute to both intermediate and extreme degrees; 3, Insensibility to heat and cold may be absolute and yet the patient may be able to recognize the lightest tactile stimulation and to discriminate the two points of a compass.

When sensibility to touch is abolished on the opposite half of the body in consequence of an intramedullary lesion, all forms of tactile stimuli will be found to be affected. The peripheral afferent impulses for touch and pressure arriving by way of the epicritic and deep systems become combined in the spinal cord, so that the lightest perceptible touch produces a minimal tactile impulse.

With regard to the sense of position of a limb. Every other form of sensibility may be abolished in a part, in consequence of an intramedullary lesion and yet the appreciation of passive movement and position remain undisturbed or conversely the patient may be unable to recognize

the grossest passive movements and be entirely unaware of the position of his legs, although they are sensitive to all tactile and pressure stimuli.

Thirdly, the sense of position may be disturbed in one leg and lose every other form of sensation found in the leg of the opposite side.

In the spinal cord the impulses which underlie the power of discriminating two points are separated from that of tactile sensibility. Having passed up in the epicritic system, they become dissociated in the spinal cord from the remaining forms of epicritic sensibility. Within the spinal cord they pass on in close association with the impulses which underlie the recognition of passive movement and position of the limbs—impulses which have reached the cord by means of the fibres subserving deep sensibility.

The interrelation of afferent impulses in their passage up the spinal cord—1, Afferent impulses for pain, heat and cold cross the spinal cord to pass up the opposite side; 2, the remote loss of sensation may affect to a varying degree the impulses for the three forms of sensibility; 3, the borders of this remote loss of sensation on the opposite side of the body to the intramedullary lesion usually merge gradually into parts of normal sensibility. But occasionally they correspond to the borders of intramedullary segments.

Disturbances of touch and pressure, when they do occur in cases of Brown-Séquard paralysis, are found on the opposite side of the body to the motor disturbance.

The impulses of light touch, deep touch and the tactile element of pressure are lost together.

The sense of passive position and movement is abolished on the same side as the motor disturbance, provided that the loss of motion is entirely unilateral and no single form of sensation is distributed on both halves of the body. The loss of the sense of passive position and movement is independent of the tactile impulses and of those which underlie the power of cutaneous localization, but is closely associated with inability to discriminate two compass points.

If all forms of tactile sensibility are perfect in Brown-Séquard's paralysis, 1, the power of discriminating two points will be found to be diminished over the side of the motor disturbance; 2, there is a close relationship between loss of the sense of passive position and movement and the power of discriminating two points—loss of the one is usually associated with grave disturbance of the other.

Local Effects of an Intramedullary Lesion.

Every disturbance of cutaneous sensibility due to the local effect of disease of the spinal cord lies on the same side as the muscular wasting and loss of motor power, that is, on the side of the maximum lesion.

This forms a fundamental difference between the local and remote effects of intramedullary disease. This disturbance of cutaneous sensibility at the level of a pure intramedullary lesion of the spinal cord follows the central rather than the peripheral type, although it is situated in those parts which lie on the same side as the disease.

The Passage through the Spinal Cord of Afferent Impulses Concerned with Localization.

In the peripheral nerves the power of recognizing passive movement and position is closely associated with the integrity of those afferent fibres which run mainly with the muscular nerves. In this same path travel those impulses which underlie the recognition of deep touch as far as all subcutaneous structures are concerned. But in intramedullary lesions the sense of passive position and movement may be destroyed, although sensibility to deep touch remains perfect, and the converse may occur.

Secondly, any loss of the sense of passive position and movement will be found on the same side of the body as the disturbance of motion and reflexes. Further, the power of discriminating two points can be diminished over a limb completely sensitive to all cutaneous stimuli. If, as a consequence of the remote effects of an intramedullary lesion the compass test shows a diminution of sensibility, whilst touch is perfectly appreciated, the part so affected will lie on the same side as the disturbance of motion. Whenever tactile sensibility is abolished in consequence of an intramedullary lesion this loss of sensation will be found on the side opposed to the loss of motion, over the limb insensitive also to painful and thermal stimuli. Again, the power of localization of a tactile stimulus may remain good over parts where the sense of passive position and movement is entirely lost.

Impulses induced by passive movement and the compass test, unlike any other form of sensory stimulus pass up the same side of the cord until they reach the medulla oblongata and pons varolii. In the cord they have not reached the second level of the sensory nervous system; for the most distinctive feature of the impulses at the secondary sensory level is the fact that the remote results caused by interference with them is manifested on the opposite side of the body.

It is probable therefore that impulses subserving tactile discrimination—that is, the recognition of two points (compass test)—and those underlying the appreciation of passive position and movement, pass up in the posterior columns. Collaterals conveying now sensory afferent impulses are probably given off to afferent cerebellar tracts.

All sensory impulses which have crossed the cord show signs of a recombination. Thus, all tactile elements, by whatever peripheral paths

they may have reached the cord, are united into a single group. In the same way all painful and thermal sensations become recombined in the spinal cord. This recombination must occur on the same side of the cord as that by which the sensory impulses entered, because the loss of sensation at the level of a lesion in the cord agrees in character with that remote loss on the side opposed to the lesion where the sensory impulses had been interrupted after they crossed the spinal cord.

The rapidity with which sensory impulses cross to the opposite side varies greatly. Some, such as those associated with pain, heat and cold, seem to have crossed completely in the space of five or six segments. With tactile impulses the crossing is less rapid.

It is probable that the fibres of the deep system carrying impulses produced by painful pressure from the same part of the body do not enter by the same posterior roots as those carrying impulses produced by cutaneous painful stimuli. Thus, more than one segment of the cord is required before all the painful impulses from any one part of the body can be gathered together and recombined.

The local effects of an intramedullary lesion are produced by interference with the paths of the secondary level before they have crossed the cord, whereas the remote effects are due to interruption of these tracts as they pass up towards the third level after crossing the cord.

The mechanisms of the secondary or intramedullary level are concerned with the separation of new sensory from sensory afferent impulses and with the recombination and transmutation of sensory impulses into specific groups.

COLIN K. RUSSEL.

OBSTETRICS.

UNDER THE CHARGE OF J. C. CAMERON AND D. J. EVANS.

BLACKER, G. F., M.D. "Heart Disease in Relation to Pregnancy and Labour." *British Medical Journal*, May 25, 1907.

Dr. Blacker chose this subject to discuss before the University College Hospital, because of its importance, and of its not infrequent occurrence, and also because, he thinks, the teaching in some of the current textbooks is erroneous in that it exaggerates the danger and the mortality arising from this complication of labour. The effect of pregnancy on the heart has not altogether been decided. He reviews the various theories and shows the fallacy in each. He points out that the view of increased work thrown upon the heart during pregnancy although probable is not proved. The view that strain is thrown upon the right

side of the heart as well as the left shows that there cannot be complete proof of the hypertrophy of the left ventricle during pregnancy.

The view that dilatation and weakening of the right heart occurs in pregnancy is supported by the fact that not infrequently this organ quite early in pregnancy often fails in otherwise healthy women. Tracings of the apex beat demonstrate it to be often due to over distended right ventricle, and not to a hypertrophied left ventricle. The constant presence of overfulness of the jugular veins in the neck the irregularity of the pulse, the occurrence of heart failure not infrequently during pregnancy, and, the fact that dilatation of the heart cavities, and not hypertrophy of the left ventricle, have been found in a large number of cases post mortem, tend to confirm this view. He sums up this whole argument as follows: it is probable in some cases that hypertrophy of the heart is the chief change which occurs, while in some there is hypertrophy of the left ventricle and dilatation of the right side of the heart. It also appears certain that in some healthy women neither dilatation nor hypertrophy of the heart occurs during pregnancy.

He thinks on the whole, the evidence is in favour of the view that blood pressure is raised above the normal during pregnancy, and that this rise begins in the second half of pregnancy and reaches its maximum at term. There is immediate fall below the normal immediately after delivery, a fact of considerable importance.

The pregnant woman, in view of the increased demand made upon her heart by her condition, is on the border line of break-down. The majority of cases of valvular disease of the heart complicated by pregnancy do perfectly well. There can be no doubt but that pregnancy constitutes an increased danger to a woman who has a severe valvular lesion of the heart. He has collected from literature 131 cases of severe heart disease occurring in 55,000 cases of labour, the proportion of about 1 case in about 400 cases of labour.

With regard to the special dangers of heart disease in cases of pregnancy these are failure of compensation and the occurrence of degenerative changes in the heart muscle. The symptoms of these cases are very much the same as of their occurrence at any other time.

Death from cardiac failure during labour is very uncommon but the author records the occurrence of such a case in his practice.

After delivery, the heart may give out in three ways. Immediately after birth of the child, cardiac failure may occur, as a result of over distension of the right side of the heart, with resulting paralysis, or by the blood accumulating in the large abdominal veins in consequence of the rapid fall of blood pressure. The third way in which cardiac failure

occurs is some days after delivery, from degenerative changes in the heart muscle and from a failure on the part of diseased heart to recover from the strain of labour.

He records a case of cardiac failure after delivery, in consequence probably of blood accumulating in the abdominal veins. The patient, a multipara 38 years of age, had had a severe attack of influenza with some cardiac weakness some weeks before her confinement and had only recovered a few days before her delivery. Labour was precipitate. Immediately after delivery of the child the patient became collapsed. There was no hæmorrhage external or internal and the uterus contracted well. In spite of every means to combat the condition, death took place 2½ hours later. He thinks that death in this case is due to the failure of the heart weakened by the recent attack of influenza, and so brought about by a sudden fall in the blood pressure as a result of the precipitate labour, and the consequent accumulation of the blood in the large veins in the abdomen.

There is another possible sequel to cardiac failure following delivery, and that is a tendency to the retention in the body of various toxic materials as a result of the enfeebled circulation, and a failure of the excretory function of the kidneys and the liver. These substances may lead to degenerative changes in the heart muscle.

He considers the average death rate of cases of valvular disease complicating pregnancy is about 12 per cent. The mortality naturally depends on the variety of the heart diseases to some extent, but mainly on the condition of the heart muscle. If the valvular lesion is well compensated, the heart muscle healthy, and the blood pressure normal, the danger to the patient is very small indeed. If the heart muscle degenerates or if there is insufficient compensation, the danger is great.

With regard to treatment the author lays stress upon rest in bed and general heart tonics. He is of the opinion that there are some cases in which the induction of abortion or premature labour is better treatment than is generally supposed and that in the majority of cases if such interference is necessary its adoption will improve the patient's condition and not make it worse.

A case is recorded of a patient suffering from edema of the lungs, cough, and hæmoptysis. In spite of treatment the edema did not clear up so that at 5 months abortion was induced under anæsthesia. Treatment by rest in bed and medicine if not followed by marked improvement should be followed by induction of abortion or premature labour. With regard to the conduct of labour in these cases he says that if there are signs after the delivery of the child that the right side of the heart is

very distended, one ought to encourage post partum hæmorrhage or to actually bleed the patient. Where the patient is pallid and the pulse very small with no signs of over-distension on the right side, intra-abdominal pressure should be maintained by the use of a sand bag or a tight bandage, and appropriate means taken to stimulate the heart's action.

AUDEBERT AND FOURNIER. "Traitement des Convulsions Eclamiques par la Ponction Lombarre." *Annales de Gyn. et d'Obstet.* June, 1907.

This paper is based on two cases which are reported in detail. Reference is made to the edema of the brain and other intracranial conditions associated with eclampsia and in the fatal case recorded by the authors they not marked dilation of the intracranial sinuses. He refers to the work of Helme, Kronig, Thies, Henkel and Mirto.

In the first of the cases recorded the condition of eclampsia was well marked. The treatment was entirely expectant and lumbar puncture was resorted to on two occasions. The fluid escaped in drops, almost in a constant stream. It was a distinct rose colour and 12 cc. were drawn. The examination of the liquid disclosed nothing abnormal with the exception of an abundance of red cells. The convulsions were mitigated somewhat after the puncture. The recovery was slow and complicated by a condition of pyelo-nephritis.

The second case, also a primipara, developed eclampsia in the course of labour. Following lumbar puncture the fluid escaped by drops, 10 to 12 c.c. of absolutely clear liquid were withdrawn containing neither white nor red cells. The patient gradually sank and died. The usual changes associated with eclampsia were found post-mortem.

The authors have collected 46 cases including their own, from literature. They review the results obtained showing the mortality to be 35 per cent following lumbar puncture.

They state that lumbar puncture is not a treatment for eclampsia but is directed against the convulsions. Eclampsia, they admitted, is a toxic infection. The object of the treatment is simply to diminish the pressure in the spinal cavity and to reduce the pressure in the nervous centres. They consider that the treatment produces an improvement by diminishing the number of convulsions and curtailing the stage of coma and is a symptomatic treatment not a causal one.

Lumbar puncture is indicated when the convulsions recur frequently, when coma persists and when there is an oliguria or anuria. They think it ought to be employed in all grave cases and that the results justify its employment.

PIERI, FELIX. "Decortication of the Kidney and Nephrotomy in the Treatment of Grave Forms of Eclampsia." "De la Decortication du Rein et de la Nephrotomie." *Anna. Gyn. d'Obstet.* May, 1907.

Five cases have been collected from literature and one personal experience is given. The author discusses the pathological anatomy of the eclamptic kidney and the mode of action and the decortication and nephrotomy. The technique of operation is discussed fully and the paper closes with a discussion of the indications and the conclusions which may be drawn from the study of the cases at present reported.

The following are his conclusions:—Nephritis of eclamptic origin occurs but not alone. Based on mechanical and physio-pathologic deductions one is compelled to admit that there occur in the kidney of the eclamptic associated lesions of varying degree. (a) Epithelial lesions more or less marked; these may be superficial but for an indefinite period, and are then capable of restitution ad integrum, if not permitted to increase and become definite; (b) congestive lesions of intense degree which play by far the largest role in the pathogenesis of eclamptic anuria. It is in this condition that surgical treatment is all powerful.

The mode of action of surgical procedure in eclampsia is of threefold nature; by the decongestion of the kidney which it produces, by the elimination of the epithelial debris, etc., which obstructed the canaliculi, and by the modifications in the vaso-motor innervation which it brings about, the operation favours the arrest of the inflammatory processes in the kidney and the re-establishment of the flow of urine.

He thinks that the result from successes in six cases justifies surgical intervention in these grave forms of eclampsia.

The operation should be bilateral, on one side both operations, and on the other decortication alone. In considering the different eclampsia symptoms it is principally the oliguria early and progressive, the decrease in urea and extractive matters, and the presence in the urine of kidney detritus, which indicate the necessity of surgical intervention. It is in this pre-anuric period in which the operation should be undertaken, if successful results are to be obtained.

In cases of confirmed anuria the operation is the ultimate resort but while improvement may occur, satisfactory results can scarcely be expected in view of the marked general intoxication.

BULLARD, W. N. "Obstetric Paralysis." *Am. Jour. of the Med. Sci.* July, 1907.

Obstetric paralysis was first brought to the notice of the medical profession by Duchenne in 1872.

Three forms are to be met with: (1) the upper-arm type; (2) the lower-arm type; (3) the two preceding combined. The most common is the upper arm type which corresponds in a general way pathologically to Erb's paralysis in the adult. It is with this form that this paper deals.

After reviewing various theories as to the causation of the condition Bullard states that it has been conclusively proved that the injury is due to the stretching of the fifth and sixth cervical nerves in the neck. These nerves may be simply stretched without loss of continuity or they may be ravelled out, some fibres being torn apart and some still holding, or they may be wholly torn asunder. The exact process by which the nerves are damaged is not settled but the injury is probably due to traction powerfully exerted and favourably by the firm resistance or fulcrum against which the pull is made. Traction on the head in the axis of the body is less injurious than when it is made obliquely. Over rotation of the head may also produce the injury. Fixation of the shoulder or shoulders in head presentations; and resistance of the head in breech presentations favour development of the injury. Asphyxia by bringing about the relaxation of the muscles and thus removing their resistance, favours the development of the injury, as the nerves no longer having the support of the muscles, are more easily torn.

The author records 43 cases in which the report of the attending physician at the time of labour was obtainable, and 135 cases in which good histories were obtained from the patients themselves, making a total of 178 cases.

In the first series, delivery was difficult in 15 of them; forceps were used in 28 cases, a rather high proportion. The head presented in 40 cases and the breech in three. In 18 cases the shoulders offered resistance to extraction, in many of the cases there was no resistance encountered.

In the second series of 135 cases, labour was difficult in 79, the head presented in 55, and the breech in 3. Forceps (including 3 on the after-coming head) were used 93 times. The right upper extremity was affected in 92 cases and in the left 72, both the upper limbs in 2 cases and in 11 cases the arm affected is not reported.

Speaking of the clinical conditions it is stated that in the early stages the upper extremity hangs limp, extended, and rotated internally. In typical cases the grasp is impaired and the wrist is not affected. Supination of the fore-arm beyond the median line is impeded; flexion of the fore-arm is impaired though extension is not affected, the arm cannot

be lifted at the shoulder nor can it be rotated outward. The author then discussed in detail the action of the various muscles involved; these are, the deltoid, the biceps, the brachialis anticus, the supinator longue, the spinatus and supraspinatus and the serratus magnus. Other muscles in the neighbourhood are sometimes involved. As the paralysis continues, atrophy of the muscles takes place. This atrophy is not confined solely to the muscles but the bones may be affected and the whole limb may be smaller than the corresponding one. The atrophy and paralysis of the arm muscles is less complete than in the old cases of anterior poliomyelitis.

Accompanying the article are several radiograms showing the condition of the bones and joints in such cases.

Society Proceedings.

THE MONTREAL MEDICO-CHIRURGICAL SOCIETY.

The sixteenth regular meeting of the Society was held Friday, May 17th, Dr. F. G. Finley, President, in the Chair.

PATHOLOGICAL SPECIMEN: AORTAL AND MITRAL STENOSIS.

P. G. WHITE, M.D.—The patient from whom this specimen was obtained was a woman aged 38, who had suffered from heart symptoms for about seven years. She came to the Montreal General Hospital with the typical signs of loss of compensation, following childbirth. No history of rheumatism. At autopsy the heart was found to be greatly enlarged, weighing some 530 grammes. The left auricle was extremely dilated, being two to three times its normal size. In the auricular appendage was a large well organized thrombus. The segments of the mitral valve are thickened and fused together, forming a typical stenosis with a mere button-hole-like opening. In the aortic valve the cusps are also greatly thickened and fused together, leaving an extremely small opening for the blood to pass through. Around this opening on the endocardium are seen small recent vegetations, evidence of an acute endocarditis grafted on a chronic. The myocardium and the left ventricle are greatly hypertrophied but show no fibrous change.

J. C. CAMERON, M.D.—I should like to say a few words respecting the clinical aspects of this case. We have had a series of these cases of mitral stenosis and other heart troubles at the hospital and this one is particularly interesting because of the good effects obtained from the administration of digitalis. She was kept on this drug, not con-

tinuously, but for two or three days at a time, then for an interval without any. In this way it was possible not only to maintain the ordinary circulation, but also to obtain a fair degree of compensation. I may say that by some digitalis has been considered to be harmful in these heart cases, and in a sense contraindicated, but this patient passed through her puerperium quite safely and well. Our conclusion with respect to these heart cases is that no matter what the lesion may happen to be, whether mitral stenosis, pure or complicated, the whole outcome of the case seems to hinge upon the degree of compensation which can be secured. Although textbooks state that labour should be induced in mitral stenosis, I do not think that this holds for all or even for most cases; we have had quite a series where compensation has been built up and the patient has passed through the labour and puerperium without any ill result whatever.

SOME CLINICAL ASPECTS OF THE DIAGNOSIS AND TREATMENT OF PUERPERAL INFECTION.

H. M. LITTLE, M.D., read the paper of the evening.

A. LAPHORN SMITH, M.D.—This paper is of much value and cannot fail to interest every practitioner almost without exception. The bright and clear manner in which it has been put before the Society is appreciated, especially by myself, as I read a paper on this subject before the American Gynaecological Society in 1902. A peculiar feature noted is that puerperal fever is much more frequent in the month of January and less frequent in August. This may be easily explained by the want of proper ventilation in the severe winter months. With regard to temperature, I may say that I have been called to cases where the doctor in charge has been in great distress because he thought he had infected a case where, on careful examination, it has turned out to be a case of typhoid with the typical rose spots on the abdomen. Besides typhoid, appendicitis must not be forgotten as a complication. Again, I have found on opening the abdomen, the pelvis a whole mass of adhesions from pus tubes. I would recommend every one to take the temperature of a confinement case when they come into the house instead of waiting until the patient is delivered. This frequent taking of the temperature would be found most useful. Then there is phthisis, acute signs of which often set in at the end of pregnancy. Sir William Hingston called my attention some twenty-five years ago to the fact that there were never any cases of puerperal fever among the Indians for the reason that they did not lie on their backs for weeks after a confinement, but went about their work in a day or two, the drainage thus

obtained being their salvation. One case, to which I was called in the country, with a high temperature, I was about to curette, but on simply drawing down the cervix with a bullet forceps, four or five ounces of bloody pus spurted out and, as lack of drainage was evidently the whole cause of the trouble, I merely washed out and put in a drain, and she promptly recovered without other treatment. Remembering this remark of Sir William Hingston's many years ago I abolished the bed pan from my obstetric practice ever since, and have insisted upon every patient sitting on the chamber in the bed so as to allow discharges to come away by gravity. I agree with Dr. Little about bichloride of mercury. I have seen several cases of undoubted poisoning from it in my own hands, and one fatal one was sent in to the Western Hospital from a practitioner in the city. I now use nothing but permanganate of potash and find it both harmless and effective. I pointed out in my paper fifteen years ago that there were altogether too many examinations made in the majority of cases, and that their number should be brought down. I am glad to see that Dr. Little advocates this also. It would considerably reduce the number of infections, although, on the other hand, I must say that not all infections are caused by either the doctor or nurse. Many of these infected cases are poor women whose husbands are engaged in dirty occupations such as picking rags infected with every kind of poison, and who have no idea of sanitary precautions after handling the penis. In some cases of puerperal fever where I have done an exploratory laparotomy I have found nothing wrong with the appendix or tubes, but there was seen a chain of lymphatic abscesses full of pus, due, I believe, to infected lacerations of the perineum. Vaginal hysterectomy would give such cases the best chance of recovery, but I believe they could all be prevented by immediate repair of the tears, especially by placing the sutures in position before the tears take place, so that on tying the sutures after the delivery of the placenta the parts will be absolutely and accurately closed.

J. C. CAMERON, M.D.—With reference to Dr. Smith's remarks about fever which is not infective in character I think the safer stand for the profession to take is to assume the cause to be an infective condition during the puerperal period until we are sure that it is something else. If we wait to prove the infective condition clinically, we may find it too late to be of any service to the patient. This paper is an extremely timely one and of much value, for it is a resume of wide experience and of the conclusions drawn therefrom. The more we see of cases of puerperal fever the more are we convinced that infection

is from without— infection brought into the organism. If this proposition be correct, it follows that the first and most important part of our duty in the treatment of puerperal women is prophylactic and to fortify the system so that it may be able to resist and throw off such infection should it gain entrance. Upon this we are all practically agreed, but when it comes to putting our theories into practice I fear that our ideas differ very widely indeed. We say that prophylaxis is a good thing to strive for, but how are we to develop a technique to this end? Some find careful hand disinfection, rubber gloves, the antiseptic douche, etc., the thing to be relied upon. Indeed, this douche is a sort of universal panacea with some and is given for all sorts of things. I do not believe there is such a thing as an antiseptic douche, that is to say, a douche which contains some chemical ingredient which will destroy all pathogenic germs present in the passages. If we used a douche strong enough for that, it would poison the patient; moreover, it lies in contact with the uterine canal for such a short space of time that its effect is practically to be neglected. The action of the douche is mechanical, to flush out and wash away debris, but not antiseptic to destroy germs. The part of this paper which seems to me of the utmost importance is the description of the means we adopt to obtain prophylaxis, that is to say, the means by which we cleanse the parts and avoid the possibility of conveying infection. The most important of these preventive measures are the emptying of the bowel and the making of the vulva perfectly sterile and clean. If the vulva is foul and contains infectious matter you can very easily carry such matters into the vagina and into the uterus. Another point brought up is the use of ergot. The careful watching of the patient throughout the puerperal period, the careful watching of involution and the use of ergot until involution is complete or at least until the uterus has become a pelvic organ are necessary. These are all matters of prophylaxis and these are the things upon which we should concentrate attention and I am sure that then our results would be much better. The question of the douche is a difficult one. In preparing the hot intrauterine sublimate douche how often is sterile hot water used cooled down to the desired temperature with tap water. How can such a douche be sterile? In Philadelphia, some years ago, in some fatal cases of tetanus following an intrauterine douche, an examination of the tap water shewed the presence of tetanus bacilli. The chemical germicide did not kill the tetanus bacilli, how could it be expected to destroy pathogenic organisms in the uterus? Only sterile water, hot and cold, should be used in preparing a douche.

A CASE OF CARDIAC ARHYTHMIA.

RIDLEY MACKENZIE, M.D. and W. S. MORROW, M.D.

Dr. Morrow made some remarks on the physiological aspects of the case. He emphasized the fact that the pneumogastric nerve was essentially inhibitory to the respiratory centre and that when irritated and stimulated it brought about marked shallowing of the breathing. He said that this fact has not yet been fully recognized in physiological text books with the exception of that by Howell. The best account is to be found in two papers by Lewandowski in Du Bois Raymond's Archives for 1896.

RIDLEY MACKENZIE, M.D.—I recognized that this case was more of physiological interest than clinical though I was far from satisfied about the condition. However, after Dr. Morrow had made his observations I could understand the condition better.

TRAUMATIC ASPHYXIA.

C. K. P. HENRY, M.D. read the report of this case.

C. K. P. HENRY, M.D.—The patient's respirations ranged from 24 to 26 and they were of a shallow character. Another case is now in the wards who also suffered from traumatic asphyxia and his condition was more favourable in its outcome though he suffered from a fractured rib for which he is still under treatment. Cases have been reported by Beach and other observers. A point noted in all cases is the increased rate of the pulse and this same shallow respiration.

D. J. EVANS, M.D.—Dr. Little has summed up the subject in a very clear and comprehensive way and I agree with almost everything he has said. The points he has made in regard to the diagnosis in the streptococcus forms of infection (which, after all, is the infection chiefly to be feared) are of great importance. I cordially agree with his views in regard to the treatment of these infectious cases. One of the most important points is leaving the patient alone. Constant manipulation of the parts resulting from efforts at douching, etc., can only do harm. Good involution is to be brought about if possible and in this connection I am a great believer in the value of ergot and quinine. Beyond securing good drainage and supporting the general strength of the patient very little can be done, until there is special indication for surgical interference as a result of the infection having become localized. The condition of the bladder is particularly important as the over-filling of this viscus tends to interfere with proper drainage.

I am under the impression that the broad abdominal binder is not infrequently the cause of defective drainage by crowding the body of the uterus down into the pelvis and so obstructing the outlet of the cervix. In all cases it should be dispensed with a few hours after delivery.

The present tendency to look upon all elevations of the temperature in the early period of the puerperium as due solely to intra-uterine infection, and as such to call for immediate and energetic intra-uterine irrigation and curettage, is to be greatly deprecated. Such treatment often transforms what is a mild infection into a very serious condition. Again such elevations of temperature may be due to some transient intra-uterine condition. Again, I must express my appreciation of the conservative tone in the excellent paper we have listened to this evening.

J. G. ADAMI, M.D.—Referring to Dr. Smith's reference to Sir William Hingston's observation upon the immunity of Indian squaws to puerperal fever it may be worth noting that this same immunity was noted in Lancashire "Mill hands," and was ascribed to the same cause as long ago as 1772 by Charles White in his "Management of lying-in and pregnant women," a work that had great vogue in its day, going through several editions in England, being reprinted at Worcester, Mass., and translated into French and German. White noted that these women got up immediately after labour and went about their work, and advised and carried out the practice of having his patient forthwith sit up in bed for meals and get about in the course of two or three days. By this means, he pointed out the womb became drained of stagnating lochia and infection was prevented. Nay more, some seventy years before Semmelweiss, he showed, that puerperal fever was not a specific, but a filth disease, akin to jail and hospital fevers, and pointed out the rational means to prevent the development of the conditions.

The seventeenth regular meeting of the Society was held Friday, June 7th, 1907, Dr. F. R. England in the chair.

W. G. TURNER, M.D., showed living cases.

I.—SUBDELTOID OSTEOMA.

Five years ago the patient fell while getting off a street car, falling backwards directly on the apex of left shoulder. There was total disability of the left arm for about two months. Then partial disability to the extent of inability to raise hand to head; in abduction, marked weakness, some pain and at intervals marked exacerbations of pain which caused complete disability. Three weeks ago, when I first saw the patient, he could not abduct his arm more than to an angle of 45° , also marked limitation in extension and external rotation. There was marked tenderness and pain referred to just posterior to the long head of the biceps. External rotation caused marked pain. I judged the cause of the disability to be due to some lesion just posterior to the

bicipital groove, having in mind a case somewhat similar where the surgeon on cutting down discovered an osteochondromatous enlargement of the humerus at that site. But the radiographs show quite another condition. Just below the acromion is a distinct shadow, probably due to bone, with quite a clear space between it and the regular contour of the head of the humerus. The question naturally arises as to the cause of this deposit of bone at this site and seemingly free from the humerus. Is it due to bone salts being deposited in a hæmatoma or is it due to a strip of periosteum being partially stripped off? The disability appears to be due to this bony mass, either in the capsule or in the joint, becoming impacted against the acromion in abducting the arm. Naturally there has been some arthritis associated, and one would expect adhesions in such a joint. There is no mass palpable, only the general thickening over the joint and marked atrophy of the deltoid.

II.—DOUBLE CLUB HAND AND DOUBLE CLUB FOOT.

This case was referred to me by Dr. Garrow. Such symmetrical deformities of the four extremities are comparatively rare. Following the method of Lorenz "modellirende redressement"—the right foot and left hand were completely corrected, and the left foot partially corrected. The deformity of the feet was marked equino-varus position; of the hands the right angled flexor deformity—no radial or ulnar deviation. The flexor tendons were markedly shortened; those of wrist, fingers and thumb. The correction of the hand was very gradual taking about half an hour and was then splinted; the feet being at once put up in plaster after correction.

C. B. KEENAN, M.D.—These cases present certain difficulties in prognosis and in treatment. Since at the first examination the usual signs of fracture are absent a good prognosis is given which is not justified in the result. The skiagraph alone can show the lesion in these cases. At times there is a partial fracture of the anatomical neck with impaction, again a crushing of the great tuberosity while at other times there is merely a tearing away of the periosteum. I judge the latter to be the lesion in the present case.

The treatment must be directed towards preventing limitation of movement which is almost wholly mechanical and due to the new bone formation (the callus) hindering the movements.

Whether to employ rest to prevent excessive callus formation or to use passive motion early to avoid its results is yet a debatable question.

F. R. ENGLAND, M.D.—In correcting the club foot case I would like to ask if an anæsthetic was used and if any apparatus was applied or whether continued passive motion in the treatment is relied upon.

W. G. TURNER, M.D.—With regard to the question of shoulder injuries of this nature I feel that the deposit of bone is not the total cause of the disability but that that is a partial fracture. This man fell heavily directed on his shoulder and just as we see the enlarged toe joint, also hallux rigidus, as a result of stubbing the toe, so I think that this condition is an arthritis along with this bony deposit. I am quite certain that the removal of that piece of bone is merely an element and there is no doubt that this joint is bound down by fibrous adhesions and I think along with some surgical interference early passive movement is indicated. I really believe that a great number of these so-called lesions after dislocation of the joint are the result of treatment or simply due to not carrying out passive motion early enough.

With regard to the congenital condition the ordinary thing to do is to correct as far as possible at one sitting. You begin with the toes tarso meta-tarsal, then mid-tarsal and finally to the ankle joint, then fixation which requires from 2 1-2 to 3 months after the correction. Proper fixation is quite as important as the manipulation itself. Great care should be taken in these cases as violent manipulation of any human tissue is apt to have disastrous results and may lead to mal-practice suits and the utmost precautions should be taken with your plaster casts.

AN ANALYSIS OF 500 CASES OF CONJUNCTIVITIS.

HANFORD MCKEE, M.D.—Read the paper of the evening.

C. W. DUVAL, M.D.—Dr. McKee is certainly to be congratulated on his excellent paper. Many things he has pointed out are of the utmost importance to the practitioner, one in particular his reference to the micrococcus catarrhalis or the pseudogonococcus. This organism is a Gram-negative biscuit-shaped coccus which occurs outside of the cell and is very confusing in many cases of conjunctivitis and also in some chronic inflammations. In inflammations of the conjunctiva you are very apt to confuse it with the gonococcus. It has the same morphology and occurs within the pus cells so that in the ordinary routine examination of pus from a conjunctival sac in a suspected case of the gonococcus infection one may find this Gram-negative organism. When cultivated on suitable media it grows well, in fact on all the ordinary media, which, of course, the gonococcus does not. Quite a number of so-called cases of gonorrhœa of the eye are nothing more or less than this micrococcus catarrhalis. The same thing occurs in the urethral discharge and many of these cases may be called gonorrhœa which are really due to the organism which Dr. McKee has described. There is no question that this organism described is a new bacterium.

DR. LAPHORN SMITH, M.D., showed two pathological specimens of Ruptured Tubal Pregnancy. Both operations were successful. In the first case there were at least two quarts of blood in the abdomen. Another specimen was that of a fibro-cystic tumour of the uterus all on one side of the uterus and filling the left broad ligament. Another specimen was that of a hydrosalpinx resembling an ovarian cyst. Another was an appendix full of concretions. The patient had been sent in for removal of the right ovary and tube but as it is the generally accepted opinion that in patients suffering from long continued pain requiring the removal of the right ovary and tube that the appendix should also be removed it was looked for with the above result. Operators have frequently had to do a second operation a year later for removal of the appendix when this has not been done at the first operation so that it is better when the patients condition at the operation for removal of tubes and ovaries permits to remove the appendix and remove it if adhered at the same time.

The eighteenth regular meeting of the Society was held Friday, June 21st, Dr. F. G. Finley, President, in the Chair.

PERICHONDRITIS OF THE LARYNX FOLLOWING TYPHOID FEVER.

H. S. BIRKETT, M.D. AND H. F. MUCKLESON, M.D., exhibited this case a report of which appears on page 547 of this number of the *Journal*.

J. G. ADAMI, M.D.—In seeking for a cause of these typhoid lesions at a distance it must be recalled that we are now recognizing more and more clearly that typhoid is not a local disease, with local and restricted growth, that is, of the specific microbes, but is a bacteraemia with the bacteria becoming widely distributed through the agency of the blood. In a recent paper, Pratt quoting Drigalski (if I remember aright) called attention to the fact that cultures from the tongue in typhoid patients repeatedly give typhoid bacilli. If this be so what is remarkable is, not the occurrence, but the infrequency of typhoid lesions in the upper respiratory tract. Only recently at an autopsy at the Royal Victoria Hospital superficial laryngeal ulcers were encountered in a typhoid case.

P. G. WHITE, M.D.—A case of typhoid fever: death before ulceration.

PATHOLOGICAL SPECIMENS—TUBERCULOSIS IN INFANTS.

OSKAR KLOTZ, M.D.—The pathological specimens, which I wish to present this evening, are from three cases of tuberculosis in infants.

Case I. was an infant nine days old which died at the Maternity Hospital. The lesions found at autopsy, and which I will show you here, are marked "Hyperplasia of the Peyer's patches of the small intes-

tine, with very superficial and early ulceration." These ulcers are distributed lengthwise in the bowel wall, and, with the marked thickening of the borders, look much like those seen in typhoid fever. The mesenteric glands are enlarged and soft, but nowhere show macroscopic signs of caseation. The most marked change in the Peyer's patches is near the ileo-cæcal valve. Two minute ulcers also appear in the larynx on the vocal cords. Microscopic examination of the mesenteric glands show extensive caseation with typical tubercles and giant cells. Tubercle bacilli are stained in sections of mesenteric glands.

The interesting question in this case is, "When did the child become infected with tuberculosis." Considering that one must allow an incubation period of at least a week for the organisms to multiply in sufficient numbers to produce damage in the tissues, the time remaining in our case is too short to produce the amount of caseation noted in the mesenteric glands.

Case 2 was an infant of three months, which at autopsy showed a diffuse tuberculosis, affecting the lungs, thymus, spleen, liver, kidneys and the thoracic and abdominal glands. The specimens, as you will see, show the miliary character of the infection in the lungs, liver, kidney and spleen, while a caseous tuberculosis of the mesenteric and peribronchial glands is evident. In this case it will be noted that the disease is much more advanced in the glandular system. The intestinal tract shows no lesions.

Case 3 is that of child of three years, and shows a distribution of the tubercles similar to that of Case 2. You will note the miliary character of the disease in the lungs, liver, kidney, pleura and peritoneum. Caseous tuberculosis is seen to affect the peribronchial glands, and particularly the ones at the bifurcation of the trachea. The mesenteric glands likewise are in a state of caseation. A remarkable condition too is the tuberculous affection of one of the Fallopiian tubes. This last, of course, is one of the secondary foci.

Cases 2 and 3 are the not unusual ones of tuberculosis in children, in which the glandular system shows the oldest foci, and it is this character of the disease which has of late been classed among the intestinal forms of the infection. You will note, however, how difficult it is, when the intestinal lesions are lacking, to give a positive opinion as to the site of invasion of the organism. The appearance of the mesenteric and thoracic glands lends little aid in giving this opinion, as the stage of the disease in these glands is about the same.

ACCIDENT POLICIES AND PROFESSIONAL RISKS.

A decision of the United States Court of Appeals at St. Louis may be of interest to physicians. A dentist while operating on a patient received some particles of septic matter in his eye that were coughed or spat out by the patient, and it was alleged blood poisoning occurred, disabling him for many weeks. He recovered judgment against the Fidelity and Casualty Company of New York in the Federal Court at Denver for \$1,000, which judgment was reversed by the Appellate Court. This court held that a wound, within the meaning of an accident policy covering blood poisoning, must be an abrasion of the skin or membrane by which the germs are introduced into the blood. This may be a good legal technicality, but it will hardly receive medical approval. The ability of mucous membranes to absorb germs should be taken into account in any accident policy of this sort. The use of such a technicality on the part of an insurance company to evade its obligations is, we may reasonably assume, a violation of the implied understanding with which every physician takes out such a policy. All physicians are liable to serious risks, often unavoidable, and the question of determining the existence of an abrasion is sometimes a difficult one. It may exist without its subject either being aware of it or of being able to prove its existence afterward and the fact of blood poisoning through the skin is itself presumptive evidence of such lesion. On especially vulnerable parts like the eye the fact that an actual abrasion is not necessary for the production of serious results from the contact with toxins or germs should be recognized in every policy issued by an accident insurance company. It will be well for physicians to see that their accident policies cover all reasonable professional risks and take them out in companies that specifically recognize such liabilities.—*Jour. A. M. A.*, July 13, 1907.

Hauber reports 280 cases of spinal anæsthesia, without untoward result. It is especially the desirable form of anæsthetic in cardiac lesions, arterial disease and disease of the lungs, or after periods of great exhaustion, as in obstruction cases. It seems specially applicable to elderly persons. Rectal and vesical conditions are perhaps the most favourable, but hernia and leg amputations are also suitable.—*Arch. f. Klin. Chir.*

The Royal Victoria Hospital treated 226 cases of typhoid fever in 1906, with a mortality of 7.96 per cent; relapses occurred in 10.7 per cent; perforation occurred in 8 cases, six of which were operated upon, with four recoveries and two deaths.