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THE EXPERIMENTAL PRODUCTION OF ANTITOXIC SERA AND THEIR VALUE IN THE TREATMENT OF TUBERCULOSIS.

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IN the following pages the writer has attempted to give a brief account of some interesting experiments that have occupied his attention for some months past, and to discuss the present status of the tuberculosis question, more especially in regard to certain therapeutic problems involved.

No one in the present day will deny that one of the most important subjects that can occupy the attention of scientific minds is the discovery of some specific curative agent for the treatment of tuberculosis. The disease in question is almost universally admitted to be the greatest scourge from which humanity is suffering. The discovery of an antitoxic serum for diphtheria, and the brilliant results that have followed its use, opened up a new chapter in the story of rational therapeutics, and we fancied ourselves on the verge of the most startling advances. Yet, in spite of the continued investigations of some of the ablest of our experimentalists, the brightness of this first promise has not been realized, and we have to confess to a certain degree of disappointment in the results hitherto achieved. The problem is by no means so simple as, at first sight, it appears, and the numerous attempts at its solution on the lines of Behring and Roux's classic researches have to a large extent proved to be failures. We may be prepared, to some extent, to understand this if we consider in what way tuberculosis differs from the majority of infective diseases. Tuberculosis is not a self-limited disease nor does it, so far as we know, kill by septicaemia. It belongs to the same group of affections as syphilis, leprosy, and actinomycosis, in which the characteristic lesion is the inflammatory granuloma. We have, therefore, on the one hand effects referable to circulating toxins, and, on the other, local destructive or constructive lesions, which lead to grave disturbance of the organ involved, with possibly certain remote mechanical effects. It will readily be understood that this condition of things is quite different from that which obtains in, say, diphtheria, where we

have an acute disease which produces its most serious effects by its toxin, and steadily progresses to either rapid cure or a speedy death. The rationale of the operation of the specific antitoxin in diphtheria appears to be that it neutralizes or, at least, renders the toxin relatively innocuous until nature has time to assert itself, and the disease comes to an end. The bacillus of tuberculosis is generally believed to be a rather strict parasite, and it finds a particularly suitable soil for its growth in animal tissues. It is conceivable, then, that, even if we were able to counteract its toxins, the germ might still be able to grow and produce its local destructive effects. And, in fact, practical experience with antitoxins has shown that they are efficacious in direct ratio to the virulence of the diseases in which they are employed.

With regard to the treatment of tuberculosis, it may be just mentioned, that there are three main methods of treating the disease.

1. The drug treatment, which in some quarters seems again to be coming into vogue.
2. The specific or serum treatment.
3. The climatic treatment.

The last mentioned of these is the one which at present has most firmly established itself in the mind of the medical profession, and, certainly, the results achieved, namely, forty to sixty per cent. of cures in suitable cases, in default of anything better, are encouraging. It is, however, not with this but with what is called "serum-therapy" that I wish to occupy myself at the present time.

The term "Serum-therapy" has been used somewhat loosely in the past to denote the attempts at specific medication by means of toxins and anti-toxins. An important school, lead by Koch, seeks to produce immunity and cure the disease by the use of certain poisons derived from the tubercle bacillus, or chemical modifications thereof. In this category belong the various tuberculins, oxytuberculin, tuberculocidin, antiphthisin. Here the idea is to stimulate the cells of the body to the elaboration of antitoxic substances which will neutralize the poisons produced by the bacilli. Everyone knows how visionary this has proved. Strictly speaking, serum-therapy is more correctly applied to the method of treatment by antitoxins. In this case experimenters have endeavored by the injection of extracts of the tubercle bacilli, or in some cases the living attenuated germs, to produce immunity in some of the lower animals, and to use the blood serum of animals thus fortified in the treatment of human tuberculosis. It is with work of this last class that this paper will exclusively deal.

The interest in this phase of the subject dates back to the epoch-making work of Héricourt and Richet, which was first undertaken in 1888. They noted the important fact, that if a rabbit be inoculated with the staphylococcus pyosepticus, to which it is very susceptible, it may be rendered refractory to its action by the intraperitoneal injection of dog's blood, an animal which possesses a natural immunity to this infection. This suggested that the same thing might hold in the case of tuberculosis. Without entering into details, the conclusions to which they came, were:—

1. That in animals the subject of experimental tuberculosis, the injection of dog's blood will arrest the disease, provided the germ be not too virulent, and will retard it if it is very virulent.

2. The serum of a dog injected into a healthy rabbit will prevent the subsequent development of experimental tuberculosis.

2. The serum of a dog previously inoculated with tuberculosis, when injected into rabbits already tuberculized, will aggravate the disease.

Héricourt and Richet did not believe that dogs' serum possesses a specific curative action in tuberculosis, but it appeared to exert a powerful tonic influence on nutrition.

The special credit due to Héricourt and Richet lies in the fact that they were the first to suggest the possibility of devising a specific medication in tuberculosis by the injection of tuberculous virus. The existence of a tuberculous antitoxin, however, was demonstrated in 1895 by Maragliano, who was the pioneer, in the practical application of the antitoxin theory to the treatment of human tuberculosis. Since this time much painstaking work has been devoted to this problem and, in addition to those mentioned, we should inscribe on the roll of honour, the names of Koch, Babès, Maffucci and Di Vestea, Behring, Trudeau and De Schweinitz.

It is, of course, impossible in a limited article to go into the details of the very numerous investigations that have been prosecuted. In general, we may say that the methods employed have been to inject various tuberculins or extracts from the bacilli, or again, the living and attenuated germs, into certain of the lower animals, such as the rabbit, horse, sheep, goat, cow, or monkey, until a certain amount of immunity was produced. The serum from these animals was then tested for therapeutic efficiency on tuberculized experimental animals, and in some cases on human beings. The results reported have been somewhat conflicting. It may be said, however, that in no case has it been possible to cure the disease in this way, or even to prevent experimental infec-

tion. At most, there has been in some cases, a retardation of the process. The best results have been attained by the use of antitoxins representing as nearly as possible the complete metabolic activity of the germs, or by the injection of the living organism. It has, indeed, been possible to produce immunity by the latter plan, as the work of Trudeau and Baldwin has shown in the case of rabbits, and the more recent researches of Von Behring on the calf. Many experimenters have hoped to get better results by using as antitoxin-producers, animals that are generally supposed to be refractory to tuberculosis, such as the sheep and goat. The advantage of this has proved to be very questionable. In the few experiments that I have made, which have been carried out on slightly different lines from those hitherto published, I have employed goats, as being generally convenient and possessing a high degree of relative immunity. It is a well recognized fact that the blood serum of many normal domestic animals possesses what may be called natural antitoxic bodies, so that my first endeavors were directed to determining whether this is the case with regard to goat serum and tuberculosis. Should it prove to be so, then it might be attempted to increase this natural potency.

For the purpose of the experiment it was obviously necessary to obtain the serum without contamination from bacteria, and as nearly normal as possible. To attain this the following method was adopted. A large healthy male goat was taken, the hair was removed over the course of the external jugular vein in the neck, and the skin washed and sterilized by means of a solution of sublimate (1-1000). A large sterilized trocar, attached by a rubber tube to a sterilized bottle was then inserted into the vein, and the blood allowed to flow into the vessel. The serum was allowed to separate in a cold chamber, the clear portion carefully decanted off, and one-quarter per cent. of chloroform added as a preservative. It was found that the serum thus prepared kept perfectly well for some weeks.

EXPERIMENT I.

The first experiment was conducted under the following conditions. Eight guinea-pigs and ten rabbits, presumably in good health, were taken, and their weight and temperature, before inoculating, were obtained. They were then numbered and kept in separate hutches. On March 13th, 1902, they were inoculated, one half intraperitoneally and the other under the skin of the left leg, with a culture of the bacillus tuberculosis of extremely mild virulence, standardized as follows :

A culture of the bacillus typhi abdominalis taken from an old laboratory stock was inseminated in 1.5 per cent. acid broth, and grown in the incubator at the usual temperature for twenty-four hours. The culture obtained was then killed with formalin vapour and used as a standard. A glycerine agar culture of the tubercle bacillus referred to was ground up in a sterile mortar with sterile normal saline solution. This was allowed to stand until the heavier portions had sunk to the bottom. The opalescent supernatant portion was carefully decanted off and diluted with sterile normal salt solution, until it reached the same degree of opacity as the standard culture of the bacillus typhi. Hanging-drops were then examined under the microscope, to see that there were no gross masses of bacilli floating about. One cubic centimetre of this material was then used for inoculating. Care was of course taken, as far as possible, to avoid contamination in the course of the various manipulations, sterilized vessels and instruments being invariably employed.

The animals were shaved at the desired points and the skin sterilized with bichloride, 1-1000. The inoculations were made with an all-metal syringe of five c.c. capacity, previously boiled.

The reason for using a culture of weak virulence to begin with, was that guinea-pigs are very susceptible to tuberculosis, and it was suspected, from observations already published, that should goat serum possess any antitoxic powers, these would be extremely slight.

One half of the animals were inoculated subcutaneously over the abdomen with two c.c. of normal goat serum every second day. Subsequently the temperatures were taken every day, and the weights once a week.

Instead of estimating as others have done, the effect of the injections, by keeping the animals until they die spontaneously, and taking into consideration merely the loss of weight, it was thought advisable, as we were dealing with germs of such mild virulence and there was a possibility of the animals recovering, to kill them at stated intervals, and determine the amount of tuberculosis by the naked eye and the microscope. By this method an exact appreciation of the state of things could be obtained. By arranging them in pairs, according to weight, it was moreover possible to compare animals of approximately the same degree of resisting power.

Two guinea-pigs and two rabbits died spontaneously before the conclusion of the experiment, apparently from some gastro-intestinal disturbance. The rest of the pigs were killed after thirty days, and one-half of the remaining rabbits about the same time. The first animals killed presented so little pathological change, that it was thought

advisable to keep the remaining six for two weeks longer, in the hope that the lesions would be more marked. Autopsies were performed at various times with the special object of determining the extent of the dissemination of the tuberculosis virus, the effect of the serum injections, if any, and the character of the bacilli of tuberculosis found in the various parts. Portions of the organs were examined microscopically, both by the hæmatoxylin method and the modified Ziehl-Neelsen method for tubercle bacilli. Smears were made from the organs and stained for bacteria. Cultures were also taken from the organs.

Without going into the full details, it may be stated that of the guinea-pigs, only one (No. 2) gave evidence of any dissemination of the tubercle bacilli to any distance from the site of the original inoculation. It had not received serum. In Nos. 1 and 4 the inguinal glands were affected; the bacilli were discovered in No. 1 which had not received serum, but not found in No. 4, which had. In No. 6, which had received serum, the infection was strictly localized to the site of inoculation. In those inoculated in the leg, Nos. 3, 5, 7, and 8, all except one showed enlargement of the inguinal glands. In only one that had not received serum were the bacilli discovered (No. 3). One that had received serum did not develop a local lesion (No. 8).

In the case of the rabbits, only one developed gross tuberculosis (No. 8), and this one had not received serum. This result was in general what one would have expected, as rabbits are much more refractory to tuberculosis than are guinea-pigs. None of the culture tubes developed the specific bacillus and when found in smears, they were in a state of extreme fragmentation and degeneration, showing that the infection was an extremely mild one. So far as I could see, the inoculation of serum had no effect whatever upon the temperature of the animals receiving it, but the rabbits so treated lost weight rather rapidly, although the pigs were unaffected. This was probably due to interference with the feeding, for the injections produced extensive areas of coagulation-necrosis in the abdominal wall, and in one or two instances there was slight superficial suppuration. Apparently the injections of serum had some slight deterrent effect on the development of the tuberculous lesions, but it was felt that it was unwise to draw any positive conclusions from such a small series of animals, particularly with so mild a germ, so a second experiment was undertaken on similar lines, but with several modifications suggested by the experience with the former series.

EXPERIMENT II.

Six guinea-pigs and twelve rabbits were placed under exactly the same conditions as to food, exercise, etc., and weighed at intervals of a week until the average normal weight was established. They were then grouped in pairs according to weight. Rectal temperatures were taken daily for ten days to establish a mean normal temperature. Both the weights and the temperatures were found to vary in health between rather wide limits. The average temperature of the pigs was from 102° and $3/10$ ths to 102° and $8/10$ ths; that of the rabbits from 102° to 103° and $2/10$ ths.

All, with the exception of two rabbits which were retained as controls, were inoculated with one c.c. of an emulsion of a more virulent, though still mild, culture of the tubercle bacillus in normal saline, standardized as before. One-half of the animals were given the inoculation in the left leg subcutaneously; the other half intraperitoneally. Three days after inoculation one member of each pair was given a subcutaneous injection of one c.c. of a fresh supply of normal serum from the same goat, collected with the same precautions as before. This was repeated every third day until the close of the experiment. The reason for reducing the dose was the marked local disturbance caused by the injections in the first series of animals. Two rabbits were also given serum but without tuberculosis. During the course of the investigation daily temperatures were taken and the animals were weighed weekly. A few of the animals died spontaneously before the six weeks allotted to the experiment had elapsed, but the remainder were killed in pairs on the same days. The post-mortem examination was made immediately. In estimating the amount of disease resulting, I took into consideration the dissemination of the disease in the various organs, the amount of tissue destruction, the amount of repair if any, the histological appearance of the lesions, and the morphology of the bacilli found.

It was found in the course of this experiment that after the injection of the bacilli the average temperature of the animals was raised one degree. The average temperature of pigs and rabbits before inoculation was 102.52° ; after, it was 103.41° , in the case of δ^f animals not receiving serum, and 103.62° in those given it. In the control animals that were given serum alone, the temperature in one was only slightly elevated, in the other normal. We may thus conclude that the injection of the serum had no effect on the temperature curve. With regard to the weights it was different. The animals given serum lost 22.27 per cent. of their body weight; those not receiving it lost only 10.45 per cent. As a rule rabbits inoculated with tuberculosis preserve their

nutrition surprisingly until toward the last when they go down hill rather rapidly. The injection of the serum, although given in less than half the quantity employed in the first instance, caused considerable local disturbance, and this was aggravated by the animals scratching themselves. The loss of weight is, no doubt, to be attributed to the interference with their feeding thus produced.

In comparing the results I found, as before, that guinea-pigs are much more susceptible to tuberculosis than are rabbits, losing weight rapidly from the first and presenting marked lesions when killed. These facts led me to keep the rabbits under observation some three weeks longer, in the hope that thus the resulting disease would be more pronounced. This, however, did not prove to be the case.

After a careful consideration of the extent and nature of the lesions produced in the pigs it could not be said that the injection of the goat serum had the slightest effect in inhibiting the action of the bacilli. The results in the case of the rabbits were rather more promising. The most marked difference was found in rabbits III and XII. Number three which had been given serum presented no positive appearance of tuberculosis, whilst its mate, number twelve, presented caseation at the site of inoculation and tubercles on the peritoneum. On the whole the lesions were slightly more marked in the case of the rabbits not receiving the serum. In corroboration of this finding may be cited the results of the first experiment where the two animals that did develop tuberculosis were those that had not been given serum. It is, of course, hazardous to draw too positive conclusions from such a small number of animals; but it would appear, so far as we have gone, that normal goat serum does have a slight retarding effect on the progress of tuberculous infection. Whether this action is specific or not is another question. Recent work has shown that the sera of other animals, such as the dog and the horse, as well as normal saline solution, possess similar properties.

Having drawn this conclusion, it was thought advisable to attempt to confer upon the serum more definite antitoxic properties. The method adopted was based upon that employed in the production of diphtheria antitoxin namely, the introduction of the toxins of the bacillus into the system of an animal until it was immune to the effects, and then, using its serum as a curative agent. As has been pointed out, most of the work on these lines has proved to be a failure, or at most has had a very limited meed of success. This is possibly due, at least in part, to the fact that the toxins and extracts of the tubercle bacillus used for immunizing purposes have been obtained by heat or by various chemical processes, so that they do not represent the full toxic properties of the

bacillus. To obviate this objection Koch's new tuberculin (Bacillen-emulsion) was employed. Perhaps a word or two of explanation as to the nature of this substance may not be out of place at this juncture.

Koch takes a definite weight of tubercle bacilli, filters them from all culture fluids, grinds them up with two hundred parts of 1-50 normal soda solution, and then centrifugates. He then pours off the supernatant fluid, adds weak acid to the residue until only slightly alkaline, and finally dilutes with a standard weak solution of carbolic acid and saline to the extent of one to three thousand. Glycerine is also added, and the final emulsion represents five milligrammes of pulverized bacilli in every cubic centimetre (*Deutsche med. Woch. Nov. 28, 1901*). The injection of this into tuberculous persons brings about a rise of temperature of one and a half to two degrees centigrade. The dose at the first injection is 0.0025 milligramme, rapidly increased two or five-fold until the reaction appears.

To obtain convenient amounts for injection, the bacillus emulsion was diluted according to Koch's directions with a standard diluting solution containing 0.8 per cent. sodium chloride and 0.5 per cent. carbolic acid. Three strong healthy goats were subjected to the injection of the bacillus emulsion in gradually increasing amounts, the whole procedure extending over seven months. The reason for spreading injections over so long a period was that it had been found by Maragliano and others that the animals stand the treatment better and the results are more satisfactory. The injections were given subcutaneously in the neck under strictly aseptic conditions once a week until towards the end of the allotted period. Previously, however, the normal temperature for the goat was ascertained. The amount of the emulsion injected was at first 0.0025 milligrammes repeated for three weeks and cautiously increased until at the end of three months the goats were receiving 0.015 milligrammes. Subsequently, the amount injected was doubled each week, until at the end of the seven months 15 milligrammes were reached. After the first three months also the temperature before inoculation was taken as well as afterwards twice in the twenty-four hours. The normal temperature of the goat varies between 101 and 103 degrees, Fahrenheit. In only one case did the injection of 10 mg. cause a rise in temperature from 102 to 103 degrees and 3-5ths, but this was only 3-5ths of a degree above the maximum normal variation. The subsequent injection was lessened to 7.5 mg. and then again increased. During the last few weeks while such large amounts were being employed the injections were only given once in from ten to fourteen days. After the animals were considered immune to the emulsion a period of

three weeks was allowed to elapse, until all excess of the toxin should have been eliminated from the system. One of the goats was then bled from the jugular vein with the same precautions as before adopted, and the serum used for the purposes of the experiment. Tested by the Arloing-Courmont method, as to its powers of agglutinating a homogeneous culture of the tubercle bacillus, kindly furnished by Prof. Courmont, it gave a positive reaction in a dilution of one to fifty.

EXPERIMENT III.

In carrying out the third experiment I labored under considerable difficulties. Owing to the great disturbance caused by the injection of the serum in guinea-pigs it was thought better to use rabbits exclusively. Ten rabbits were taken, their temperature was noted daily for a week to establish a normal average, and their weight was recorded. They were then grouped in pairs according to their weight. Four were injected intravenously through the auricular vein; four intraperitoneally; and two in the left leg, with one-half c.c. of an emulsion of a mild tubercle bacillus in saline solution, standardized as before. One member of each pair was given regular doses of one ccm. of the fortified goat serum. Unfortunately, after the experiment was well started, rabbit septicæmia broke out in the hutches and about half the animals had to be replaced. At the end of a month several of the animals were killed but it was found that the germ was not virulent enough to produce characteristic lesions. The animals were, therefore, reinoculated with the same quantity of an emulsion made from a mild culture of bacillus tuberculosis received from Dr. DeSchweinitz, of the Bureau of Animal Industry, Washington. In addition, two other rabbits were inoculated in the anterior chamber of the eye, affording a convenient means of watching the progress of the tubercular infection. At the end of another month four rabbits were killed and again no lesions were found. The results of more than two months' work were almost nil, although they served to indicate the effect produced by the antitoxic serum on the healthy organism. The average temperature before inoculation of the rabbits which did not receive serum was 102.9 degrees and the average weight 1865 g. After the injection of the tubercle germs the average temperature was 102.7 degrees and the weight 1878 g. The average temperature, before inoculation with tuberculosis, of the rabbits that did receive serum was 103.2 degrees, and the average weight was 1260 g.; after inoculation with tuberculosis and after receiving antitoxic serum the average temperature was 103.2 degrees and the weight 1675 g. Thus, as the culture inoculated was innocuous, the conclusion is that the

antitoxic serum had no effect on the temperature while it apparently stimulated nutrition as the animals receiving it had markedly increased in weight, and in truth appeared in fine condition. Finally, as the experiment had to be concluded rather hastily, six guinea-pigs were taken, their normal temperature ascertained, and they were grouped in pairs as before according to weight. Two were inoculated in the left leg with a standardized emulsion of relatively mild bacilli, (I.c.c.) and the remaining four intra-peritoneally with the same amount. One member of each pair was given one c.c. of antitoxic serum subcutaneously every second day. Numbers III and VI, inoculated in the leg, died on the second day of the experiment, and presented no evidences of tuberculosis. Number IV died on the ninth day and its mate was killed on the eleventh. Numbers I and V were killed on the fourteenth day.

The general conclusion, based on this experiment, was that the antitoxic serum had a distinct effect on the development of the tuberculous process, inasmuch as in those animals that had received the serum the lesions were noticeably less than in the others. This was well exemplified in pigs I and V. In No. I the spleen contained a few minute tubercles as did also the omentum, while in No. V the spleen was much enlarged and apparently filled with tubercles, the liver contained a few definite tubercles, and the great omentum was greatly thickened and converted into a gelatinous firm mass.

With regard to the two rabbits inoculated into the anterior chamber of the eye, in one the disease progressed so rapidly, apparently from secondary infection, that accurate conclusion could not be drawn. The other proved quite satisfactory, however, and the progress of the disease could easily be watched. For about two weeks the disease advanced so that the small caseous mass at first resulting had become enlarged to twice its size. With this there was considerable swelling and injection of the iris with exudation and marked conjunctivitis. Then one c.c. of serum was given every third day. After this the signs of the acute iritis and conjunctivitis subsided, and during the three weeks following the animal was kept under observation, while the disease undoubtedly progressed, and subsidiary tubercles formed, the process appeared to be quite slow and somewhat indolent.

In the case of the guinea-pigs it was found that the injection of the antitoxic serum had no modifying influence on the temperature. From the autopsy findings it would look as if the use of the antitoxic serum had a notable amount of restraining influence upon the dissemination and development of the tuberculous process. It is equally certain that

it was not powerful enough to neutralize the infection and prevent its extension. I would hesitate to draw these conclusions from such a small series of animals were it not from the fact that the results are in perfect accord with those of work previously done on analogous lines.

After a careful consideration of the various researches previously referred to, it must, I think, be admitted that it is possible to prepare a serum that is to a certain extent antitoxic towards tuberculosis. This, however, is clearly not enough. The evidence forthcoming that the sera hitherto prepared are curative is to my mind unconvincing. We apparently have to recognize that a serum may possess two qualities; it may be antitoxic merely, or it may be germicidal. In the case of tuberculosis we seem to need both qualities. Studies on the germicidal properties of the various sera produced have been few. Maffucci and Di Vesteà have found that their serum when added to tubercle bacilli in the proportion of four to one produced some attenuation. So many outside factors may result in attenuation, however, that careful observations are needed to clear up this point. It is possible, as Ehrlich suggests, that better results may be obtained if we use as antitoxin-producers animals that are more nearly akin to the human being, such as to the ape. In view of the fact that tuberculosis is so essentially a chronic disease, even granting that an antitoxic serum is efficacious the amount necessary to counteract the tubercle bacilli would be enormous, for so far as we know yet the various antitoxic sera do not stimulate the body cells to produce antitoxin. Short of killing the germs in situ, I do not think it likely that we shall achieve success. By the use of attenuated germs it has recently been found possible to immunize animals susceptible to tuberculosis, but Koch, Trudeau and Baldwin, and others, agree that the blood of such animals does not notably gain in antitoxic properties. It seems to me that the question of diathesis, that is to say, the question of deficient cellular resisting power, is of relatively much greater importance in tuberculosis than it is in diphtheria and the other acute infections. Our endeavors must be directed towards conferring on the cells of the body those properties which they lack. How this is to be done is still as much a puzzle as ever.

At the present moment much attention is directed towards the doings of the Japanese. They are a small people, but are capable of great feats of strength and endurance. They live on a very frugal diet, and attribute much of their health and strength to the free external and internal use of water, and their system of gymnastics. They drink tea and beer in moderation, are very fond of the fresh air, and, use but little tobacco.

THE ETIOLOGY, DIAGNOSIS AND MEDICAL TREATMENT OF GALL STONES.*

By W. P. CAVEN, M.B.

ALTHOUGH on the program to-night, I am "set down" to discuss the diagnosis and medical treatment of gall stones, I feel that this necessitates first a statement as to what we know about the origin of gallstones.

For a long time Galen's explanation was the accepted one, that *certain conditions increased the temperature of the liver and that in consequence coagulation of the bile occurred thus forming the stone.* Paracelsus taught that disturbances of digestion produced an acidity of the blood; the acids formed acting on the bile, thus permitting of the precipitation of cholesterin and bilerubin, and stones were formed. Mickel von Hemsbach believed that chronic catarrhs of the mucous membranes of the gall-bladder and bile passages caused the formation of the stones; and to-day we are still of the same opinion, that on account of the mucous membranes of the gall-bladder and bile ducts being diseased there is increased formation of cholesterin and calcium; but we also go a step further and offer a reason why these mucous membranes should become inflamed. Pathologists tell us that a variety of micro-organisms are capable of infecting and inducing a subacute inflammation of the mucous membranes of the bile ducts and gall-bladder. The micro-organisms most frequently found are members of the colon group and bacillus typhosus. It is difficult to explain why at one time these organisms set up a chronic catarrhal affection with formation of stone, and at another time cause an acute cholecystitis and angio-cholitis with, perhaps, abscess formation, a difference in degree of virulence has been suggested. Does clinical evidence bear out the pathologist in showing this connection between typhoid fever and cholelithiasis? I am persuaded that it does. For some time past, I have been careful to investigate this point in the cases I have seen, and have been struck by the large number of cases giving a history of a previous attack of typhoid fever. Looking over my clinical notes, I find complete histories of 13 cases since paying attention to this point. Out of this number six gave such a history. It is also of interest to note how soon after an attack of typhoid may we find symptoms of gall stones.

Of my own cases one, Miss. L. aet. 35, had her first attack of biliary colic, (pain, jaundice, etc.) one week after getting out of bed

* Read before the Toronto Medical Society, February 25th, 1904.

from her fever. Since then there have been recurring attacks of the same nature, sudden onset of pain in region of gall-bladder extending through to back, with jaundice coming on in a few hours; the clinical evidence here I think is sufficient to diagnose gall stones, although I have as yet not obtained a stone.

Miss H. act. 27, had typhoid in the spring of 1903, and the stone was removed by the surgeon, Dr. Bruce, in the fall of the same year.

Mrs. F. act. 44, had typhoid at New Years, and the following July had her first attack of biliary colic.

In addition to the infection of the biliary ducts and gall-bladder by various micro organisms, we also recognize the part that obstruction to the free outflow of bile into the duodenum plays: this in part explains the relationship between cholelithiasis and chronic constipation, frequent pregnancies and abdominal tumors.

Cases have also been reported where a foreign body has formed the nucleus of the gall stones, and no doubt has been the cause of its formation. (Needles, round worm, liver fluke.) Mignot has, however, shown that the presence of a foreign body in the gall-bladder, so long as the gall-bladder remains in an aseptic condition, does not cause a deposit of cholesterin, an infection being necessary as well.

Other indirect causes bearing on the predisposition to gall stones are:—

1. Sex.
2. Heredity.
3. Age.

Sex. Cholelithiasis is more common in females than in males, the proportion being, according to those who have had large opportunities of judging, two females to one male.

Heredity. Dr. Kraus, of Carlsbad, states that gall stones very frequently occur as a family complaint; in sixty-two per cent. of his cases he regarded it as such. Hoppe Seyler says the role of heredity is extremely doubtful.

Age. Cholelithiasis is most apt to occur in men between the fortieth and sixtieth years, and in women between the thirtieth and fiftieth; children and young adults are rarely the subjects of gall stones.

SYMPTOMS AND DIAGNOSIS OF GALLSTONES.

Are there any prodromal symptoms indicating that gall stones are going to form? Symptoms indicating a catarrhal condition of the gastric and intestinal mucous membranes we may probably regard as such, viz., constipation, flatulence, furred tongue, pale and yellowish skin, con-

junctiva slightly yellow, urine scanty and urates in abundance ; all of which symptoms usually clear up for the time being with a dose of calomel and salts.

In the great majority of cases of stones in the gall-bladder or bile passages, no symptoms are present, and they are only found post mortem; but when the stone attempts to pass from one part of the bile passage into another in which the lumen of the canal is smaller, marked symptoms will appear. In the cases where the gall stones are quiet and do not move, the patient frequently complains of a sensation of weight and dragging in the hypochondriac region ; change of position of the patient, changes the location of the sensation. The appetite is capricious, attacks of migraine, nausea and vomiting may occur, and altogether the patient is considered to have a "weak stomach." A physical examination in such a case may reveal an enlarged gall-bladder, and also some enlargement of the liver itself can be made out. An alternate increase and diminution in size of the gall-bladder following the increased or decreased secretion of bile is also of diagnostic significance. As soon as the stones begin to move, we have usually a train of well marked and severe symptoms constituting an attack of hepatic or gall-stone colic. Such symptoms, however, are not seen in every case, as the finding of a stone in the stools may be the first intimation that the person is the subject of gall stones, the size of the stone or the condition of the passages being such as to permit of its travelling along without setting up any irritation. The attack of gall-stone colic is ushered in with violent pain ; as a rule this is of sudden onset, but sometimes it comes on gradually, some time elapsing before it becomes severe and localized in the liver region. The pain as a rule begins in the pit of the stomach ; it then spreads to the liver region and radiates over the right half of the thorax and often concentrates over the lower part of the right scapula, and it is said, that if the stone becomes impacted in the common duct, the pain is marked at the lower part of the back of the thorax, close to the vertebral column. The fact that the paroxysm of pain may come on after physical exercise or after eating a hearty meal, or following emotional disturbances, as sorrow or fright or anger, must be borne in mind from a diagnostic standpoint. Physical exercise by succussion may start the stone on its journey ; the increased flow of bile after a meal increases the *vis a tergo* thus determining an attack. Emotional disturbances no doubt influence the peristaltic action of the bile passage the same as the stomach or intestines. A feeling of sickness or nausea usually accompanies the pain, and this becomes intensified until vomiting takes place ; the vomited matters are first the contents of the

stomach and then bile stained mucous. The pain often ceases after the vomiting, and this gives rise to the impression the whole trouble is of gastric origin; but, provided the stone has not passed, another paroxysm soon comes on. If the attack is severe and of long duration, the patient exhibits signs of collapse, the skin becomes clammy, he is chilly, pulse is slow and respirations are labored. During the attack or shortly after, the temperature may rise to 103° F. or higher, and be accompanied with a rigor of short duration; this is probably caused by absorption of septic micro-organisms or their chemical products into the blood stream, and could be compared to what we used to designate "urethral fever" after the passage of a catheter. The attack of colic usually terminates suddenly, the stone getting into a wider channel, all symptoms abruptly end, and the patient is transferred from a condition of torture into one of delight. After an attack, the stools of the patient should be examined, the finding of the calculus of course clinching the diagnosis. The best method of searching for these is to use a wire sieve the meshes of which are about one-twelfth of an inch square, and pass the excreta diluted in a weak solution of carbolic acid through this.

I have as yet not mentioned jaundice as a symptom of gall stones; but if a calculus becomes impacted in the common bile duct and the obstruction is complete or almost complete, jaundice develops; the discoloration of the skin lasts for several days after the calculus has escaped. If the calculus remains impacted the jaundice may last for a long time. I have notes of one case where the jaundice came on with an attack of colic, in February, 1896, and persisted, becoming very intense, until June of 1898 when the surgeon, Dr. J. F. W. Ross, removed the stone from the common duct, the patient, a man sixty-eight years of age, making a complete recovery. If the calculus becomes impacted in the cystic duct jaundice does not usually occur, there being no interference with the course of the bile to the duodenum, unless there be sufficient pressure exerted on the common duct from without, the same as might be occasioned by a tumor.

I have been struck by the great loss of weight and variations in weight to which one the subject of cholelithiasis is liable. I mention this more especially as a factor to be taken into account in differentiating gall stones from malignant disease. The patient to whom I referred a moment ago, as having had a stone impacted in the common duct so long, fell in weight in twelve months from 170 pounds to 110 pounds. Another case, a male aet. 56, in the spring of the year 1902 weighed 185 pounds; in July he fell to 130 pounds; in August, when I saw him first, he was 142 pounds. In January, 1903, he weighed 150 pounds,

the symptoms persisting. Dr. Bruce, the same month, operated and was able to shove the stone out of the common duct into the duodenum: the patient is now back to normal weight and perfectly well. Mrs. A., act. 35, was the subject of gall-stone attacks from 1901; she would have spells of colic every week or ten days for two months at a time, during which time she would lose from 24 to 35 pounds in weight, picking it all up again when free from attacks for some months. She has had no attack now for about nine months, having passed three stones which we obtained with the sieve.

Just a word as to the result of physical examination of the abdomen in one who is suffering from cholelithiasis. When the gall-bladder is found to be enlarged, the swelling may be due either to a large collection of calculi in the gall-bladder or to an accumulation of fluid, which fluid may be bile, or it may be pus, owing to infection, or it may be a mixture of all three. A calculus lodged in the common duct does not necessarily dilate the gall-bladder, inasmuch as the spiral valve arrangement in the interior of cystic duct seems to prevent the bile getting into the gall-bladder in some cases. When the cystic duct becomes plugged by a stone, the gall-bladder usually enlarges and dilates from the accumulation of mucus in its interior. The distended gall-bladder is smooth, rounded, larger below than above, moves with the respiration and can be moved laterally with the fingers; it extends downwards towards the umbilicus or along a line drawn from the ninth costal cartilage of the right side to a point one-third of the way from the pubic spine, to the anterior superior iliac spine of the same side. I have, however, seen a gall-bladder holding in the neighborhood of a pint of bile where the enlargement was almost entirely backwards, and could only be doubtfully made out by abdominal palpitation. In palpating such cases, it is well to have the patient sit up and bend the body slightly forward.

Gall stones cannot be demonstrated by Röntgen rays as they are permeable to these rays on account of the cholesterin and large amount of organic matter which they always contain. A patient being seen for the first time in an attack of gall-stone colic, the diagnosis involves a differentiation from renal colic, intestinal colic as seen in lead poisoning, gastric ulcer, hyperchlorhydria with gastralgia, displaced right kidney with twisting of ureter. A renal colic could only be confounded with hepatic colic when the calculus is passing along the right ureter or is in the right pelvis. The pain, however in renal colic radiates down along the loin into the pelvis or thigh, and is associated with bladder symptoms and pathological conditions of the urine (blood etc.) In lead poisoning colic we have the history of

exposure, very marked constipation, the blue line on the gums. The pain of a gastric ulcer bears a definite relationship to the taking in of food, being thereby much intensified; the pain is immediately relieved by vomiting, and blood can usually be found in the vomited matter; the seat of the pain in gastric ulcer is usually in the centre or to the left side of the abdomen. The gastralgia of hyperchlorhydria is removed by large doses of alkalis or by washing out the stomach. A right floating kidney may give rise to acute pain in a case where the ureter becomes twisted; usually here the kidney is palpable, its shape and position negating dilated gall-bladder; with this condition we have as a rule bladder symptoms and changes in the urine.

In certain cases, the symptoms of which show undoubted involvement of the gall bladder, we are in doubt as to whether or not we have malignant disease of the gall-bladder, head of the pancreas or neighboring structure. When persistent jaundice is present and not associated with recurrent attacks of periodic pain, nor with rises of temperature, but with progressive and rapid loss of weight, the evidence is in favor of malignant disease.

AS TO TREATMENT.

I say nothing about the management of the patient during the attack of colic. Can we do anything to prevent the formation of gall stones in one who is showing prodromal symptoms? From what has been already said as to the mode of origin of gall stones you will conclude we can.

1. By taking steps to prevent any obstruction to the free flow of bile into the intestines, and,
2. By avoiding, if possible, any infection of the bile passages.

To accomplish the first of these objects see that your patient is properly dressed—no tight bands or corsets; the weight of the clothing should be suspended from the shoulders. Physical exercises are also to be enjoined; walking, horseback exercise, bicycling, rowing and swimming may be mentioned as being specially useful. To avoid infection, constipation must not be allowed to exist, as this is a factor in bringing about a catarrhal state. Epsom and Glauber's Salts are probably the best laxatives under the circumstances. Food should not be taken at too long intervals. Frerichs draws attention to this, for under these conditions the bile is retained too long in the bile passages. A diet that contains too much fatty food and has too much sameness about it, ought to be avoided, as this predisposes to catarrh of the stomach and intestines.

The most suitable diet is a mixed one containing plenty of proteid, not too scanty, so that abundant quantity of bile acids is produced, and so that the flow of bile may be stimulated. Abundance of fluid should be taken, for while water in excess does not stimulate the flow of bile, too little water causes thickening of the bile.

Having diagnosed the presence of gall stones, can we hope to bring these away by medicinal means? Only if the stone is small enough in calibre to pass through the ducts. I think, with our present knowledge, we must confess to having no remedy by which we can hope to bring about a solution of the stones within the bile passages. Olive oil and almond oil were at one time, and even yet are, advocated with this object in view; it is claimed as well that the oil has a cholagogue action. This is, however, not correct. I have given the oil treatment a fair trial on a number of cases, but have had no success with it. Durande's remedy, which consists of three parts of ether and two of turpentine, was claimed to be a solvent, especially as the ether and turpentine were found to be excreted in part by the bile; but the quantities so excreted are so small that they could not possibly exert any action on the stones. Chloroform and glycerine have been recommended, but I think must be regarded as useless. A course of alkaline saline mineral waters, such as Carlsbad or Vichy, undoubtedly brings about the expulsion of gall stones in many cases. The water of Carlsbad is both purgative and cholagogue, and this tends to relax the walls of the bile ducts and at the same time increase the flow of bile. No doubt the successful management of these cases, at such places as Carlsbad, is largely contributed to by reason of the attention given to the diet and exercises (factors in reducing catarrhal conditions and in promoting flow of bile). The Carlsbad physicians recommend the taking of two tumblerfuls of Carlsbad water in the morning before breakfast, at intervals of fifteen minutes, warmed to a temperature of 150° F., and one in the evening at bed time taken cold. This treatment can, of course, be carried out anywhere, provided the patient will lend himself to it, and it is this method of treatment that has given me the best results. The Carlsbad water can be obtained here, or the Carlsbad salts may be used. In using the salts I have found it necessary usually to have the patient take a heaping teaspoonful in a tumblerful of warm water in the morning and again at night, in order to bring about the desired effect on the bowels. In addition to this I would, of course, enforce the directions as to exercise and diet. Carlsbad salts as you know consists of sodium sulphate, sodium bicarbonate and sodium chloride. I do not know that the natural salts have any advantage over those artificially prepared.

In conclusion, I would say with Waring: "(a) The presence of a tumour in the abdomen, which appears to be an abnormally distended and large gall-bladder; (b) the existence of jaundice which is persistent, together with other signs and symptoms which point to complete obstruction of the common bile duct or the common hepatic duct; (c) the occurrence of successive paroxysmal attacks of biliary colic, with short intervals between the individual attacks, which are lowering the general health of the patient, inducing a state of general exhaustion, and are not amenable to medical measures; (d) symptoms of localised inflammation in the region of the gall-bladder, which are associated with the occurrence of attacks of biliary colic; (e) the occurrence of acute peritonitis, would determine me to call in a surgeon."

RELATIVE PREVALENCE OF CONTAGIOUS DISEASES IN CHILDREN OF SCHOOL AGE.*

By P. H. BRYCE, M.A., M.D.,

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TO everyone, but especially to those interested in the care of the children of our Public Schools, the subject of this paper becomes of extreme importance.

We naturally are all interested in the question of the prevention of contagious diseases amongst children at all ages, and in the measures by which such prevention may be accomplished; and it is natural to enquire how far schools are an aid or hindrance to such prevention. In one sense, our schools are both an aid to the dissemination and a means of preventing the spread of contagious diseases. They do aid in the dissemination of disease in the same way that infection spreads amongst crowds everywhere; but they are a means of prevention through the educational influences which spread often from the children to parents in these days of general compulsory school attendance and instruction in hygiene. Not until the organization of the Department of Health, under the Local Government Board in England, was there any systematized study of the causative influences in the spread of infectious diseases; but since the appointment of Dr. John Simon, its first medical officer, investigations have been pushed in every direction. This is illustrated in the following quotation from Dr. Clifford Allbutt's *System of Medicine*:—

"The influence of school attendance on the diffusion of diphtheria was noted almost as soon as skilled enquiry into the circumstances of

* Read at the Conference on School Hygiene, Toronto.

the disease was instituted. This was pointed out by Mr. W. H. Power in 1876, and in the following year I had an opportunity of studying the matter during a maintained prevalence of diphtheria at Coggeshall, in Essex. It was found practical to divide the 928 children in the village into age groups, and then to ascertain within each group the relative amount of diphtheria in those who attended school and in those who did not. Under three years of age school attendance was not found to have materially influenced the number of attacks; but in the age period, three to twelve years, the incidence of the disease was not far from 50 per cent. greater on school attendants than on others; and in the age period, twelve to fifteen years, the school attendants suffered nearly three times more than those who were not at school."

A similar result in the instance of scarlet fever is illustrated in the annual report of Dr. Murphy, Medical Officer of Health, of London, England, for 1893, in connection with 17,704 cases. Of these there were:—

5,279	cases under	5	years of age.
6,727	"	10	" "
3,187	"	15	" "

Or but 29 per cent. of the cases were under five years of age.

Dr. Murphy illustrated the fact in another way by showing how the prevalence of this disease declined with the summer vacation. Thus:—

Under	3	years	the decrease	was	1	per cent.
"	3	to 12	"	"	26	"
Over	13	"	"	"	13	"

Increase in succeeding month:—

Under	3	years	the increase	was	4	per cent.
"	3	to 13	"	"	65	"
Over	13	"	"	"	26	"

Such is the experience of officers of health in England, but we are able to further illustrate the prevalence of infectious diseases from our own statistics.

During the first half of 1897 we had a serious prevalence of scarlet fever in Toronto. There were in all 1,138 cases and 63 deaths.

In the returns for May, and up to the 5th of the following June, there were in all 280 cases. Of these 198 attended school, or 70 per cent. of the whole were school children.

Such are the statistics of several outbreaks in which the details regarding cases have been available. We have, however, in addition to this, always available, the study of the death returns from year to year for the whole Province and for particular municipalities.

The following table, from the Registrar-General's Report of 1900, supplies a number of interesting details, by which comparative results may be obtained. It gives the population of the Province by age periods from 0 to 19 years inclusive, by years for the first five-year period and for the three succeeding quinquennia. It further gives the deaths for each of the several periods separately for scarlatina and for diphtheria.

Table showing, for 1900, population by age periods. Percentage of population in each age period. Total deaths by age periods. Deaths by age periods from scarlet fever and diphtheria.

Age period	Year.	1 to 4 years.				0-4	5-9	10-11	14-19	5-19
Population	49,500	190,347				239,847	246,610	243,277	232,073	.....
Population percentage	5%	19.9%				24.9%	25.8%	25.29%	24.13%	.....
Total Deaths	7,163	1,989				9,152	803	563	923	1789
		1	2	3	4					
Total deaths from scarlatina.	18	20	30	17	24	109	39	10	3	52
Total deaths from diphtheria..	77	61	94	90	85	407	205	66	29	300

From the columns of totals we find that for the first quinquennia, the deaths for both diseases together were 516, and for the period of 5-20 the legal school period, they were 352, and in the 5-9 period, separately, 244.

It will be observed that the ratio of deaths in the first five years of life is about three times that in the second five-year period for scarlatina, and twice that for the same period in the case of diphtheria. We see in this an apparent disagreement from the foregoing statistics regarding the cases as reported in the different illustrated statistics given.

There is, however, a natural explanation for this in the fact that the percentage mortality of scarlatina, in England, in 14,000 cases between 1888 to 1893 under five years was 16.8 per cent., while that for the five to nine year period was 5.6 per cent.

In the same way diphtheria which, between 1895 and 1899, had 25.6 per cent. of deaths to cases of children under 5 years, had 14.6 per cent. of deaths for the five to nine period. Or there were 1,536 as compared with 695. What is very pleasing to notice, however, in this study of English statistics is the relatively great decrease in recent years not only of the total cases and total mortality; but also of the lessening percentage in school children, due doubtless to the closer inspection of school children and the very general removal of first cases to the isolation hospitals.

To conclude this reference to the relative prevalence in the two periods through illustrative statistics, I shall take the returns of our two largest cities, Toronto and Ottawa for 1903. Except for the first three months of the year, the following are the number of cases as well as deaths, for the year 1903. We find that for the ten months from March to December, Toronto had 418 cases of scarlet fever and 62 deaths, and 806 cases of diphtheria with 100 deaths. The deaths for the whole year by ages were seen in the following table.

Deaths by Age-Periods in Toronto in 1903, for Scarlet Fever and Diphtheria.

—	0-1	1	2	3	4	5-9	10-14	15-19	20-24	25-29	40-44	Total.
Scarlet Fever....	4	7	12	14	7	32	10	2	2	2	1	92
Diphtheria.....	7	9	22	18	20	44	7	1	4	1	1 (2)	136
Scarlet Fever & Diphtheria....	.....	.....	3	1	.....	3	1	.....	.....	.....	.....	8

Comparing cases with deaths as given, we find that the percentage death rate was 14.7 for scarlatina and that for diphtheria was 11.7. I have not the figures enabling us to determine the death-rate at different periods, but we may assume that the relative rates would be much the same as in other years and places.

We find for scarlet fever that in the 0-5 period the deaths were forty-four while those for the school period 5-19 were exactly the same. Applying the rates in the London report, this means that there were three times as many cases among children of school age as in those from 0-5 years.

For diphtheria it would appear that the record for children of school age is more favorable. Assuming that the London rates prevailed of two to one for the two periods, we find the prevalence in the schools to have a ratio only fifty per cent. greater than that for the 0-5 year period.

The following table illustrates the relative prevalence of cases in the city of Ottawa :—

—	Under 5.					5-9	10-14	15-19	20-24	Total.
	0-1	1	2	3	4					
Scarlet Fever.....	1	1	.....	2	.....	1	.....	5
Diphtheria	3	4	6	6	3	5	2	1	30

From the figures here given for scarlet fever, we similarly conclude that the prevalence of cases amongst the school children was three times as great in the 5-9 period as in the 0-5 earlier period; but we find that in the matter of diphtheria there is by no means the same relation, there being twenty-two deaths in the 0-5 year period and but five in the 5-9 period.

These figures are of extreme interest since they represent the results of a year's work, where for nine months all cases of diphtheria were removed to the Isolation Hospital so soon as diagnosed and the school children of the rooms where cases had been were inspected till the period of incubation was over. The very considerable number of cases which occurred during the year (320 of scarlatina and 351 of diphtheria) removes the element of incorrect deductions which may result from a small number of cases.

The history of these Ottawa figures as a statistical study is most interesting. For years the city had an unenviable reputation in the matter of contagious diseases. In 1902 there were in all 689 cases of scarlet fever and 234 of diphtheria. In February 1903, a new well-equipped Isolation Hospital was opened, and after March all cases of the diseases occurring in the city were sent to the hospital. Of the 320 of scarlet fever, 198 were treated in the new hospital during the eleven months, the balance 102 were treated elsewhere, or after the complete removal to hospital of all cases began, there were for the nine latter months of the year but 159 cases compared with 161 in the first three months.

Of the diphtheria cases, 251 cases, sixty-nine occurred in the first three months of the year and 182 in the latter nine months during which all cases were treated in the hospital. While not directly bearing on this subject, it is pleasing to remark that the total deaths for the nine months for scarlet fever were but three, while those for diphtheria were nine, or 1.52 per cent. and 4.9 per cent. of cases. Such a low record of deaths for so large number of cases has, so far as I know, never hitherto been obtained. But the other important point is, the effect of the removal to hospitals of first cases, in lessening the prevalence of the disease. In 1902 there were 689 cases of scarlet fever in Ottawa with thirty-nine deaths, and 487 cases of diphtheria. As a matter of fact, there has resulted from the more effective methods adopted in 1903, a reduction of over fifty per cent. in the cases of scarlatina and eighty-five per cent. of deaths, and forty-one per cent. in the cases of diphtheria and fifty-four per cent. of deaths.

But little more I think need be said on the subject, as the methods for dealing with infectious diseases in schools will be dealt with in another paper. To me, and I think to every one, must be apparent that practically there is no limit to the economic and life-saving results which public health work moving along the lines of experimental science is not capable of. What apparently is necessary is:—

1st. A conviction arrived at by such statistics as have been cited, that disease is disseminated in such ways as I have indicated.

2nd. That we be convinced by the results of such methods as have been especially illustrated by the Ottawa statistics, that an enormous saving of cases of disease and deaths is possible.

3rd. That we possess scientific methods so certain, when persistently and systematically carried out, that they will suppress outbreaks of epidemic disease almost with the same certainty as the demonstrated amount of work which a properly constructed machine will perform with the combustion of a definite weighed quantity of fuel. All that is further required is to educate the public that such work is life-saving and patriotic, and that like all other philanthropic work, the results are not only good to the receiver, but also to the giver. As Sir Lancefal, in his search for the "Holy Grail" came to realize:—

"The Holy Supper is kept, indeed,
In whatso we share with mother's need;
Not what we give, but what we share—
For the gift without the giver is bare;
Who gives himself with his alms feeds three,—
Himself his hungering neighbour and me."

A STUDY OF IMMUNITY IN VARIOLA AND VACCINIA.

By C. A. HODGETTS, M. D.

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THE prevailing opinion amongst medical men, generally, is that one attack of variola prevents either a subsequent attack of smallpox or the vaccine virus from successfully taking. As to how far this is correct, the subsequent remarks will endeavor to indicate.

For a proper understanding of the subject it must be considered from the standpoint of immunity, which may be defined as the power possessed by individuals to resist infection, and this power may be described as either natural or acquired, absolute or relative in the case of both diseases. How long natural immunity may continue absolute in an individual cannot be stated with certainty, but instances now and again are to be found where the resistance continues throughout an epidemic of variola where the exposure is either continued or repeated. A

marked example of the former was that of a child of 10 years, unvaccinated, who, during the outbreak which prevailed in Essex County in 1900, lived with the other members of the family, nine in number, all of whom suffered from the disease, and yet the little one remained an immune. In this family several cases were markedly discrete and one was semi-confluent and the members of the household mingled freely, the little girl eating and sleeping with the others during a period of some eleven weeks. She was, apparently, a case of natural immunity, for the girl had never acquired such by vaccination or an attack of variola at some previous date. I had not the opportunity of ascertaining the resistance she possessed to vaccine because the family would not permit of the operation being performed.

That natural immunity may be relative and not remain absolutely permanent throughout life may be supposed, although instances have not been recorded so far as I am aware, in regard to smallpox. The resistance to variolous infection may be changed or lessened by both intrinsic and extrinsic causes, as for instance by physical debility on the one hand or increased virulence of the disease on the other. That it is relative in one who has for years resisted the inoculation of the virus of vaccine there are however examples, and from this fact it is safe to reason that it is so in regard to those who have proved immune to one attack of smallpox. I have during the past few years witnessed the successful vaccination of some who for many years have resisted repeated attempts to vaccinate, the successful vaccination producing the typical reaction of that disease; for I do not refer to that virus referred to by Dr. Welch in the following words—"There is, however, considerable virus in use which is sure to cause a sore arm even in immune persons." It must be remembered that the repeated failures may have been due to some fault either in the performing of the operation or in the efficacy of the virus itself, and it may be argued that the results witnessed were due to the operation, first time being accompanied with the introduction of 'good virus'. But the claim that these cases are examples of relative immunity is enhanced by the fact that on the occasions when the vaccination had been previously performed with negative results, others had been successfully vaccinated by the same vaccine either human or bovine.

To most persons, the immunity possessed against variola is acquired either (a) through an attack of the disease, (b) by inoculation, or (c) successful vaccination, and for some few the immunity thus derived may be considered as absolute, while to the majority, however, it is but

groups "a, b, c and d," as also in groups 'f' and 'g' and possibly some immunity might be claimed for those who had been vaccinated, though there existed no evidence of it. Two facts are however established; first, that the immunity imparted by an attack of variola is relative and not always absolute; second, that there are varying degrees of relative immunity of the vaccine virus, though whether the number of marks or cicatrices are the only factor to be counted on rather than the amount of virus used as evidenced by the area of these cicatrices and the period elapsing between the vaccination and the attack of the disease is not plain.

Sternberg,⁴ in 1895, stated, "The fact that a single attack of smallpox is not always protective, would lead us to expect that the immunity from vaccination would not be absolute, and experience shows that in every smallpox epidemic a certain number of persons who have been vaccinated. fall victims to the disease."

This clearly indicates that he is of the opinion that the immunity in each case is only relative.

In 1871, Mr. Robert Bath,⁵ Staff Assistant Surgeon, in Medical Charge of the Depot of Foot Guards, pointed out the fact that the British Army Medical Authorities recognized that the immunity imparted by one attack of smallpox is not absolute for all recruits even if plainly marked with the disease were subject to vaccination. He says: "I find, therefore, that of these twenty-nine out of 797 recruits in 1870, in eight instances a perfect vesicle resulted from vaccination; seven were returned as modified; and fourteen, or less than half, as failures. These results," he says, "may, to some, appear surprising; they seem, however, to indicate that the immunity conferred by an attack of the disease is not absolute, but relative." The editor of the *Lancet*, in the same number, in commenting upon the subject, says in part as follows: "By an extraordinary omission in the circulars of the Privy Council and College of Physicians, no recommendation is given for the vaccination of persons who have had smallpox. Several cases have come within our knowledge in which very fine vesicles have been produced in persons who have had smallpox; and it is well known that it is not infrequently fatal in the second attack; indeed, a case was mentioned only last week in our report on vaccination, and another has since been reported to us. Experience shows us that vaccination and re-vaccination together confer even greater safety than an attack of smallpox, and it therefore follows that vaccination should be strongly recommended under such circumstances."

⁴Immunity and Serum—therapy, Sternberg, page 230.

⁵The *Lancet*, February 11th, 1871.

As further pointing to the relative immunity imparted by variola and vaccinia, the three following interesting cases are submitted—the first two by the well known medical authorities Allbutt⁶ and Brouardel, and the third being a letter received by the writer from Dr. Round, of Plymouth, England.

The first is as follows:—

1858. A. B. born———. Mother developed smallpox when infant was three months old, and child had it in a mild form.

⁶The Lancet, February 11, 1871.

⁶Allbutt's System of Medicine, Vol. II.

1858. When three months old successfully vaccinated, 3 scars.

1881. Successfully vaccinated, 2 scars.

1883. Mild attack of smallpox.

1892. September, successfully vaccinated, two scars. November, unsuccessfully vaccinated.

1893. Unsuccessfully vaccinated.

1896. Very mild attack of smallpox, but indubitable, T.C.A.

The second is recorded by Brouardel⁷. "The immunity conferred by variola against a second attack is also subject to the same variations. In 1868 I saw a lady at Passy who was suffering from confluent variola, being then 32 years of age; in 1871, after the the siege of Paris, she had an attack of discrete variola; in 1873, having occasion to vaccinate her niece, I performed the operation on her and was surprised to find that it took perfectly. Thereafter I vaccinated this lady six times at intervals of six months, in the presence of Dr. Lormin, and each time vaccinal eruption appeared with absolute regularity. In 1876 the lady left Paris and I have not seen her since."

The third is the letter which reads as follows:—

57 Ebrington St, Plymouth, Sept. 17, '03.

Dear Sir,—

It may perhaps interest you to hear of my own case.

In 1893 I was vaccinated in the April, whilst in the December of the same year I had an attack of discrete variola.

In 1897 I accidentally pricked my hand with a charged vaccine lancet with the result that I was again successfully vaccinated on the back of my right hand.

In 1903, I had a rather strange experience. I felt ill one day, but went on with my work. Three days later I felt a few spots on my back and had a few elsewhere. At first I thought they were boils coming, so I went on with my work; but I felt so bad that on my way home from

⁶Allbutt's System of Medicine, Vol. II.

⁷20th Century Practice of Medicine, vol. xiii.

a confinement, I called at the house of a medical friend who told me that I had variola. I stopped work at once and wondered what would happen to the confinement patient; however, she did well and never knew that her doctor had attended her while suffering from smallpox.

I wonder if any other man has ever attended a confinement whilst suffering from variola and without the patient taking any harm.

Yours very truly,

(Signed) JNO. ROUND.

In addition to the foregoing, the history of three cases which have occurred during the past two years in the Province are reported:—

1st. Mrs. "V.," unvaccinated, Dec. 9th, 1901, was attacked with smallpox, discrete in character. Dec. 11th, 1902, was vaccinated in two places with vaccine from different sources. Both took and on Jan 2nd. one scab was still adherent. That the case was smallpox there can be no doubt, as six other cases were directly traceable to having been infected by Mrs. "V".

2nd. Being called in consultation to "B" in 1902, to see a child ill with varioloid, it was found that the nurse, Miss R., unvaccinated, presented evidence of being in the third week of variola, some of the scabs being in evidence. She was, together with the child, forthwith moved to the isolation hospital. Instead of being cleaned up and discharged, she was detained in the hospital and assisted to nurse the other female patients, one of whom was a semi-confluent case. Within three weeks after admission she was, for the second time, attacked with the disease, varioloid on this occasion. The aborting of the eruption at the various stages was marked, and the patient left the hospital within two weeks from the onset of the second attack, presenting the characteristic marks of both attacks.

3rd. During the epidemic in Ottawa, in 1903, a young woman, unvaccinated, was admitted suffering from a discrete attack of the disease. After recovering, some five weeks later, she was engaged as an assistant in the wards; and, six weeks after beginning the duties, she was stricken with the second attack, discrete in character, and typical in every respect. I saw her previous to her recovery from this attack and there were present at that time distinct evidences of the first attack.

The two cases of smallpox with second attacks at short intervals are examples of relative immunity and would indicate that the mild form of the disease, which has been so prevalent in the province for the past few years, possesses but slight powers of immunity when the person is brought in contact with the variola in its more virulent form; and

this fact is further shown in the case where the woman was vaccinated successfully within twelve months of her attack of smallpox, for here the immunity, which one would look for in one who had suffered from "variola discreta", was not to be found present within the year.

In further considering the question, it becomes evident that the relative degree of immunity imparted by smallpox in the past has been that resulting from the disease in a type infinitely more severe than that which affected the three above cases just referred to. In the case of those reported by Dr. Marson, the mortality amongst the unvaccinated was 35 per cent. and the lowest was 0.55 per cent. which is about equal to that which has occurred in the epidemic that has recently visited us. How then can one speak as to the immunity which exists amongst the tens of thousands who have suffered from this extremely mild variola? It is, I fear, in many instances, inferior to a successful vaccination, and the permitting of so many to remain unvaccinated after passing through an attack of mild variola, is to permit them and the general public to live in a fool's paradise.

THE SELECTION OF THE SPOUSE.

The fact that the offspring may be the heir to the morbid tendencies of the parents, makes it imperative that the greatest care should be exercised in the selection of a spouse, but one should not grow too wary and hypercritical. No generation ever existed which did not possess some abnormality, and a rational mode of life will tend to ameliorate certain untoward affections. The rule of the life insurance companies to inquire into the family history of the applicant would be a prudent course for those intending marriage to adopt. Even if the aspirant to marriage evinces no unhealthy symptoms, minute study of the physical condition of his immediate relatives might disclose the morbid tendency to which he or she is heir. Whenever anomalies and signs of degeneration repeatedly present themselves in preceding and present generations, thus proving the ascendancy of such morbid affections, we may assume that subsequent generations will not be spared, and marital union with a member of such a family should be emphatically interdicted. Among the lower classes, and for that matter also among those of higher standing, the fact that "there is tuberculosis (or insanity) in the family" is perhaps the only deterrent to contemplated conjugal union, and here it is the graphic and obvious manifestation of the diseases which inspire the dread. Of the nature of the numerous others grave and disastrous affections the public in general is woefully ignorant. Unless the dangers that await them are imparted to them in an intelligible manner there can be little hope for the amelioration of present conditions.—*American Medicine*, 26th March, 1904.

CURRENT MEDICAL LITERATURE.

MEDICINE.

Under the charge of A. J. MacKENZIE, B.A., M.B., Toronto.

THE TREATMENT OF FACIAL PARALYSIS BY NERVE ANASTOMOSIS.

In the *Annals of Surgery*, May, Cushing, of Baltimore, reports a case in which a total facial paralysis, resulting from traumatism, was cured by the anastomosis of the peripheral segment of the N. facialis to the central part of the N. accessorius, severed for this purpose.

The patient was a young man, 30 years of age; the injury was due to a bullet-wound through the mastoid and petrous portions of the right temporal, with complete destruction of part of the facial nerve contained in the aqueduct of Fallopius. Motor paralysis of the muscles on the right side of the face, including the platysma, was complete, sense of taste was lost in the right side of the tongue, Bell's sign and the other classical manifestations of the condition were present.

Operation was deferred for six weeks to allow of complete healing of the wound and by this time there was marked deformity, occasioned by the drawing of the face to the left. An incision was made along the anterior border of the sterno-mastoid, and the N. accessorius isolated at the point where it enters the posterior of this muscle, about five cm. below the tip of the mastoid process; it was found to consist of but one trunk. The facial was exposed by incising the posterior border of the parotid gland, and after isolation, was squarely divided as near as possible to the scar tissue occupying approximately the position of the stylo-mastoid foramen. The two nerves were brought together over the digastric muscle and sutured together at three points by means of fine curved intestinal needles, threaded with the finest split silk. Careful hemostasis was observed, and the wound healed well, leaving but little scar.

On the day after the operation, the patient was sure that some power of motion had returned to the eyelid—probably nothing more than the inhibitory action of the M. levator palpebrae superioris—also that he was no longer troubled with lacrymation and salivation. On the tenth day the patient returned home and was given a small galvanic battery with which he kept up repeated stimulation of the paralyzed muscles.

13 days. Noticeable lessening of asymmetry and disappearance of contracture of muscles. And on attempted closure of the eyelid the lower edge of the iris is completely hidden.

81 days. Facial asymmetry at rest hardly noticeable and considerable voluntary motion of the orbicularis and slight voluntary twitch of the lower lip.

127 days. Considerable voluntary control over facial muscles, much exaggerated when the patient shrugs his shoulders, and elevation of the shoulder alone is impossible without producing a strong contraction of the facial muscles. The sterno-cleido-mastoid and trapezins are paralyzed and form the reaction of degeneration.

147 days. Very slight contraction of the occipito-frontalis seen.

168 days. Some co-ordination of expressional movement is present and dissociation of movements of eye, nose and mouth. Considerable freedom of facial movements without calling forth shoulder action, but reverse not the case, even elevation of arm causing general facial contraction. Electrical stimulation over the pes anserinus gives contractions.

207 days. Further improvement in separate and co-ordinated movements. Electrical stimulation shows the greatest improvement; stimulation of the main trunk at the point of anastomosis gives a quick and complete contraction and an indirect response to farradism; noticed for the first time.

Similar operations have been performed, by Faure unsuccessfully, and by Kennedy successfully, both of these operators preserving a part or all of the accessorius, but the insignificant loss of function attendant on its complete severance and the difficulty of dissociating movements of shoulder and face if the connection remains, seem to justify the writer in its procedure. The important points in technique are absolute hemostasis, great delicacy in handling and approximating the nerves, and avoidance of injury such as would increase the formation of scar tissue. The probable path of impulses is through the lower connections of the two nerves.

THE ETIOLOGY OF VARIOLA.

In the May number of *The Journal of Medical Research*, Councilman, Magrath and Brinckerhoff publish a preliminary report on their investigation into the etiology of variola. Various authorities have found peculiar inclusions in the epithelial cells in the lesions of this disease and different explanations of their nature have been made; these authors incline to the view that they are living organisms, but so far their life-

cycle has not been established nor has their existence as living organisms been proved.

In the lower layers of the skin, before there is any anatomical evidence of vesicle formation, there are found small, structureless bodies, from one to four microns in diameter which lie, one or more in number, in vacuoles in the cells. These bodies increase in size, and evidences of structure consisting of granules more distinctly stained and lying in definite spaces begin to appear, a reticulation structure is seen and evidence suggestive of an amaeboïd structure. They increase in size, but no definite nucleus has been made out although the reticular structure stains more deeply than the rest. Segmentation now takes place, leading to the formation of small round bodies about one micron in diameter. This is evidently one phase in the life cycle of the organism.

At the period of segmentation, when most of the intra-cellular bodies have disappeared, small, round, or oval ring-like bodies appear in the nucleus, which increase in size and acquire a definite structure consisting of a series of vacuoles around a large central vacuole. As the bodies become larger the nuclear run becomes more indistinct and finally disappears and the body lies in a completely degenerated cell, or this breaking down sets free the body. With the growth and development of the intranuclear body, the vacuolar structure becomes less distinct and finally a structure is formed which contains numerous fine vacuoles. At this time small circular bodies begin to appear in it, and groups of these are surrounded by a faint ring having a central dot. The writers regard this intranuclear body as a further stage of development. It develops from the spore-like bodies produced by the segmentation of the intracellular bodies which pass into the nucleus, and these spores are regarded as the true infecting material of smallpox.

From inoculation experiments Dr. Tyzzer has been led to conclude that only the first or intracellular stage is found in animals and hence we may suppose that only this first is found in vaccinia, while in variola both are found, the entire process being concluded with the formation of the young vesicle. The spores are present in the contents of the vesicle and pustule, but their recognition is at present impossible.

TOXICITY OF TETRA-PHOSPHOROUS TRI-SULPHIDE.

The extreme toxicity of the metal phosphorous in the yellow form is well known, the lethal dose being given as 10 centigrams, although there are cases on record where a much less amount has proved fatal. The fact that the tetra-phosphorus tri-sulphide ($P_4 S_3$) is being largely used in the arts led Theyer and Wolf of Cornell to make an investiga-

tion of its toxicity and their results are reported in the *Journal of Medical Research*, May. Experiments were conducted upon dogs and rabbits and they conclude that the only effect of this compound is to act as a mild irritant, causing slight hyperaemia and some fatty degeneration when long used, but that no amount which any human being could take by accident or design would prove fatal.

VITALITY OF BACTERIA.

Weaver, of Chicago, reports an investigation into this subject in the *Journal of Medical Research* for May. The experiments were made with swabs from the tonsils and pharynx in ninety-five cases of clinical scarletina of varying severity and at periods varying from the first to the thirty-seventh day. Of one hundred and forty-five swabs taken, from eighty-seven streptococci were cultivated, while from fifty-eight they were not. The conclusions arrived at were as follows:—

(1) Streptococci are almost always if not constantly present in the throat in cases of scarletina. In the early stages they are usually in very large numbers, becoming less numerous as the disease progresses.

(2) The streptococci in the throats of scarletina patients resist drying as long as the other bacteria usually present, and they often outlive all other forms, being alive as long as ninety days after the material is collected.

(3) These streptococci remain alive a long time in mill.

(4) A small amount of sugar in nutrient media increases their value for the cultivation of streptococci.

(5) Streptococci from scarletinal anginas are not different from streptococci from other sources so far as cultural and morphological peculiarities are concerned.

MEDICAL EDUCATION IN THE UNITED STATES.

This is the subject of the address of President Billings of the American Medical Association delivered at the recent meeting in New Orleans. The increase in the number of Medical Schools in the United States is referred to: in 1877 there were 65, in 1882, 89 and in 1902, 156. The number of graduates has increased from 4,115 in 1882 to 5,002 in 1902. There is at present an average of one physician to 600 population of the United States and natural increase in population and death in the ranks would make room for about 3,000 graduates per year.

A number of the medical schools are proprietary, but every year makes it more difficult for such institutions to cope with the work of

providing such an education as the advance of science makes necessary ; it is estimated that the proper education of a medical student with laboratory methods and proper equipment entails an annual cost of \$600, so it is patent that none but such schools as have endowment or university connection can fulfil the requirements.

It is interesting to note that the writer suggests two plans for the improvement of medical education, both of which have been adopted here, viz., a national examining board whose examinations should qualify for practice in any State, thus ensuring a uniformly high standard ; and a combined course in arts and medicine extending over 6 years, such as has been already established by the University of Toronto.

President Billings says the medical education of the future should be done by university colleges, the scientific training in the best equipped laboratories, the teachers in all subjects to devote themselves to that alone and spend their time in scientific research in university hospitals, although in the student's final year he should have instruction from clinical teachers in general practice. This would entail an endowment sufficient to establish the most thoroughly equipped laboratories, and most perfect hospitals and pay the professoriate salaries equal to what they could command in other walks of life.

THE ETIOLOGY OF CARCINOMA.

In the *B. M. J.*, Jan. 23rd 1904, there is a report by Monsarrat, of Liverpool, of researches undertaken on the etiology of carcinoma in connection with the Scientific Grants Committee of the *British Medical Journal*. He summarizes his report as follows:—

(1) From a considerable proportion (58.3 per cent.) of specimens of carcinoma mammae an organism presenting characteristic features was isolated.

(2) This organism presents a life history in which two cycles were traced—the one a vegetative budding cycle, the other a sporulating cycle.

(3) The organism when injected into animals is capable of infecting and inhabiting epithelial and endothelial cells.

(4) The organism initiates in epithelium and endothelium a process of proliferation as a result of which, masses of new-formed tissue are built up, which consist of a parenchyma and a stroma, and grow and extend actively from their centres of origin.

(5) This new cell-mass formation may be associated with growth of a similar character in neighboring glands and some evidence was also provided that visceral metastasis also occurs.

(6) Intra-cellular bodies are demonstrable in carcinomata mammae which present the same features as the intracellular parasites of the experimentally-produced nodules.

(7) The evidence derived from these researches points to the conclusion that the organism described is an etiological factor in the morbid process known as carcinoma mammae.

CRIMINAL ABORTION.

In "*Colorado Medicine*" December, Dr. Love discusses the reasons for the increase in this crime and its effects, and the duty of the profession in regard to it. The causes suggested are :

1. Want of respect for human life.
2. Ignorance of true biological facts as to when life begins in the foetus.
3. True degeneracy and criminality.
4. Industrial conditions rendering the possession of large families a greater hardship during this unavoidable period of our social evolution
5. An increasing tendency on the part of married people in large cities to live in a desultory, haphazard way, in boarding houses and tenements where incumbrances like children and dogs are not allowed
6. Materialism and its too frequent association with indifference and irreligion. These causes being still with us, we find :

That criminal abortion is at least not decreasing as it should in this age of apparently marvelous development.

That it is most prevalent in the social ranks where it can least afford to exist ; namely, in the middle and upper classes.

That the law has not been able so far to control or even decrease this crime. That the physical effects upon the mother are enormously prejudicial to health. That it is morally degrading to all parties concerned.

That from the standpoint of social economics, it is suicidal.

That from a legal standpoint it ignores the rights of the unborn.

The means to be adopted are suggested as follows :

First - Limit the production of moral degenerates.

a. By separating or sterilizing the feeble-minded and idiots, and those helplessly insane or epileptic.

b. Incarceration for life of male and female confirmed criminals.

Second—Disseminate positive knowledge on the following subjects relating to criminal abortion :

a. Its effects on society.

b. Its effects on the moral life of the parents.

c. On the physical life of the mother.

d. That individual life begins with conception.

e. The right of every unborn child to life.

f. The penalties prescribed by law.

Third—By encouraging greater love of home and family ties, through religious and ethical teachings.

Fourth—The elimination from the text of the law of the term "quick," which in its present sense is misleading; and finally, the framing of laws which will make convictions possible and thereby be not only punitive but deterrent.

SURGERY.

Under the Charge of H. A. BEATTY, M.B., M.R.C.S., Eng.

Chief Surgeon Canadian Pacific Railway, Ontario Division; Surgeon Toronto Western Hospital.

SURGERY OF HYDROCEPHALUS.

In the *Medical Fortnightly* January 25th, B. Merrill Ricketts presents an historical review of the surgery of hydrocephalus, and gives the following conclusions:—

1. Excessive secretion of the cerebral meninges may occur in any form of animal life.

2. The various forms of vegetable life are subject to excessive local or general secretion to a fatal degree.

3. Hydrocephalus (ventricular or meningeal) may develop in utero, or at any time throughout infant or adult life.

4. The number of cases of spontaneous recovery are probably numerous, especially in infant life when the arachnoid is alone involved.

5. All cavities may unite with or without external rupture. When so it is usually fatal.

6. Spontaneous rupture may occur externally or subcutaneously with an occasional recovery.

7. The effusion may be into the lateral, third, or fifth ventricle, or it may be in the arachnoid cavity, or in all.

8. A clot in the arachnoid cavity may cause a cyst, which will enlarge with all its consequences.

9. Syphilis and rickets have been assigned as causes of hydrocephalus, but have never been proven to be such. The causes are yet unknown.

10. Sometimes zones of new osseous material are seen scattered here and there in the meninges, and sometimes upon or in the brain substance.

11. The septum lucidum is invariably thickened, as are the cerebral meninges in general.

12. It is probable that the greater number of cases of hydrocephalus, whether of the third or fifth ventricle, or of the arachnoid variety, can be cured by some form of drainage.

13. Continuous drainage by seton, or the repeated use of trocar, has given the best results in the way of benefit or cure.

14. Spinal drainage has been practised to but a very limited degree, and its value is as yet undetermined.

15. Subcutaneous drainage has not as yet resulted in a cure, but there seems to be many possibilities for this method.

16. Trephining for drainage is only resorted to in cases where fontanelles have closed by bony union.

17. Results from drainage are more favorable if it is done when the presence of fluid is first detected.

18. It is sometimes necessary to drain both hemispheres, together with the right and left cerebellar cavity.

19. The secret of curing arachnoid hydrocephalus by drainage probably lies in obliterating the arachnoid cavity. However this can hardly be so with hydrocephalus of the third and fifth ventricles.

20. The cardinal principle in this as in all operations upon the brain is asepsis

HERNIA IN YOUNG CHILDREN.

W. B. DeGarmo, in the *Medical Record*, February, discusses the above subject. The most frequent cause of hernia in young children is the non-obliteration of the neck of the tunica vaginalis testis.

The hernia does not usually appear until after the child begins to walk. Constipation in early life and gaseous distension of the bowels tend to weaken the abdominal walls. Bronchitis, whooping-cough, crying and tight belly-bands also act as causes.

The forms of hernia occur in the following order of frequency; inguinal, umbilical, ventral and femoral.

Except in rare instances, hernia in children does not heal spontaneously.

Treatment should begin as soon as the hernia is discovered, by a properly adjusted truss. Unless unreducible strangulation occurs, surgical operation is not to be resorted to on children in arms.

Strangulation signs as arranged by Dowd in order of importance are tumor, vomiting, constipation, difficult urination, restlessness and apparent pain, and depression.

Ninety per cent. of cases under three years of age can be cured by proper care and mechanical means. After the seventh year, cure is rarely achieved by mechanical means.

Indications for operation are: 1. Strangulation. 2. Where the truss does not control the hernia. 3. Where the truss causes pain. 4. Herniæ where occasional protrusion with threatened strangulation occurs. 5. When the child cannot be properly watched. 6. Femoral herniæ. 7. Age above seven years.

GYNÆCOLOGY.

Under the charge of S. M. HAY, M.D., C.M.,
Gynæcologist, Toronto Western Hospital; Consulting Surgeon, Toronto Orthopedic Hospital.

THE ASSOCIATION OF DISEASES OF THE TUBE AND OVARY WITH APPENDICITIS.

In the February number of the *Cleveland Medical Journal* Dr. Robert H. Sunkle writes on the above subject as follows:—

In dealing with diseases of the tubes and ovaries the possibility of the existence of an associated appendicitis is becoming more and more recognized. Many times women are hurried off to hospitals for appendicitis when, at operation, the appendix is found to be perfectly normal, the symptoms of disease of the tube and ovary having been mistaken for those of appendicitis. Therefore, it is well to remember the possible association of the two conditions.

Legnen reported two cases in which extrauterine pregnancy was diagnosed by him as appendicitis. One patient was forty-eight years of age. In neither of these cases had there been any menstrual irregularity, uterine hemorrhage, or the usual general changes noted in pregnancy. Moreover, in both cases fever was present.

Downes reported two cases in which the appendix had been removed by a surgeon doing general work. In neither had the symptoms abated. Later on the right ovary, containing pus, was removed and a cure resulted in each case.

Lusk mentions a case of tubal pregnancy in a young girl that was diagnosed by an eminent surgeon as appendicitis. All who examined her thought they felt the thickened appendix. She gave no history of passing over a menstrual period. At operation, a tubal pregnancy was found.

Richelot mentions six cases of appendicitis in females, in which it was impossible to make a positive diagnosis before opening the abdomen.

The differential diagnosis between appendicitis and tubo-ovarian disease is ordinarily simple. In many cases it is next to impossible to differentiate between the two, more especially when the symptoms run

into one another as in the case above cited, or when a vaginal examination without anaesthesia does not reveal any pelvic trouble.

R. T. Morris says that a rigid abdomen is the principal differential sign between acute appendicitis and salpingitis.

In chronic attacks of appendicitis the greatest intensity of pain is elicited by pressure upon the abdominal walls over McBurney's point, while in tubo-ovarian disease the most tender point is lower down, in the ovarian region, or it may be found by pressure exerted in the vagina.

Nausea, stomach and bowel disorders, or an intact hymen would point toward appendicitis, while disorders of the functions of the genital organs, or fixity of the uterus, are evidences of disease of the tube and ovary.

The infection travels in many cases along the ligament of Clado, the so-called appendicular-ovarian ligament. This ligament is found present in about one out of every ten patients and extends from the meso-appendix to the right ovary. It contains a small blood-vessel from the right ovarian artery to the vermiform appendix, and also a chain of lymphatics. By this anatomic arrangement a direct communication between the appendix and the right tube is established. In the absence of the ligament of Clado a close proximity of the appendix to the right ovary and tube may cause an inflammation of either one to extend to the other.

To prove the source of primary infection is oftentimes impossible. When the colon bacillus is found in the diseased tube and ovary, it is evident that the disease began in the appendix; whereas, when the gonococcus is found in an inflamed appendix, the infection has been primary in the right tube and ovary.

The appendix should be removed during all gynecologic abdominal operations if it shows the slightest deviation from the normal, providing that time and the safety of the patient permit it.

I believe the day is not far distant when every appendix will be removed in all abdominal operations, providing the condition of the patient allows it.

LACERATIONS OF THE CERVIX AND THEIR CONSEQUENCES

The above is the title of a paper by Dr. John W. Taylor in *The British Gynaecological Journal* of November, 1903.

Although the subject belongs rather to minor gynaecology, it has an important bearing on what is, perhaps, still the gravest disease to which a woman is subject—purperal septicaemia—and that, in this way laceration of the uterine cervix becomes a not infrequent cause of death.

In most of the septic cases to which one is summoned after labour, there is found serious laceration of the cervix, of the vagina, and of the perineum as the wounds through which the septic process has started.

The greater number of lacerations of the cervix, like minor lacerations of the perineum, are of very little importance, heal in the right direction, and need no treatment. The lesser number are more important; many of them are really ruptures of the lower part of the uterus, they often extend quite above the vaginal roof into the broad ligament of one side; and they heal, not by any direct union of the raw surfaces, but by growth of epithelium over the raw surfaces. These deep, permanent fissures in the cervix, vagina, and supravaginal tissues seriously interfere with the proper involution of the uterus, and although the patient remains much longer in bed than usual, when she begins to get up, the uterus itself is still enlarged and heavy, and the torn cervix is often flabby and gaping. Then, in addition to weight, menorrhagia and backache, which may be put down largely to subinvolution, other important consequences are apt to follow:—

First, as to the position of the uterus, suppose the laceration is left-sided, extending into the vaginal roof and left broad ligament. The uterus, having lost the support on the left side, consequently settles down in the pelvis on this side, taking its fresh bearing on the left, from the highest limit of the tear. The sides of the laceration separate, and the same tension necessarily occurs at the angle of the tear. This "dragging" usually causes pain on the side affected; increased on standing, walking, or exertion, and relieved by rest in bed.

Second, the nutrition of the cervix. The gaping of the tear causes exposure of the cervical canal, the cervical mucous membrane becomes mechanically irritated, and easily affected by micro-organisms; the cervical glands increase in size, number and activity; and an excessive amount of glary muco-purulent discharge hangs about the cervix or escapes through the vagina.

In this way, or by more direct infection (after intercourse or mis-carriage), some secondary sepsis sooner or later usually attacks the irritated cervix, the tear interferes mechanically with the circulation of the cervix, an oedema is added, and the distorted cervix swells. The mucous and sub-mucous tissues bulge outwards, causing eversion of the mucous membrane. From this condition a long train of symptoms may arise. The uterus may become enlarged and prolapsed. Pelvic pains and nervousness are only too frequent present.

OPHTHALMOLOGY AND OTOTOLOGY.

Under the charge of G. STEVENSON EYERSON, M.D., C.M.
Professor of Ophthalmology and Otology, Medical Faculty, University of Toronto.

THE INFLUENCE OF THE EMOTIONS AS A CAUSE OF ACUTE GLAUCOMA.

This is the subject of a paper by Dr. W. Nobbe in the *Medical Fortnightly*, St. Louis. Nobbe has observed a strong emotion, be it anger, fear, fright, injured sense of honour, and so forth, immediately preceding an attack. He says the glaucoma patients are always of a nervous temperament and quotes Laquer as saying "The patients suffering from glaucoma are generally to be classed among nervous patients. They are easily excited, suffer from loss of sleep, and although well nourished, are of a colorless complexion." Nobbe cites the following cases: A man of 50, suffered from an attack of acute glaucoma immediately after visiting his wife's grave. An elderly lady, very sensitive about losing at cards and extremely anxious to hide the fact, suddenly lost one eye from acute glaucoma; after a long interval, playing again and losing heavily, she was taken again with the disease in the other eye, becoming completely and permanently blind. A lady of high social standing was caught in the act of stealing an object of small value. She was arrested—acute glaucoma. The last two cases were reported by DeWecker and similar cases by Mooren. Turning to groups of patients, how often the disease is met with among neurasthenic patients. The observations of Pampolla show that glaucoma simplex was present in the majority of 228 cases of disease of the cerebro-spinal nervous system while he found inflammatory glaucoma mostly in persons afflicted with atheroma and deformity of the spine. Acute glaucoma often develops in hysterical persons from slight causes. He quotes the following cases from the writings of Winckerkiwicz, Milliken, Hutchinson, Abadie and others. Severe toothache and neuralgia, nervous dyspepsia, the climacterium, all have been recorded as leading to acute glaucoma. Nobbe concludes, "I venture to say that the influence of the emotions on the development of acute glaucoma is to be found in the fact that through the general nervous conditions and excitements even the nerves of secretion for the eye lose stable equilibrium and are irritated, and that through this irritation a hypersecretion of fluid is caused; an attack of acute glaucoma must necessarily occur after an emotion when the withdrawals for the increased secretion are pathologically affected, that is, when the elasticity of the sclera is diminished or when a changed diffusion of fluid exists through the pathological processes in the blood vessels. Therefore I can fully

agree with Meoren who maintained that the obstructed withdrawal of intraocular transudations, under the influence of extraocular neuroses, is capable of provoking an attack of acute glaucoma."

THE OCULAR COMPLICATIONS OF BRIGHT'S DISEASE.

Dr. Louis Stricker of Cincinnati read a paper on this subject before the 54th annual meeting of the American Medical Association (published in the *Journal A.M.A.* of February 20th.).

Stricker states that the eyes become involved as a result of the general systemic conditions arising in Bright's disease. These systemic conditions, briefly considered, are the result of faulty kidney excretion, leading to the retention of urea or other excrementitious substances in the blood. These retained products are either poisonous in themselves or secondarily lead to the formation of toxins, thus producing inflammatory and degenerative changes in the vessel walls and the tissues of the body; or they may interfere with the proper conversion of the elements of food into those favourable for assimilation by the cells of the body, thus producing anemia and hydremia. To this abnormal condition of the blood is attributed the general arterio-fibrosis, which finds its expression in hypertrophy of the heart and general increased arterial tension, leading to the exudation and hemorrhage or to total occlusion of the arterioles, with subsequent death of the part cut off.

In the eye we find the vascular system and the optic nerve and retina most frequently involved though the media may be secondarily involved. As in all constitutional affections, it is generally binocular.

The question naturally suggests itself, how long a time after changes have taken place in the eye can a favourable outcome be expected? Stricker thinks that vascular changes and exudates offer a better prognosis than changes in the nerve elements, the impairment of which is apt to be permanent.

The ocular symptoms of pregnancy cause special concern. We are called on to decide whether it is justifiable to induce abortion to save the eyesight of the mother, since it is well known that the kidney disease subsides quickly. An estimation of the urea at this time becomes a matter of special importance and where this falls below the normal, the time for active interference has arrived. Where the pathologic changes in the retina are not great, the pregnancy far advanced and the urea quantity normal, one may temporize, but in the reverse conditions abortion should be at once induced. Only five per cent. of cases of Bright's disease develop ocular symptoms but they are ominous.

There are no ocular symptoms of Bright's disease from which alone a positive diagnosis of Bright's disease can be made without further investigation. In the acute form the prognosis is more hopeful of a stay of ocular complications than in the chronic form, but in any case recovery is attended with more or less impaired vision.

LARYNGOLOGY AND RHINOLOGY.

Under the charge of PERRY G. GOLDSMITH, M.D., Belleville.
Fellow of the British Laryngological, Rhinological and Otolological Society.

THE RELATION BETWEEN DISEASES OF THE NOSE AND DISEASES OF THE EYES.

Stillson, *North west Medicine*, February 1904, cites four paths through which intranasal disturbance may cause ocular affections: (a) through the anastomosing blood vessels, (b) by way of continuity of structure, (c) through the lymphatics, and (d) by reflex route. The vascular route as given by Zuckerkandl by means of the ethmoid arteries, by branches of the ophthalmic, and by collateral trunks along the lachrymo-nasal duct, which joins the angular, the ophthalmic, and a branch of the infraorbital. Zeim, who first drew attention to the fact that disease might be conveyed along this vascular path, described four cases of limitation of the field of vision that he considered due to nasal affections. The explanation given of this interdependence is that the retinal hyperemia caused through the anastomotic connections of the vessels of the nasal mucous membrane and the ciliary plexus induces a disturbance of the intraocular circulation and functions of the retina. Sir Felix Simon's case is quoted of exophthalmos of the right eye with Graefe's and Stelwag's sign following the application of the galvano-cautery to some nasal polypii. Attention is drawn to the close relationship existing between the nasal accessory sinuses and the orbit.

Literature has been carefully searched by Stillson for cases bearing on this topic. Eales of Birmingham cured a case of optic neuritis by evacuating a collection of puss in the ethmoid cells, Lennox Brown, a case of glaucoma by removal of nasal polypii, Pagenstecher, orbital cellulitis with contracted visual fields by washing a suppurating maxillary antrum through the alveolus. The author cites two cases of his own, one a marked case of central scotoma cured by attention to the accessory sinus mischief present, and one of operation and death following removal of a tumour of the ethmoidal region.

A case only recently occurred in London, England, in which a frontal sinusitis was cured by attention to a suppurating lachrymal sac.

REMOVAL OF THE TONSILS AS A PREVENTIVE OF DISEASE.

Increasing experience proves beyond all doubt that a considerable number of infections take place through the tonsil. Of these perhaps the most frequent is acute articular rheumatism, but it is a well known fact that other diseases, depending upon micro-organisms for their existence, begin in the body after their germs have entered through the tonsillar tissue. Several years ago, the late Dr. Frederick A. Packard published a paper of a clinical character in which he brought forward convincing evidence of these facts, and physicians should at the present time regard diseased or enlarged tonsils as a constant menace to the health of their possessor. In the *American Journal of the Medical Sciences* for November 1903, Koplik, of New York, publishes a paper in which he points out that tuberculosis of the tonsils may occur, and that frequently the tonsils may act as a portal for tubercular infection. Primary tuberculosis of the tonsil is of course a very rare condition, but the bacillus tuberculosis, and the results of its presence, can often be found in the tonsils of tubercular patients, and even in the tonsils of those who may not be known to be tubercular. How frequently do practitioners of experience meet with children suffering with large cervical glands which in modern view are mostly tubercular in origin, and which are due in the majority of instances to the entrance of tubercle bacilli through the respiratory, buccal, or tonsillar mucous membrane. And how frequently do we see children who have chronic hypertrophy of the tonsils, suffer from diphtheria, from ulcerated throat in scarlet fever, and from nasopharyngeal obstruction, which in the course of respiratory diseases often seriously interferes with their taking of sufficient air and nourishment.—*The Therapeutic Gazette*, January 15.

ADENOIDS.

Adolph Blitz, in the February *Medical Sentinel*, has a very instructive paper on "Adenoids." He draws particular attention to the vulnerability of that lymphoid ring known as Waldeyer's ring. Through this tissue many infectious organisms find their entrance into the system. Blitz laments the fact that enlarged tonsils, especially the third or Luschka's tonsil and lingual tonsil are so little attended to by the medical profession. Uhlman, who wrote on "the tonsils as portals of infection," is quoted as follows: (1) That the *normal* tonsil has a physiologic function, probably protective to the organism. (2) That being in itself often diseased, the physiologic function of the tonsil is impaired and that instead of being protective, it is the nidus for the growth and distribution of pathogenic organisms and their poisonous products in the system. (3) That many grave and fatal general infections have their origin in the tonsils. (4) That if the exanthemata,

particularly scarlatina, are of bacterial origin, the tonsils act in part as port of entry. (5) That acute articular rheumatism and the diseases endocarditis and chorea, in the majority of cases, are due to the action of attenuated bacteria, their toxins, or both, entering the system through a diseased tonsil. (6) That in those rare cases of typhoid fever in which no intestinal lesion can be demonstrated, the similarity of the tonsil tissue and Peyer's patches suggests the tonsil as the portal of entry of Eberth's bacillus. (7) That scrofulosis is often associated with diseased tonsillar tissue, and that the tubercle bacillus often enters the system *via* the tonsil. (8) That the tonsil is too often little examined at autopsy, and much light might be shed on fevers of uncertain origin by its bacteriological and histological examination.

ALARMING HEMORRHAGE FOLLOWING TONSILLOTOMY; ITS CAUSE AND CARE.

Since almost every one has at some time or other to perform the operation of tonsillotomy, Harmon Smith's paper, *Laryngoscope*, Feb'7, '04, on hemorrhage during this procedure, is read with considerable interest. He thinks the scarcity of fatal cases is probably due to their not being reported. The special causes which may occasion bleeding are as follows:—

(1) Hæmorrhagic diathesis, or hemophilia. In hospital work it is difficult to get any satisfactory family history on this matter, and too often, in private practice, it is not sought.

(2) Filoid tonsils, when the glandular substance is largely enmeshed with fibrous tissue, which prevents the arterioles from contracting when cut.

(3) Age; occurs more in adults than in children. Due entirely to the increased fibrosis and greater vascular supply.

(4) Sex; more frequent in males than in females.

(5) Acute inflammation. As a rule removal should not be undertaken.

(6) Anæmia; when there is marked deficiency in fibrin the coagulating element of the blood. Preliminary constitutional treatment is necessary.

(7) Malignancy. In malignant cases ligation of the common carotid may be necessary.

(8) Abnormalities in the distribution of the blood vessels of the tonsil, such as abnormal distribution of the ascending pharyngeal, abnormally large tonsillar or internal carotid artery. The author is of the opinion that cocaine and adrenalin predispose to secondary hemorrhage.

Treatment.—The hemorrhage may stop by sitting the patient upright and inducing syncope. The galvano-cautery is only of value in small bleeding areas and not in large ones. The paquelin cautery may be successful, but in most cases is difficult to apply accurately to the bleeding point. Finger pressure with gauze soaked in tannic acid is very tedious and painful. The bleeding point may be seen and caught with forceps and possibly ligated. Sewing the pillars together may also be of value, but it is difficult to perform in a rapidly bleeding case. The author has found most satisfactory the tonsillar haemostat of Mickulicz-Stoerk. While, occasionally, one will get excessive bleeding from any method of operating, the reviewer is convinced that cases of hemorrhage will be quite rare if the cutting instruments are confined to persons under seventeen years of age, after which age the punch, or, if possible, the snare will be safest.

REPORT OF TWO TRACHEOTOMY CASES.

Clarence Porter, in the *Virginian Semi-monthly*, gives notes on two cases, almost moribund from diphtheria, which were cured by a rapidly performed tracheotomy, termed a stab operation. Intubation had been performed on one, but without result, owing to the membrane having been situated too low in the respiratory tract. In discussing the desirability of intubation or tracheotomy, he strongly favors the latter. The points against intubation are given as follows: Liability of pushing membrane before the tube; false security given when the tube is in place, owing to extension downward of membrane; frequently the tube comes out, necessitating reinsertion; necessity of constant and skilled supervision, following insertion of the tube; difficulty in feeding; the tube may become blocked by membrane and have to be removed to be cleaned. He says practically all these troubles are avoided by opening the trachea, but says nothing of the serious results that follow in the majority of cases. His conclusions are as follows: 1. Tracheotomy is a preferable operation to intubation, and when given an equal chance, the mortality is less, that tracheotomy will cure many cases which intubation cannot cure. 2. Tracheotomy is a more simple operation and requires measures are needed to secure more air, surely the simple and rapid operation of intubation should be tried before resorting to a procedure in which death so frequently follows in diphtheritic cases. Because one should have at hand means to rapidly do a tracheotomy is not sufficient or reasonable grounds to infer that the latter operation should be performed always by preference.

PROVINCE OF QUEBEC NEWS.

Conducted by MALCOLM MACKAY, B.A., M.D., Montreal.

At a meeting of the Montreal Medico-Chirurgical Society, Drs. J. A. Hutchison and John McCrae showed a pathological specimen of double tuberculous pyo-nephrosis with calculi. The patient, who was 45 years of age, was admitted to the Montreal General Hospital on October 1903. He gave a history of having suffered pain in the left groin two years before, which was accompanied by bloody discharge from the urethra and vomiting. He had recurrent attacks of this trouble from the date mentioned, and entered the hospital in a very emaciated state. Physical examination showed that in the region of the left kidney there was marked tenderness, and the urine contained a considerable amount of pus and two grams to the litre of albumen, the specific gravity being 1011.

An operation was advised and on opening into the left lumbar region and cutting into the kidney a stone was found and removed. There was a considerable amount of cheesy material in the pelvis of the kidney and an indefinite mass could be felt high up behind the ribs. The wound was packed and drained but the patient died four days later of septicaemia. At the post mortem the kidneys, ureters and bladder were removed together. The left kidney contained a large mass of tuberculous material which destroyed to a considerable extent the kidney substance. On the right side a calculus was found in the pelvis surrounded by a quantity of pus.

Drs. F. G. Finlay and John J. McCrae reported a most interesting case of malignant gonorrhoeal endocarditis. The patient, a male aet. 23 was admitted to the Montreal General Hospital on October 10th '03. He was a sailor and with the exception of an attack of malaria in the tropics had no illness until January 25th '03, when he became infected with gonorrhoea. For this trouble he remained five weeks in a hospital and made a good recovery. While under treatment a hard sore developed with secondaries coming on later. The present illness began on September 22nd with pain in the knees, legs, and hands, more marked on the right side. Four days later he became unable to carry on his work on board ship suffering great pain in the extremities accompanied by repeated chills. He was still unwell when he arrived at Quebec after the transatlantic voyage, and was treated there for a short time, but eventually proceeded to Montreal and entered the surgical wards of the

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General Hospital. He was admitted on October 10th, and on examination was found to be covered with an eruption of secondary syphilis, the glands were palpable: there was no discharge from the urethra. He complained of great pain and tenderness in the extremities, more particularly in the legs. The cardiac dulness was normal and no murmurs could be detected. His pulse varied from 98 to 112, and his temperature was 100.4-5. He had occasional rigors. Treatment in the form of mercurial inunctions and potassium iodide was at once commenced. Within a week a change was noticed in the condition of the heart, a soft musical diastolic murmur could be heard at the base, although the cardiac impulse was full and the dulness remained normal. Examination of the urine at this time showed casts but no albumen. The temperature soon became very irregular, and readings of 104° and 105° accompanied by rigors were not uncommon. On October 26th the character of the murmur changed and lost its musical tone; later, however, a systolic apical murmur developed and the musical note returned at the base. The blood showed considerable diminution of red cells and there was a leukocytosis of 19,000 to 36,000. Cultures from the blood were negative. A diagnosis of malignant endocarditis was made and the post-mortem findings verified this conclusion. On one of the cusps of the aortic valve a tag was found, heaped up in a way which seems to be rather characteristic of gonorrhoeal endocarditis. Changes in its size and position accounted for the appearance and disappearance of the musical murmur. A slight pericarditis was also present. Cultivation from the pericardial fluid and heart blood showed pure cultures of gonococci.

Dr. England read the case report of a patient operated upon for carcinoma of the rectum by Kraske's method. The patient was a male aet 37, who in May, 1903, applied for relief from a discharge from the rectum. There was a history of obstinate constipation for two years, tenesmus, bleeding piles, loss of weight and general debility. His father died of carcinoma of the liver and his sister had been operated upon for carcinoma of the breast. He appeared to be very weak, sallow and emaciated, and there was as a rule a temperature of 101°. Digital examination of the rectum showed a mass infiltrating the bowel wall and attaching it to the pelvis. There was also a painful ulcerated surface about two and a-half inches above the anus. On May 29th a preliminary colostomy was performed and the abdomen found to be free of enlarged glands. Two days later this was converted into an artificial anus, and the patient's condition at once began to improve. On June 24th the rectum was removed by Rydyour and Tuttle's modification of

Kraske's operation. The recovery was slow, but on October 22nd the patient left the hospital with the wound practically healed.

Drs. Ross, Chapman and Goodall read a paper on child-birth with eclampsia, illustrated by a chart showing the quantity of urea and albumen excreted daily during a period of three months. The paper started a lengthy discussion upon eclampsia and its treatment in which many plans was mentioned, but nothing new was presented.

On April 15th Dr. A. Primrose, of Toronto, will read a paper entitled "Some Observations on the Surgical treatment of Chronic and Acute Nephritis," before the members of the Montreal Medical Society.

The tenth annual report of the Royal Victoria Hospital has been published this month. The number of patients admitted during the year was 2,931, an increase of 117 over the previous year. The total days of hospital treatment aggregated 74,835, as against 70,609 during the previous year, an increase of 4,226 days. The average stay in the hospital per patient 25.71, as against 25.22 in 1902. Of 142 deaths 38 took place within 48 hours of admission, the death rate being 4.88% or, if those dying within 48 hours of admission be deducted, 3.57%. In the out-door department the total number of patients treated was 4,398; the number of visits aggregated 23,638; medical, 9,890; surgical, 4,578; eye and ear, 4,122; nose and throat, 3,506, diseases of women, 1,542. The following appointments were made to the medical staff: Assistant Surgeons, Drs. Archibald and Keenan; Assistant Laryngologist, Dr. Jamieson; Associates in Medicine, Drs. Cushing, Fry and McCrae; Director of Clinical Laboratory, Dr. Bruere; Clinical Assistants in Neurology, Drs. Robertson and Mackay; Clinical Assistant in Medicine, Dr. Burrett; Clinical Assistant in Ophthalmology, Dr. Harvey; Assistants in Bacteriology, Drs. Yates and Williams; Medical Registrar, Dr. Curling

According to the report of Dr. Laberge, the medical health officer, the deaths for the year 1903 were 6 911. During the months of June, July and August there were 2,204 deaths. It is in these months that the death rate among children becomes high. In the year 1903, in these three months, 879 children died. He thinks efforts should be put forth to lessen the infantile mortality. Among preventive means, pure milk must occupy a first place. Something could also be done to lessen the number of deaths from tuberculosis. Public baths were being built and would be of much value from a sanitary point of view.

MEDICAL SOCIETIES AND GATHERINGS.

TORONTO MEDICAL SOCIETY.

Stated meeting February 25th, 1904, Dr. Silverthorne in the chair. The minutes were taken as read. Dr. Dickson showed a man who had not been sick in 40 years. He had a scar from a burn when five years old. Some time ago, the scar became sensitive to the sun, then it began to discharge, but healed up under a simple ointment. There was a growth of irregular outline now in the site of the scar, 5 x 4 inches. The case was shown so as to be seen again by the members after further treatment. The ultra-violet rays were being used. The President said that a photo and a section should be made now in its present state.

Dr. W. P. Caven read a paper on medical treatment of gall stones. (See page 701).

Mr. Cameron read a paper on the surgical treatment. He said the incision should be vertical which can then be enlarged like an S., the muscle being divided by blunt dissection. The gall-bladder is hard to find in some cases. The cystic and common ducts should be searched. A hard sand bag under the back of the patient brought the bladder two inches nearer the surface. If jaundice be present, prepare for hemorrhage, but it was liable to occur in cases that there was no apparent jaundice. Calcium chloride should be used before operation, by mouth or rectum. The incision in cholecystotomy in the bladder should be made at the fundus for drainage. If the stone is in the cystic duct, return it to the bladder if possible. There was one solvent for stones and that was healthy bile. A stone should only be crushed if it is soft enough to permit this by the finger.

In the discussion, Dr. Oldright said that one should not hesitate to make a transverse extension in the incision if needed. He wanted to hear most about the diagnosis. Dr. Powell said that the diagnosis of gall stones did not mean operation. He described Dr. G. Cook's method of drainage. Dr. Bruce said that gastric lavage had been of service in relieving the symptoms. He thought that every case of operation should be drained. After removal of the stone, a tube placed down and packed around with iodoform gauze was a good method. Ochsner of Chicago packed the bladder with gauze. The bladder should be sutured to the peritoneum, not to the skin. He thought there was no use in suturing the common duct, as drainage sufficed. Dr. Ferguson thought that he had

had good results from the continued use of ether. During the attack atrophine was better than morphia and should be pushed to the full extent. With regard to diet, the proteids should be obtained from the vegetable and not the animal kingdom. He mentioned a case in which the common duct had ruptured. He cut down and drained, but did not suture the duct, the patient making a good recovery. Dr. W. J. Wilson said that many recurrences took place after the removal of stones, because the condition favoring the formation in the first place had not been removed, or cured. The treatment of the duodenum was more important than the treatment of the gall-bladder after the operation. Dr. C. Starr, following Dr. Roswell Park, advocated the removal of the entire bladder for the same reason that the appendix was removed. Dr. McPhedran said that there was one point in the diagnosis which had not been touched upon, and that was a pain at the right side at the level of the 9th vertebra. Drs. Caven and Cameron replied.

AMERICAN INTERNATIONAL CONGRESS ON TUBERCULOSIS.

As already announced, the above Congress will be held in St Louis on 3rd, 4th and 5th of October, 1904. Dr. E. J. Barrick, of Toronto, is the president, and is putting forth great efforts to make the gathering a great success. So far, the indications are of a most encouraging character. From all sources come promises of assistance in the way of papers and the presence of well known authorities in medical science.

A short time ago Mr. Clark Bell, LL.D., of New York, visited Toronto and was the guest of Dr. Barrick. While in Toronto a number had the opportunity to meet Mr. Clark Bell, who is editor of the *Medico-Legal Journal*, *Taylor's Medical Jurisprudence*, and a member of the New York bar. He is an enthusiast on the question of tuberculosis and the efforts that should be made for its suppression. The Federal Government of Canada has decided to send delegates to the Congress. Canada is taking an important part in this movement as will be seen by the following list of officers:—

Honorary Vice-Presidents—Dr. T. G. Roddick, M.P., Montreal, Que.; Sir William Hington, M.D., Montreal, Que.; Hon. Senator George A. Drummond; James Loudon, president of the University of Toronto; Hon. William Mortimer Clark, Lieut.-Governor, Ont., Hon. J. R. Stratton, Dr. John Ferguson and Prof. Adam Wright, Toronto.

Vice-Presidents at large—Dr. W. P. Caven, Toronto, Ont.; Dr. Daniel Clark, Toronto, Ont.; Rev. C. S. Eby, D.D., Bracebridge, Ont.; Dr. R. W. Powell, Ottawa, Ont.; Dr. W. H. Moorehouse, London, Ont.

Vice-Presidents of Provinces—Dr. Albert A. Macdonald, Toronto, Ont.; Dr. J. A. Robertson, Stratford, Ont.; Mayor Adam Beck, London, Ont.; Ex-Mayor James Cochran, Montreal Que.; Mayor W. W. White, St. John, N.B.; Charles J. Coster, St. John, N.B.; Ex-Mayor John Arbuthnot, Winnipeg, Man.; Dr. H. H. Chown, Winnipeg, Man.; J. A. M. Aikins, K. C., Winnipeg, Man.; Dr. J. D. Lafferty, Calgary, N. W. T.; Dr. G. A. Kennedy, McLeod, N. W. T.; Rev. Dr. J. C. Herdman, Calgary, N. W. T.; Dr. C. J. Fagan, Victoria, B. C.; Rev. Leslie Clay, B. C.; Dr. S. T. Tunstall, Vancouver, B. C.

Prof. M. Benedikt, of Vienna, has written a lengthy open letter to Mr. Clark Bell in which he points out the great benefit that should come from such a congress, and appeals for a generous support to it from the profession on this side of the attack. He states that he will be present to take part in the proceedings. In his letter he points out that social misery is one of the great factors in the causation of tuberculosis, and for the correction of this, all classes should become interested.

THE ONTARIO MEDICAL ASSOCIATION.

The Ontario Medical Association will meet in Toronto on June 14, 15, and 16, 1904. Already arrangements are being completed to make the meeting this year a great success, and many papers have been promised by leading members of the profession. Even if any one finds it impossible to be present, he should become a member of the Association. In this way each one can help the Association, himself, and his patients.

THE CANADIAN MEDICAL ASSOCIATION.

The annual meeting of the Canadian Medical Association will be held in Vancouver and Victoria, B.C., on the 23rd, 24th, 25th and 26th of August, 1904. It would be well to remember that this is the national medical association, and for this reason it is hoped the profession will give it a generous support. The association has done much in the past and is destined to do much more in the future for the medical profession of this country. There are many questions that affect the various provinces in common with each other. These questions can be discussed to greatest advantage in the national medical association. Let there be a large attendance, and a lively interest manifested in everything that makes for the good of the medical profession in Canada.

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EDITORIAL.

THE PAROXYSMAL NEUROSES.

In the Australasian *Medical Gazette* of recent date, Dr. Francis Hare, of Brisbane, and Inspector General of Hospitals, Queensland, discusses in a series of articles the "Mechanism of the Paroxysmal Neuroses." His articles display a thorough knowledge of the literature of the subject and a coherent and logical method of reasoning. It is with much satisfaction that we review some of his main positions.

He begins by referring to the well known laws that govern the circulation such as that when general arterial tension is lowered, the heart's action is increased in frequency; that when the general arterial tension is raised the heart's action becomes less frequent; that if the arterial tension is lowered in some portion of the body to maintain a normal frequency of the heart's action there must be an increase in the arterial tension in some other portion of the body; and that, if the arterial tension be raised in some portion of the body the heart's action will be disturbed unless there be lowered tension somewhere else. In support of these views he cites the opinions of Stewart, Leonard Hill, Marie, Oliver, Heidenhain.

Migraine, or hemicrania, is the first of these diseases discussed by Dr. Hare. He refers to many authorities in support of the primary vascular changes in the attacks, such as the cold extremities and the dilated temporals. Attention is drawn to the observations of many, and fully corroborated by his own, that compression of the carotid artery instantly arrests the pain, which just as instantly returns when the pressure is removed. He points out the clinical experience of himself and others that in bilateral migraine, pressure on one carotid arrests the pain on the side of the pressure, but increases it on the other; whereas, pressure on both carotids lessens or removes the pain on both sides. In the case of occipital migraine, pressure on the occipital arteries acts in precisely the same manner. He lays down the statement "that there is but one hypothesis which can explain these facts, and that is that there is in all cases vaso-dilatation at the seat of pain, and that the vaso-dilatation is the proximate cause of the pain." He meets with

much skill the opinion of eminent neurologists that migraine is primarily due to a discharge in sensory centres.

He then takes up asthma. Here we think, there can be no disputing his ground. The suddenness with which an attack of asthma comes, as also hay fever, excludes an inflammatory condition; but still more so does the suddenness of its disappearance in many instances. The entire clinical history of asthma and hay fever precludes the possibility of an inflammation, and clearly establishes these attacks as due to a sudden localized dilatation of the vessels of the affected area. The great masters in medicine have taken this view, such as Salter, Broadbent, Gee, Osler, Graves, Watson, Fagge, etc. It is also borne out by the value of such drugs as dilate suddenly the vessels in other portions of the body, such as amyl-nitrite, nitro-glycerine, belladonna, potassium iodide, morphia. Strong emotion will arrest an attack of asthma; and a person who is so bad with an attack as to be unable to hold a conversation, could preach, or address a large audience. The proximate cause here is dilatation of the nasal and bronchial vessels.

With regard to Angina Pectoris, Dr. Hare takes strong ground that the cardiac pain and the sense of suffocation are due far more frequently to dilatation of the coronary areas than to contraction of these vessels. In support of this view he calls attention to the cold extremities in attacks of angina pectoris, and to the great value of general vaso-dilators, such as the inhalation of chloroform, nitrite of amyl, the administration nitro-glycerine, the hydermic injection of morphine, etc. These agents dilate large areas, and therefore, remove blood from the coronary vessels. He states that it is in the areas of dilated vessels, as in migraine and asthma, and not in the areas of contracted vessels, that there is pain and distress. He holds that angina pectoris is an instance of coronary hyperæmia and not of coronary ischæmia.

Dr. Hare, in his remarks on the etiology of epilepsy, summarizes the case as follows:—

1. Vaso-constriction, causing rapid rise in general blood pressure.
2. Cardiac inhibition, causing sudden fall in general blood pressure.
3. Sudden cerebral anæmia, causing unconsciousness and tonic spasm.
4. Recommencement of the heart beat, causing rise in general blood pressure, and returning cerebral circulation.
5. Relaxation of tonic spasm; clonic convulsions.
6. Re-establishment of blood pressure and cerebral circulation; cessation of all convulsion.
7. Sleep recuperative of exhaustion and damage.

He argues at length and with marked ability that sudden brain anæmia is a cause for convulsions.

Other conditions of a more minor character are referred to, such as laryngismus stridulus and Raynaud's disease.

The series of papers are worthy of careful study. One thing we must bear in mind, namely, that even though these conditions be due proximately to vaso-motor disturbances, it is necessary to account for these vaso-motor changes. The vascular system is under the control of the nervous system, so that the discharge of some centre may be the primary factor after all. This over-action in a given group of nerve cells leads to vascular changes of either constriction or dilatation, which may be quite local, as in the flushing of one cheek, or the coloration of a single finger from dilatation of its vessels. Whether these events are due, in turn, to some instability in the nerve matter, or to some poison in the system, as Haig claims for uric acid, it is impossible to say for certain.

THE HISTORY OF APPENDICITIS.

Dr. Howard A. Kelly, of Baltimore, has been dipping into the history of appendicitis. From an address, delivered by him some time ago in Paris, we learn that Mestivier, in 1759, reported a characteristic case of appendicitis. There was a swelling on the right side of the umbilicus. This was incised and about a pint of foetid pus escaped. At the necropsy there was found a pin in the appendix. It was crusted over and eroded. This had clearly set up the disease. From the same reference in the *British Medical Journal*, we learn that in 1776, Joubert Lamotte published the report of a case, the patient having died with marked tympanites. At the autopsy a concretion was found in the appendix and some cherries in the cæcum. As it was long after the cherry season they must have lain in the cæcum for considerable time. This is the first instance of a fœcal calculus. In 1808, Jadelot published a case; and, in 1813, Wegeler published another in France. In 1824, Layer-Villarmay published a paper on "Observations to serve for the History of Inflammation of the Cæcal Appendix." He relates two cases, with necropsy. He pointed out the importance of inflammation in the appendix. In 1827, Melier published an article on the subject, and related some new cases. He speaks of the nature of the lesions, and even thought surgical treatment might be justified. He was frowned down by Duputren, then the leading surgeon of France, and Melie's brilliant suggestion came to nothing for many years.

Turning to Germany, we also learn from Dr. Kelly's address before the Glasgow Obstetrical and Gynæcological Society, and published in the

Glasgow Medical Journal, that about 1827, Puchelt introduced the term perityphlitis for inflammations in the right iliac region. This was most unfortunate, as it threw the thought away from the appendix to the tissues around the cæcum, and set the trend of research backwards for many years.

From the same address, we learn that Britain's share in the study and discovery of appendicitis is a very creditable one. Dr. Parkinson, in 1812, gives the history of a case in the *Medical and Chirurgical Transactions*. The patient was a boy, aged 5. He had been suddenly seized with pain and great prostration. The abdomen was tumid, painful on pressure, the countenance pale, and the pulse small. Death took place in three days. At the autopsy the appendix was found inflamed, the internal surface ulcerated, and an opening through the wall of the appendix large enough to admit a crow quill. This is, perhaps, the first clear description of a perforation as well as inflammation of the appendix.

In the *Edinburgh Medical and Surgical Review* for July, 1824, Dr. Blackadder contributed an able essay upon 'Notices of Certain Accidents and Diseases of the Structures of the Cæcum and Caput Coli.' He gives a very graphic account of a case, in which, after death, the appendix was found inflamed and a large lumbricoid worm in it.

In 1832, Copeland in his "Dictionary of Practical Medicine," gives a clear description of the difference of inflammations in the cæcum, the appendix, and the pericæcal tissue. He thought, however, that inflammation in the appendix was merely an extension of the disease from the cæcum. He is, perhaps, the first to include blows and violent exertion among the causes of disease of the appendix.

Thomas Hodgkin, in his lectures, published in 1836, remarks that "the partial inflammation of the peritoneum, in the iliac fossa, is sometimes set up by disease in the appendix cæci." Then again he states: "Even in these cases, nature sometimes succeeds in limiting the inflammation to a part of the right side; but it is at other times diffused over the whole of the abdomen, is accompanied by symptoms of the most serious nature, and quickly proves fatal."

In the *Elements of the Practice of Medicine*, Richard Bright and Thomas Addison remark that, "From numerous dissections it is proved that the fæcal abscess thus formed in the right iliac region arises, in a large majority of cases, from disease set up in the appendix cæci. It is found that this organ is very subject to inflammation, ulceration, and even to gangrene." These writers speak of concretions, strictures, and injuries as causes.

John Burne, in the *Medical and Chirurgical Transactions* for 1837 and 1839, refers at much length to the diseases of the appendix.

Unfortunately, he rather clouds the discussion by introducing the term "tuphlo-enteritis."

In the year 1848, John Hancock, a London surgeon, incised a swelling in the right iliac region *before fluctuation* could be felt. In a few days afterwards two faecal concretions came away in the discharges. He came to the conclusion that this was due to disease in the appendix, this organ having ruptured, the concretions making their escape.

Mr. Gay in *Proceedings* of the Pathological Society, of London, reports a case of internal strangulation on which he operated, caused by adhesions between the appendix and adjacent organs from prior inflammation of the appendix.

It is only necessary to mention the names of Clay, Baker, Brown, Spencer Wells, Lawson Tait and many others, especially the eminent Sir F. Treves.

For Canada there is a share in the history of appendicitis. In 1858, Dr. Howard, of Montreal reported a case. He remarks that perforation of the appendix is far more frequent than perforation of the caecum. "The appendix may become highly inflamed, ulcerated, and even extensively destroyed by sphacelation, but the morbid action extends with extreme rarity to the caecum itself." Here we have a clinical lecture on appendicitis, in Montreal, by the late Dr. Howard, in 1858.

Nor has the United States lagged much behind either Britain or France. In the year 1837, Dr. Walcott Richards, of Cincinnati, reported a case of perforation of the appendix. A similar case was reported the year following by Dr. Edward Hallowell, of Philadelphia. In these cases the autopsies revealed the disease of the appendix and the presence of perforation. In 1867, Dr. Parker published in the *New York Medical Record* the account of four cases in which he had opened abscesses, due to disease of the appendix. In one of these he had operated before the appearance of fluctuation. He remarks thus—"Nature does labor in behalf of life in two ways: by means of the wall of false membranes which she builds around the abscess; and by the ulceration which gives external vent to the escape of its contents. It then became a question whether surgery might not be able to render nature assistance. To be successful the incision should be made neither too early nor too late." Dr. Daniel Stimson, of New York, often spoke of the work and teachings of his father-in-law, Dr. Willard Parker, on appendicitis, and how an operation would do in most cases, what nature did in some cases, effect an opening for the escape of the pus.

THE SPREAD AND CONTROL OF DIPHTHERIA.

The Klebs-Loeffler bacillus is found in almost all climates. In the tropics, diphtheria is met with in a mild form sporadically. The activity and virulence of the disease increases as the tropics are receded from. In temperate and cold climates, the disease prevails in the autumn and winter months. It would appear, therefore, that the heat of the tropics and the summer months wakens the bacillus and renders them less virulent, though not competent to destroy them altogether. The bacilli may be attenuated by cultivating them at a temperature of 99.5° F. The bacilli do not seem to be influenced much by humidity, as epidemics are met with in dry seasons, or when the weather is rainy. A moist condition of the soil favors the growth and life of the germ, so long as the soil is rich in organic matter. It is worthy of note, that diphtheria has now become a town disease, whereas it formerly was most frequently met with in the country.

The bacilli do not appear to be carried to any great distance by the air. They are found, however, in the air of the wards in which there are diphtheria patients. The idea that the disease is conveyed by means of sewer gas has been set aside. The sewer gas may lower the general health, but cannot carry the bacilli.

There are undoubted instances where the disease has been spread by means of milk. Competent experts have found the germs in the suspected milk. In the Brown Institute there was an outbreak of the disease among the cats, due to an infected milk supply with which the animals were fed.

It is well known that the bacilli may remain alive and active for many weeks in clothing, or in a room where a patient has been, unless the process of disinfection is thorough. The bacilli have been cultivated from a handkerchief in one instance, and from a piece of dried membrane in another, after a lapse of three months. The infection may cling to premises for many months.

Direct corporeal contact is the most frequent source of infection. Many mild cases are never detected, and only shew the symptoms of a slight sore throat, or a little nasal discharge. These cases often convey the disease to others. The germ has been known to remain in the throat or nasal passages for three months after the recovery from the attack. A mild sore throat may be associated with the bacilli and no membrane present. A child is known to have carried the disease to others two months after recovering from a sore throat.

The disease may be spread from the sick to the well by means of healthy persons who have been waiting upon the patients. The bacilli,

in such cases, is frequently found in the nose and throat of the attendants. The disease may also be carried by domestic animals, It is well known that cats are subject to the disease. The bacilli have been found in dogs. The diphtheria bacilli have also been found in the sores on the teats of cows, and, in this way, the milk became infected. Fowls and rabbits have also been shown to be infected by the disease, and most likely to have given it to the human subject, in some instances, where no other source for the disease could be found. The horse is subject to rhinitis containing virulent diphtheria bacilli.

From the above, it would appear that the milk supply is always a matter of importance. Cows with sore teats should be examined. Books, pencils, etc., should not be allowed to be used by others after being handled by diphtheria patients, until these things have been thoroughly disinfected. Persons suffering with diphtheria should not be allowed to play with domestic animals or pets. The bacillary test should be made before those who have had the disease are permitted to mingle with others. All utensils and clothing used by the patient must be thoroughly disinfected. The administration of 500 units of antitoxine is an excellent prophylactic for a period of about three weeks. With regard to the bacillary test it may be said that we must be guided by positive results but should not be misled by negative ones.

HODGKIN'S DISEASE.

In the October issue of the *Bulletin* of the Ayr Clinical Laboratory there is an exhaustive study of Hodgkin's Disease. This disease was first described by Hodgkin in 1832. In 1856, Wilks, in London, and Bonfils, in France, reported cases. Wilks gave the disease the name of the distinguished physician who first brought it to the notice of the profession, namely, Hodgkin's Disease. It has been called progressive lymph-gland hypertrophy, pseudo-leukæmia, lymphosarcoma, and desmoid carcinoma. These names, to some extent, attempt to convey the notion of its pathology held by those who gave these names to the disease. These names also reveal the fact that such eminent pathologists as Conheim, Virchow, Langhans, Winewarter, Gowers, Wilks, have regarded the disease as a clinical condition, but not as a pathological entity.

The disease usually begins under the age of 40 and is much more common among males than females. The duration of the disease is usually from a few months to five years, not often exceeding three years. As to its etiology, no definite predisposing causes have been

determined. A history of syphilis or tuberculosis is rarely found, and appear to have no connection with the disease. It has been asserted that the tonsils are the way through which the infection enters. But this is not borne out by recent observation, and the glands in the neck are usually the first affected, and before the tonsils show any sign of disease. The tonsils may become involved in some cases, but not often.

The disease shows itself first in the glands of the neck in the majority of the cases. Sometimes the axillary glands are first affected. One side of the neck only may be involved. Or, it may begin in one side and extend to the other. In some instances, it begins in both sides at once. In most cases, the superficial glands are soon all affected. The deep glands are invaded as the disease progresses, such as the retro-peritoneal, the mediastinal, and the bronchial. There are cases in which only one group of lymphatic glands is diseased.

In the early stages of the disease the patient's health is generally good. At first, the swollen glands are neither painful nor tender, and are freely movable. Even when the glandular swellings are very large, separate glands can usually be made out. The skin over the swollen glands does not become adherent, nor is there any tendency to suppuration. In this respect they differ from tubercular or syphilitic gland disease. As the glands enlarge, many serious pressure symptoms may appear. Secondary growths may occur in other organs, as the spleen, the liver, in the lungs, on the walls of the stomach, or intestines. At some period of the disease there is usually fever. This may vary from almost normal to 103° F. There may be periods of fever alternating with periods without fever. Sooner or later, there is severe anæmia. This is of the secondary type. Nucleated red blood corpuscles are rarely seen. The white blood corpuscles are, as a rule, increased, and vary from 10,000 to 20,000. In some cases, there is an increase in the number of the small mononuclear cells. In the early stage of the disease, it is very difficult to make a diagnosis between Hodgkin's diseases and tuberculous adenitis.

Medicinal and surgical treatment so far has not been successful. Dr. Senn has spoken highly of the use of x-rays.

From recent studies on the disease by Fischer, Reed, Simmons and Longcope, the following conclusions may be drawn:—

1. Hodgkin's disease should be considered as a distinct clinical and pathological entity.

2. The lesions in the lymph glands and other organs are especially characterized by the early increase in the lymphadenoid tissue, with later proliferation of endothelioid cells, formation of uninuclear and

multinuclear giant cells, thickening of the reticulum, and final overgrowth of connective tissue. Eosinophiles are frequently found in great abundance. The eosinophilic leucocytes and myelocytes of the bone-marrow are increased.

In process of time, if the laceration be severe, the uterine wall at

EFFECTS OF CERVICAL LACERATIONS.

this part is apt to become specially thin and yielding, and on paring it, as in the operation of trachelorrhaphy, it may be found that the uterine wall here is thinner and narrower than at any other part. This interferes with the permanent strength of the uterus on the side affected, and with the perfect success of any operation.

If we now recapitulate the consequences of laceration we find, first that those of minor degree have no consequences; and second, that those of major degree, in addition to being a favorite channel of fatal sepsis, may cause subinvolution, serious menorrhagia, uterine descent and flexion (by reason of the injury to the vaginal roof), cervicitis, with all its consequences, pain usually, directly referable to it, abortion, sterility, atrophy of the uterine wall at the highest limit of the tear, and finally, but very rarely, epithelioma.

AN URGENT NEED IN THE MEDICAL PROFESSION.

There are many associations for the study of disease, the reading of papers, and the holding of discussions, but there is no association for business purposes. The various trades are united for the object of taking care of their interests. Capitalists are organized to study what had best be done in times of danger, or when special care is required. Bankers have their associations to look into the conditions of the monetary affairs of the country. Doctors have associations only for the study of the cure and prevention of disease. They are unorganized for any business or protective purpose.

This ought not to be so. Steps should be taken to correct this state of affairs. From time to time, legislation comes up that may threaten the welfare of the medical profession; and, yet, there is no machinery in existence to deal with it. There should be a standing and strong organization for mutual defence. The several territorial districts could form such an association and elect officers. These various district associations could be united through some common, central executive, made up of representatives from the various district associations.

In this way, the entire profession could speak as a unit should any circumstance arise that called for intervention, either as objecting to pro-

posed legislation, or seeking needed enactments. There is much work for such a business association. The regulation of hospital practice, the attendance on charity patients for municipalities, the fees that should be charged wealthy corporations, such as railways, insurance companies, and friendly societies, would all be proper subjects for the consideration of such an association.

It may be set down as about correct that the average income of the doctors in Ontario does not fall below \$2,000 a year. This would give a total of \$7,000,000 for the 3,500 doctors of Ontario. On an average it may also be assumed that doctors give at least 10 per cent. of their time to charity work. This would represent about \$700,000, as the contribution of the doctors of Ontario towards the general public good. Very much of this should not be given free.

An effort is now on foot for the formation of such an association in Toronto. At a recent meeting, Dr. A. A. Macdonald was asked to act as chairman of a committee which he is to select. This committee is to formulate a scheme for the organization of a business medical association. We take much pleasure in urging upon the members of the profession to support any efforts that may be put forth in this direction.

ACTION AGAINST A BOARD OF HEALTH BEFORE FALCONBRIDGE, C. J.

Ward v. Lowthian; *Green v. Marr*. Judgment (H.) in action tried without a jury at Chatham. Action for damages for alleged injuries to plaintiffs' persons and businesses by reason of proceedings taken by defendants as members of a local Board of Health to prevent the spread of infectious diseases. Held, that defendants were not influenced by malice or improper motives, but acted to the best of their judgment in the interest of the public safety, and without any intention of injuring plaintiffs or any of them. Defendants were bound to use, and did use, all possible care in preventing the spread of infection. They found themselves suddenly, and without previous experience, face to face with a great public exigency, and they adopted all the means which, in their judgment, were most effectual for the common safety. The results were highly satisfactory, so far as concerned the community, although there were cases of individual hardship. If plaintiffs had any reasonable cause of complaint, these arose from error of judgment on the part of defendants or some of them. Defendants, acting in good faith and with reasonable precaution, ought not to be held liable for errors in judgment. The question as to the right to maintain an action such as the present

against a board of health is being considered elsewhere. Action dismissed with costs. M. Wilson, K.C., and W. A. F. Campbell (Ridgetown), for plaintiffs; W. Mills (Ridgetown), and O. K. Watson (Ridgetown), for defendants.

REPORT OF THE EXECUTIVE HEALTH OFFICERS OF ONTARIO.

The report of the eighteenth annual meeting of the above Association has been issued by the Ontario Government. We think the government has acted wisely in authorizing the printing of this report and we hope it may have a wide distribution. The subjects taken up in this report are quite varied, such as the health officer, the suppression of epidemics, the use of serums in diphtheria and scarlet fever, isolation hospitals, the rights of the individual as regards quarantine, military instructions in schools, sanitation in factories, the management of the criminal, the disposal of sewage, and vaccination. We hope that the profession will give this report a careful perusal.

CHANGE OF OPINION REGARDING TUBERCULOSIS.

At a meeting of the Insurance Institute of Toronto, Dr. John L. Davison read a paper on tuberculosis. He pointed out that 12 per cent of all deaths was due to this disease, whereas among selected lives the rate was only 8 per cent. Dr. Davison thought the government should insist upon isolation and disinfection. He thought we could not for some time hope for legislation that would regulate marriages. He expressed the opinion that life insurance offices might send out literature giving plain instructions to their policyholders as to the best methods of avoiding infection.

TORONTO MEDICAL STUDENTS SEE SMALLPOX.

Much of the trouble with regard to the spread of smallpox arises from the fact that many physicians have never seen the disease; and, consequently, may not at once recognize the disease in its milder forms. Infection in this way is allowed to spread.

Dr. Sheard took sixty medical students to study a case of smallpox in the Isolation Hospital. Every precaution was taken to safeguard both the students and the public. The students wore rubber bathing caps and linen dusters. Before leaving the hospital they all took a carbolic bath. They were also vaccinated some time before and its successful nature determined.

The incubation period passed by without any member of the class, or any person in the public contracting the disease as a result of the exposure. This is what happens often in large European cities. Doctors and nurses in large numbers look after smallpox patients without contracting the disease, their sole protection being efficient vaccination. This sort of thing puts to route all the arguments of the anti-vaccinationists.

Without vaccination there would be an epidemic of smallpox every few years among the children. Just think of the death loss, sickness, scarring and interference with business such epidemics would cause, and go set against all this, the trifling inconvenience from vaccination! There are some people who can neither be coaxed nor reasoned with, they must be driven; and such are the anti-vaccinationists.

PERSONAL NEWS ITEMS,

Dr. G. L. Milne, of Victoria, B.C., was in Toronto a short time ago.

Dr. Jamieson, late of Collingwood, has begun practising in Beeton.

Dr. J. H. C. Willoughby, of Saskatoon, is home again from his trip east.

Dr. G. S. Richardson, of Newmarket, has recovered from his recent illness.

Dr. E. D. Dyer, of Knowlton, has removed to Sutton and will practice there.

Dr. James Fletcher, of Ottawa, was laid up for a couple of weeks with an attack of rheumatism.

Dr. E. F. Irwin, of Weston, has recovered from his illness and is again attending to his practice.

Dr. Moyer, of Galt, has been ill for some time with typhoid fever. We wish him a speedy recovery.

Dr. C. H. Brown, of Ottawa, who had a knee injured accidentally a few days ago, is recruiting nicely.

Dr. S. A. McKeague, late of Acton, Ont., has opened an office in Winnipeg at 360 Notre Dame Avenue.

Dr. J. F. Harty, of Kingston, left by the Steamer Princess Irene, a few weeks ago for the Mediterranean.

Dr. George A. Hetherington, of St. John, N. B., arrived in Toronto from the east in the early part of March.

Dr. Mader, of Halifax, while driving in his sleigh, was thrown out and had his leg and several ribs broken.

Dr. Tatham, of Cargill, who was very ill with appendicitis for two weeks, we are pleased to report, is much better.

Dr. Oscar C. Dorman, formerly of Amherst, but lately of Hantsport, N. S., has gone to Winnipeg where he intends locating.

Dr. W. R. Hamilton, who is confined to the Hospital in Stratford with typhoid fever, is reported to be progressing favorably.

Dr. D. M. Sutherland, of Norwich, left on Monday for Collingwood where he will reside for a short time and practice his profession.

Dr. J. O. Camirand, of Sherbrooke, Que. who has been confined to the house suffering from blood poisoning, is able to be out again.

Dr. Geo. S. Burt was attending the New York Hospitals for a couple of months and has again resumed his practice at Own Sound.

Dr. E. S. Pettit-Roberts, formerly of Aylmer, has gone to South Africa to join her husband who is a civil engineer at Johannesburg.

Dr. and Mrs. George A. Brown, 1008 Dorchester street, sailed the 3rd of February for Europe, and will be absent till about the middle of May.

Dr. Beck's many friends will be pleased to learn that he is greatly improved in health as a result of his treatment at the Gravelhurst sanitarium.

Dr. Robert Bell, of Ottawa, was entertained by prominent citizens at dinner at the Garrison Club, Quebec. Dr. Bell afterwards visited Toronto.

Dr. A. A. Staley, of Kingston, a graduate of Queen's Medical class of 1903, has been appointed house surgeon in Hannemann Hospital, Rochester, N. Y.

The marriage of Dr. A. E. W. Snyder, of Cookshire, and Miss Lydia Wilson, took place 24th February. Dr. Snyder has gone to Battleford, N. W. T., to reside.

Dr. O'Reilly, of Guelph, had an attack of grip and bronchitis in the latter part of February and took a short holiday. Dr. Savage took charge of his practice.

Dr. G. W. Jolicoeur has been officially appointed by the Provincial Government coroner for the city and district of Quebec, to succeed the late lamented Dr. A. G. Belleau.

Dr. Gibson, who has removed to Copper Cliff from the Sault, was presented before leaving with a handsome solid silver service by a number of friends at the latter place.

Dr. L. Johnstone, of Sydney, met with a painful accident a couple of weeks ago, injuring his ankle, as a result of falling on the ice. He is confined to his home since the accident.

Dr. C. H. Christie, of Montreal, left London on 12th March, for Japan, having secured the appointment as surgeon on the British ship Prometheus of the far eastern squadron.

Dr. A. D. McInnes, of Toronto, was visiting friends in the coast cities, returned from a trip to New Westminster and Fraser River points, and was registered at the Vancouver.

The marriage took place recently at St. Patrick's Church, Montreal, of Miss Estelle La Chance, eldest daughter of Mr. F. X. La Chance, to Dr. A. A. Macdonald, Mt. Stewart, P. E. I.

Dr. and Mrs. H. A. Wilson, Glencoe, sailed 9th March from New York for the Holy Land on the eighty days' excursion. If all goes well they expected to reach Gibraltar by the 18th.

Dr. McConnick, wife and son, arrived in Harrow, Essex County, on 16th March, after an extended visit in Europe, during which they visited Paris, North of Ireland and Scotland.

Dr. E. McEwen, of Carleton Place, left for New York, last Thursday to take a post-graduate course in the large hospitals of the city, with ear, eye, nose and throat as his special study.

Dr. S. W. Prowse, of Winnipeg left a short time ago for New York, where he will remain some time. Dr. McKinty will lecture on physiology at the Manitoba Medical College in his absence.

The marriage of Dr. A. E. Snyder, son of Mr. and Mrs. N. C. Snyder took place at Lake Megantic on February 23rd. The bride was Miss Mary Wilson, daughter of Capt. Wilson, of that place.

Dr. J. F. Jelly, of Toronto, was in Fort Frances lately on his way down the river to look up a suitable location with a view of practising medicine. It is possible he may locate at Stratton or Pinewood.

Dr. Bertram, of Dundas, is enjoying his visit in Costa Rica and gaining both in spirits and health. While he is away his practice is being looked after by Dr. Davey, a very clever man in his profession.

Dr. J. T. Fotheringham, of Toronto, while performing an operation contracted septic infection, and was seriously ill. It will be welcome news to his many friends to learn that he is improving satisfactorily.

Dr. Laberge, head physician of the Health Department, Montreal, was confined to the house through illness. Of the four doctors attached to the Health Department three were confined to the house with grippe.

Dr. Cameron, Southampton, N.S., was seriously threatened with blood poisoning from a slight scratch in the hand. His brother took charge of the doctor's patients for a little till he was able to resume his duties.

Dr. R. A. Sykes and wife, of Campbellford, spent a few days in North Hastings two weeks ago. The doctor is very much improved in health as a result of his rustication in our northern climate during the past winter.

A large section of British medical men want a Minister of Health, and are urging the raising of a fund to send doctors to Parliament to give attention to the nation's health, food and physical culture. Sir Frederick Treves is suggested as Minister.

L. Z. Skinner, M. D., and his sister, Dr. Edna Skinner, formely of Waterville, Kings County N. S. are taking post graduate courses at the College of Medicine of the University of Illinois, Chicago. They have recently been appointed demonstrators in the anatomical laboratory.

Dr. W. Doan, of Harrietsville, who is very popular in social and fraternal matters, as well as professionally, was presented with a handsome gold Masonic Past Master's Jewel recently, accompanied by an address expressive of the esteem in which he is held by the members of the fraternity.

The Canadian Government has formerly accepted the invitation to be represented at the American congress on tuberculosis, which will be held in connection with the St. Louis Exhibition, in October, 1904, and the Canadian Parliament will be asked to provide for the expense of such representation.

Dr. LeBel, of Quebec City, met with a painful accident three weeks ago. He was driving along St. Paul Street and extended his head over the side of the sleigh to take an observation, when his forehead suddenly came in contact with a load of merchandise packed in boxes, coming from the opposite direction.

The marriage took place at Elmsdale, N. S., on Monday, 7th March, of Elsie, daughter of Mr. Jacob Miller, of that place, and Dr. Alfred Thompson, of Dawson City, Y. T. The ceremony was performed in the church, which was handsomely decorated for the occasion by the young lady friends of the bride.

Dr. A. H. Anderson, who has been associated with Dr. A. A. McCrimmon, at Rainy River, during the last three months, left last week for Vancouver, en route to Japan. Dr. Anderson has been appointed surgeon with the Japanese army, and the great experience he gained in South Africa will doubtless stand him in good stead.

Dr. A. E. Malloch, of Hamilton, gave a complimentary dinner at Lovering's, March 4th, to Dr. Daniel M. Gordon, Principal of Queen's University, and the graduates of Queen's who reside in that city. About forty guests accepted his invitation, including representatives of Toronto University. Several ladies were in the gathering. Dr. Malloch presided.

At the Woodstock assizes, March 9th, before Mr. Justice Ferguson, Mrs. McPhail failed in her action against Dr. Brownlee for malpractice. She is suffering from a deformity of the ankle, resulting from a fracture, which she says the doctor did not set properly. His Lordship, at the close of the evidence, withdrew the case from the jury and dismissed the action with costs.

Dr. Mitchell, of the Toronto Asylum staff, who has been appointed to take charge of the new asylum for epileptics at Woodstock, left on Tuesday, 14th March, for England to look over the institutions there, preparatory to assuming his new duties. He was tendered a farewell by the staff of the Queen street institution. The affair took the form of a dance, and a very pleasant evening was spent.

Dr. J. A. McLean entertained about twenty of his friends on Monday evening, 29th February, the occasion being the celebration of his thirteenth birthday. The doctor's birthday only comes once every four years, but owing to the change in centuries he has not had one for eight years. During the evening his friends took advantage of the occasion to present him with a handsome cane as a slight token of esteem. A splendid evening was spent with song and speech, all joining in wishing the genial doctor many happy returns of the day.

Calgary is to have a sanatorium for the treatment of pulmonary tuberculosis. Plans for the erection of a building for this purpose have been completed by Geo M. Lang, the well known architect of that city, for Dr. Ernest Wills. The plans show a most up-to-date administrative building. Dr. Wills, in order that his sanatorium should be the most improved in America, has visited a large number of similar institutions, in England and the United States. From all these he has adopted the best points and as a result the sanatorium to be erected will be the most complete in Canada and equal to anything in the United States.

OBITUARY.

A. G. BELLEAU, M. D.

Dr. A. G. Belleau, district coroner for Quebec, who was ill for some time died 9th of March, aged 63 years. Dr. Belleau was a nephew of the late Sir Narcisse Belleau. Lieut.-Governor of the Province of Quebec.

J. C. RICHARDSON, M. D.

Dr. John Christopher Richardson, only surviving son of Wm. Richardson, M. D., of Burlington, passed away at his father's residence 25th February, in his 39th year. He leaves a widow and four small children. He had practiced in Burlington for about ten years and was very popular.

W. J. ANDERSON, M. D.

On Thursday evening 25th January, occurred the death of Dr. W. J. Anderson of Smith's Falls, a man widely known throughout that vicinity. The late Dr. Anderson was aged 75 years and had been failing for upwards of a year. He was a son of the late Rev. Joseph Anderson, M. A., (formerly of Heckston) and was born in Ireland, coming to Canada when but two years of age. He graduated in medicine, at Queens University, in 1861 and afterwards practised for two years at Inkerman, when he removed to Smith's Falls where he has since resided continuously with the exception of some five years spent at Winchester Springs. He was warden of Lanark county for the year 1902 and has for many years been a prominent figure in the professional and municipal life of Smith's Falls.

MRS. DANIEL CLARK.

Very general will be the sympathy with Dr. Daniel Clark, Superintendent of the Asylum for Insane in his great bereavement, caused by the death of his wife. Mrs. Clark who was 60 years of age, had been an invalid for over nine years, and had been confined to her bed for some weeks with heart trouble.

J. B. CARRUTHERS, M. D.

Dr. J. B. Carruthers, of North Bay, while driving from a camp at the northern end of the Temiskaming Railway to the terminus, was taken suddenly ill and expired almost immediately, 17th March. Heart trouble was the cause. Always ready at the call of duty, the doctor, though not feeling well, decided to take this heavy trip of some fifty miles. The sad news shocked the town, as he was one of the oldest residents, widely known and universally esteemed. He leaves a wife and six children.

WILLIAM RICHARDSON, M. D.

William Richardson, M. D., passed away, March 14th, after a long illness, at the age of 61 years. In his profession he had been successful

and popular, and had practised in Burlington for over thirty years. He served a number of terms as Reeve, and also held offices in the Masons and Oddfellows. He was Treasurer of the School Board and President of the Public Library. He survived his three children, the last son, Dr. J. C. Richardson, being buried two weeks prior to his own death.

HON. T. R. McINNES, M. D.

Ex-Lieut.-Governor, Dr. McInnes, died on 15th March in Vancouver, B. C., having been suffering with heart trouble. He leaves a widow, two sons, T. S. E. McInnes, barrister, of Vancouver, and W. W. B. McInnes, M.P.P., of Victoria, and one daughter, Mrs. James Wilson, wife of the Superintendent of the C. P. R. Telegraphs on the Pacific division.

Hon. Dr. Thos. Robert McInnes was born at Lake Ainslie, N.S., in November, 1840. He was educated at the Provincial Normal School, Truro, and studied at Harvard Medical School, graduating at Rush Medical College, Chicago, in 1869. He was admitted the same year to the practice of medicine in Ontario, and for some years resided at Dresden, Ont. In 1874 he was elected Reeve of Dresden.

He removed in the same year to New Westminster, B.C., where he enjoyed a lucrative practice, and was Mayor of the city from 1876 to 1878. In the latter year he was elected to represent New Westminster in the House of Commons, and was called to the Senate in 1881. He was appointed Lieut.-Governor of British Columbia in November, 1897. Three years later, June 22, 1900, owing to the complicated conditions of British Columbia politics, he was dismissed by the Dominion Government, at the instance of a petition signed by 25 members of the Provincial Legislature

M. T. BRENNAN, M. D.

Dr. M. T. Brennan, gynecologist of Notre Dame Hospital and a professor of Laval University, died 12th March of grippe and pneumonia. Dr. Brennan was a native of Montreal and a graduate of Laval, with which he was identified as a professor for 14 years. He was connected with Notre Dame Hospital for 22 years. He leaves a wife and five children. Three weeks previously two of his children had died. Dr. Brennan was 42 years of age.

MATTHEW FLETCHER HENEY, M. D.

Dr. M. F. Heney died at Huml^l rstone, Welland County, on the 3rd December, 1903, at the advanced age of 79. He studied medicine in Buffalo, where he graduated in 1850.

 DUNCAN FRASER, M.D., M.R.C.S., ENG,

Dr. Fraser, of Lakefield, died recently after a short illness. He was a brother of Dr. D. B. Fraser, of Stratford. He graduated as a Silver Medallist from Trinity Medical School in 1874. He had practised in Lakefield for 20 years and was in his 58th year when he died.

 DANIEL H. MUIR, M.D.

Dr. Daniel H. Muir, died at his home, 11th March. He was born in Truro in 1838, and served three terms as mayor of the town. In 1887 he contested Colchester County for the seat in House of Commons but was defeated by four votes.

 R. LAMBERT, M.D.

In Windsor, on the 21st January, Dr. Lambert died at the advanced age of 76. He was a graduate of the Medical College in Kingston and Queen's University, and also from Bellevue, N.Y. He came to this country from England while young. He had practised in Windsor for forty years, and was its medical health officer for some years. His wife and three children survive him.

 W. G. CHRISTOE, M.D.

At the advanced age of 80, Dr. Christoe, of Flesherton, died after a very brief sickness. A few days prior to his death, he was at the post office for his mail. He was born in the County of Cornwall, England, and came to this country in 1842. He taught for some time and was also for some years in business. In 1865 he graduated from Toronto School of Medicine and Victoria University. He practised for some time in Owen Sound, removing to Flesherton in 1867. He leaves a widow and one daughter, the wife of the Rev. L. W. Thorn, of Flesherton.

 ELIAS VERNON, M. D.

One of Hamilton's oldest physicians in the person of Elias Vernon died on the 7th February, 1904. He graduated from Jefferson Medical College, Philadelphia, in 1857. He had practised in Hamilton for forty years. He was a member of the Ontario Medical Council for a number of years.

BOOK REVIEWS.

AIDS TO SURGERY.

Aids to Surgery. By Joseph Cuning, M.B., B.S., F.R.C.S., Eng., Senior Resident Medical Officer Royal Free Hospital London: Bailliere, Tindall & Cox: Toronto: J. A. Carveth and Co. Price \$1.25.

Most medical practitioners are familiar with the aid series of Messrs. Bailliere, Tindall & Cox. The present volume of the series is on surgery. The author states in his preface that "Surgery can only be learned in the wards." This is correct. His object in this little book is to give the reader the essential points in surgery in a condensed form for ready reference. The work is based upon Rose and Carless surgery. The book before us is well arranged, written in a clear style, and gives a thorough resumé of surgery. It is an admirable work for a student to refresh his memory by prior to his examinations. For this purpose we can highly recommend the book.

 TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

Twenty-Third Annual Meeting held in Washington, May 12th, 13th and 14th, 1903. By Charles J. White, M.D., Secretary, Boston. From the Grafton Press, New York.

This report consists of over 200 pages. There are 13 papers and some cases. The report is well illustrated with a number of full-page plates. To those who take an interest in dermatology there is much useful matter in this annual volume. All the papers are of a high standard, and covers the subjects of teaching dermatology, glanders, hysterical neurosis, bullous dermatitis, sarcomatosis cutis, fragilitas crinium, x-rays in dermatology, syphilis, leprosy, dermatitis venenata, gangrene, angioma, phototherapy, precancerous keratosis, paludides, etc.

 ARE WE TO HAVE A UNITED MEDICAL PROFESSION?

Dr. Chas. S. Mack, of Laport, Indiana, essays in a little brochure of 44 pages to prove the merits of homœopathy and the universality of what he calls the law of *similia similibus curantur*. We have read his pages and are bound to state that he does not make good his contention. Indeed, the entire science of medicine is against his contention. We will only give one of his arguments. A boy of rough habits is compelled to change his way. This is not homœopathic treatment or cure. But the same boy sees another boy acting in a rough manner, and concludes that it is wrong. He thereupon changes his conduct. This the author claims to be a change from within, and is homœopathic, or *similia similibus curantur*. The rest we toss with one hoist over the mountains of the moon to the land of folly and moonshine.

MORROW ON SOCIAL DISEASES.

The Relation of Social Diseases and Marriage. By PRINCE A. MORROW, A. M., M. D., Emeritus Professor of Genito-Urinary Diseases in the University and Bellevue Hospital Medical College; Surgeon to the City Hospital; Consulting Dermatologist to St. Vincent's Hospital, etc., New York. In one octavo volume of 390 pages. Cloth, \$3.00, net. New York and Philadelphia: Lea Brothers & Co., Publishers, 1904.

The importance and practical value of this new and timely volume, written by a man of profound learning, long experience and sound common sense, upon a subject which so vitally concerns mankind individually and collectively, ensures its wide recognition.

Venercal diseases in their origin, and especially in their far-reaching pathological effects, strike at the very root of race perpetuation. They blight the mental, moral and physical welfare of society as does no other agency. War, pestilence and famine are temporary; venereal diseases constantly ravage all grades of society.

Since unlawful relations between the sexes have come to be known generally as "The Social Evil," the author has adopted the term "Social Diseases" to indicate the infections most usually thus acquired. Their frequent infliction upon innocent victims through legitimate marital relations involves consequences which affect not only the health, but the peace, honor and happiness of the entire family, and the importance of venereal prophylaxis is beyond words.

Heretofore no comprehensive treatise upon the subject has existed in our language, and it is fortunate for the profession and laity alike that an author of Dr. Morrow's achievements and established ability is the first to enter the field.

The work sets forth clearly the dangers introduced by venereal diseases into marriage—dangers to the wife, dangers to the offspring, and dangers which come from their morbid irradiations in family and social life. The fulfilment of the protective duty which has for its object the preservation of the helpless and innocent from infection, realizes the highest ideals of preventive medicine; and, while this duty devolves especially upon the physician, every member of the community is, and should be, the protector of the wife and mother and the preserver of the health and welfare of future generations.

Not the least interesting chapter presents the author's views upon the "Medical Secret" and the exercises of professional discretion in restraining improper marriages, and gives valuable hints for the physician's guidance in many of the involved questions which so frequently arise.

In dealing with these situations there is required not only a thorough knowledge of these diseases in all their recently revealed relations, but also a knowledge of human nature, and a professional sagacity which is not taught in the curricula of the medical schools.

It is to furnish just this knowledge that this book has been written, and its perusal, in fact, its study, may well be recommended not only to every physician, but to every thoughtful adult.

HOW TO SUCCEED AS A PHYSICIAN.

Heart to Heart Talks of a Successful Physician With His Brother Practitioners. Meriden, Conn. : The Church Publishing Company. Price 50cts., Cloth.

This is a neat little book of 125 pages. It contains a great deal of interesting matter under the headings: The Legal and Clerical Professions, Physicians and their Incomes, Quacks and Quackery, Patent Medicines, Why the Profession is Overcrowded, The Requirements of a Successful Physician, Nature *versus* Drugs, To be Successful the Physician must be a good Diagnostician, The Physician should be a Gentleman, Physicians Fees, and Specialists and Specialism. This little book is a most interesting one. It would be a good thing if it were generally read. It would make very useful reading for the intending medical student. Its pages would correct effectually the idea that once through the portals and qualified to practice, the young doctor has entered a veritable Eldorado.

DR. DAVIS ON THE CURE OF CONSUMPTION.

The Self-Cure of Consumption, Without Medicine, With a Chapter on the Prevention of Consumption and other Diseases: By Chas. H. Stanley Davis, M. D., Ph. D., Member of the Connecticut State Medical Society; Physician to the Curtis Home for Old Ladies and Children. New York: E. B. Treat & Company, 1904. Price, 75cts.

Within the past few years, there has been written an immense amount upon the subject of tuberculosis; and one would wonder why another book should appear upon the subject. The author of this little volume has justified its appearance, by collecting into it a great deal of useful information on the subject of consumption. Much attention is given to the prevalence of the disease, and to the means for its prevention. The author states that 150,000 die of consumption annually in the United States; and this through a preventable disease. We trust the book will secure a wide sale, as there is no subject before the profession to-day of greater importance than that of tuberculosis.

A TEXT-BOOK OF LEGAL MEDICINE AND TOXICOLOGY.

A Text-Book of Legal Medicine and Toxicology. Edited by Frederick Peterson, M. D. Chief of Clinic, Nervous Department of the College of Physicians and Surgeons, New York; and Walter S. Haines, M. D., Professor of Chemistry, Pharmacy, and Toxicology, Rush Medical College, in affiliation with the University of Chicago. Two imperial octavo volumes of about 750 pages each, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Canadian Agents: J. A. Carveth & Co., Limited, 413 Parliament St., Toronto. Per volume: Cloth, \$5.00 net; Sheep or Half Morocco, \$6.00 net.

This work presents to the medical and legal professions a comprehensive survey of forensic medicine and toxicology in moderate compass.

For convenience of reference the treatise has been divided into two sections, Part I and Part II, the latter being devoted to Toxicology and all other portions of Legal Medicine in which laboratory investigation is an essential feature. Under "Expert Evidence" not only is advice given to medical experts, but suggestions are also made to attorneys as to the best methods of obtaining the desired information from the witness. The Bertillon and Greenleaf-Smart systems of identification are concisely and intelligently described, and the advantages of each stated. An interesting and important chapter is that on "The Destruction and Attempted Destruction of the Human Body by Fire and Chemicals;" for on the determination of the human or animal source of the remains frequently depends the legal conduct of a given case, and the guilt or innocence of the accused. A chapter not usually found in works on Legal Medicine, though of far more than passing significance to both the medical expert and the attorney, is that on the medicolegal relations of the X-Rays. The responsibility of pharmacists in the compounding of prescriptions, in the selling of poisons, in substituting drugs other than those prescribed, etc., furnishes a chapter of the greatest interest to everyone concerned with questions of medical jurisprudence. Also included in the work is the enumeration of the laws of the various States relating to the commitment and retention of the insane. In fact, the entire work is overflowing with matters of the utmost importance, and expresses clearly, concisely, and accurately the very latest opinions on all branches of forensic medicine and toxicology. The first volume was reviewed in our issue for July, 1903. On that occasion we had much pleasure in speaking highly of the work. The completed work is one of distinct merit. After a most careful perusal of these volumes, and frequently referring to their pages for information, we can say that they are complete in every respect and thoroughly trustworthy.

THE TREATMENT OF FRACTURES.

The Treatment of Fractures: With Notes Upon a Few Common Dislocations. By Chas. L. Scudder, M. D., Surgeon to the Massachusetts General Hospital. Fourth Edition, Thoroughly Revised, Enlarged, and Reset. Octavo volume of 534 pages, with nearly 700 original illustrations. Philadelphia, New York, London: W. B. Saunders & Company, 1903. Canadian Agents: J. A. Carveth & Co., Limited, 413 Parliament St., Toronto. Polished Buckram, \$5.00 net: Sheep or Half Morocco, \$6 00 net.

Four large editions of this work in less than four years testify to its value. The book is intended to serve as a guide to the practitioner and student in the treatment of fractures of bones. The student sees the actual conditions as they exist in fractured bones, and is encouraged to determine for himself how to meet the conditions found in each individual case. Methods of treatment are described in minute detail, and the reader is not only told, but is *shown* how to apply apparatus, for as far as possible, all the details are illustrated. This elaborate and complete series of illustrations constitute a feature of the book. There are 688 of them, all from new and original drawings and reproduced in the highest style of art. Several chapters of special importance are those on Gunshot Fractures of Bone; The Röntgen Rays and Its Relation to Fractures; The Employment of Plaster-of-Paris, and the Ambulatory Treatment of Fractures.

In this fourth edition many new illustrations have been added, thus increasing the accuracy of this part of the work. The text has been thoroughly revised, thereby bringing the book absolutely abreast the times. X-ray plates of the epiphyses at different ages have been arranged. These will be found of value not only as an anatomical study but in the appreciation of epiphyseal lesions. An important addition is that of a chapter upon a few Common Dislocations. This chapter, like the rest of the book, is amply illustrated, and the accepted methods of treatment described.

 PATHOGENIC MICROBES.

The Pathogenic Microbes: By M. Le Dr. P. Jousset, Physician to the Hospital Saint-Jackes; Former Interne Laurent of the Hospitals of Paris; Director of the Laboratory of Bacteriology of the Hospital Saint-Jackes. Authorized translation of Horace P. Holmes, M. D. Philadelphia: Boericke & Tafel, 1903.

This small volume of 200 pages is full of matter and original thoughts upon Pathogenic Bacteria. It is quite impossible to convey an idea of the extent of ground covered by the author. He has the happy faculty of being both concise and clear. He holds that in all the infectious diseases the germ of the disease is a *sine qua non*. He also

makes it very clear that under certain conditions pathogenic bacteria become true suprophytes and cease to possess disease-producing powers. Another point brought out in the work is that some bacteria, quite harmless under certain conditions, become virulently pathogenic under other conditions. Of this fact typhoid fever epidemics are cited. The book is worthy careful study.

SYDNEY MARTIN'S GENERAL PATHOLOGY.

A Manual of General Pathology for Students. By Sydney Martin, M.D., F.R.S., F.R.C.P.; Professor of Pathology at University College; Physician to University College Hospital, London. With numerous Wood Cuts from Micro-photographs and other illustrations, including many in Colors. Philadelphia: P. Blakiston's Son & Co. Toronto: Messrs. Chandler & Massey. 1904. Price, \$4.00.

To begin with, this book is got up in the very best style possible. The binding, paper, printing, and illustrations are all that could be desired. For these features the reader will be truly thankful to the publishers.

Those who have read Dr. Martin's numerous contributions know that he is a recognized authority on pathology. Indeed, it would be difficult to think of anyone who is better able to prepare a work on general pathology. With this fact in view, one examines the present volume with no small degree of expectation, and is pleased with the result as he finds that, as his acquaintanceship with its contents increases, his appreciation for it grows. The subjects discussed in the book are: Inflammation, Changes in body Temperature, Infection, Degeneration and Regeneration, Changes in Circulation, Respiration in Disease, Changes in the Blood in Disease, Hemorrhage and Pigmentation, Effects of Disease of the Liver, Effects of Disease of the Kidneys, Effects of Disease of the Ductless Glands, Changes in Metabolism, and Changes in the Nervous System in Disease. This is an excellent arrangement of the subjects of general pathology.

Each section of the work is treated in a very full and thorough manner, and one cannot praise one section over another. At the present day, however, one turns naturally to the portions of the book dealing with infection. Some 150 pages are given to the treatment of infection and immunity, and it is not saying too much to express the opinion that nowhere else can a clearer exposition be obtained.

Taken all in all, Dr. Martin's work on general pathology is one that can be recommended with great confidence, and is sure to find a large and appreciative circle of readers.

GOWERS' LECTURES ON NERVOUS DISEASES.

Subjective Sensations of Sound and Sight, Abiotrophy, and other Lectures. By Sir William R. Gowers, M.D., F.R.C.P., F.R.S.; Hon. Fellow Royal College Physicians, Ireland; Member of the Society Medicine Russes of St. Petersburg, and of the Royal Society of Science of Upsala, etc. Philadelphia: P. Blakiston's Son & Co. Toronto: Chandler & Massey. 1904. Price, \$2.00

There are ten lectures in the present volume. They deal with a wide range of subjects, but are all on topics with which the eminent writer is familiar and is a world-wide authority. These lectures are: Subjective Visual Sensations, Subjective Sensations of Sound, Abiotrophy, Myopathy, Metallic Poisoning, Syphilitic Diseases of the Nervous System, Inevitable Failure, Syringal Hemorrhage into the Spinal Cord, Myasthenia and Ophthalmoplegia, and the Use of Drugs. These lectures are evidences of wide learning and masterly style. To read any one of them is to enjoy a genuine treat. It can be said of Sir W. R. Gowers in the words of Dr. Johnson on Goldsmith, *Nilil quod tetigit non ornavit*. Each of the lectures throws much light upon the topics discussed in it. Nervous diseases are now beginning to take their proper place in the study of disease in general. Knowledge of the relationship of nervous diseases to other diseases, and vice versa, helps to clear up many obscure things in the work of the physician and surgeon. We know of no one else who can deal with an obscure and intricate neurological problem more lucidly than Sir William Gowers. We can recommend this volume of lectures, feeling satisfied that none shall rise from its perusal without much pleasure and profit.

 FISCHER—INFANT-FEEDING IN ITS RELATION TO HEALTH AND DISEASE.

A Modern Book on all Methods of Feeding. For Students, Practitioners, and Nurses. By Louis Fischer, M.D., Visiting Physician to the Willard Parker and Riverside Hospitals, of New York City; Attending Physician to the Children's Service of the New York German Poliklinik; Former Instructor in Diseases of Children at the New York Post-Graduate Medical School and Hospital; Fellow of the New York Academy of Medicine, etc. Third Edition, Thoroughly Revised and Largely Re-written. Containing 54 Illustrations, with 24 Charts and Tables, mostly original. 357 pages, 5½ by 8½ inches. Neatly bound in Extra Cloth. Price \$2.00 net. F. A. Davis Company, Publishers, 1914-16 Cherry Street, Philadelphia, Pa.

For the general practitioner there is no more important question than that of infant feeding. A reliable book on this subject is indispensable. Dr. Fischer has taken great pains to prepare such a book. He speaks both from experience and extensive reading. His book covers the subject very thoroughly, and is full of excellent advice and formulæ for foods. With such a book in one's library, much of the difficulty of infant feeding vanishes. We predict for the book a large sale.

FOOD FOR THE TROPICS.

A Short Description of Native Produce suitable for Food in Tropical Countries. By T. M. MacKnight. London: W. Thacker & Co., 2 Creed Lane, E.C. : Calcutta: Thacker, Spink & Co. ; Bombay: Thacker & Co 1904. Price 3s. 6d. net.

This is a most useful and instructive little book. It gives a careful accounts of the tropics. These products are classified under the headings: bread vegetables, potato vegetables, the meat vegetables, the butter vegetables, vegetables, sugars, fruits, beverages, condiments, etc. An interesting account is given of the mode of cultivation and preparation of these foods.

 HOWE'S HAND-BOOK OF PARLIAMENTARY USAGE.

This little book is intended to be a quick and reliable guide to the conduct of public meetings. The book is so arranged, that when it is opened at the middle, there is before the eye a complete index to its contents. Under each heading are given all the rules. For example, when the book is opened as stated, and you wish to find out the rules governing the subject "To Re-consider," you look down the page for the positive status, and on the reverse page for the negative status. The author, Mr. Frank William Howe, has shown much skill in the arrangement of the subjects. The publishers are Messrs. Hinds & Noble, 31, 33, 35 West 15th Street, New York City. Price 50c. In strong cloth binding.

 FOX'S DISEASES OF THE EYE.

Diseases of the Eye, by L. Webster Fox, A.M., M.D., Professor of Ophthalmology in the Medico-Chirurgical College of Philadelphia, Pa.; Ophthalmic Surgeon in the Medico-Chirurgical College Hospital. With five colored plates and two hundred and ninety-six illustrations in the text. New York and London: D. Appleton & Co.; Toronto: N. Morang & Co. 1904. Price, \$4.00.

Dr. Webster Fox has produced a text book on the diseases of the eye, which is refreshingly original and modern. In no branch of medicine is there a greater production of volumes, the great majority of which are but repetitions of works by others and which are re-written for reasons best known to the authors. Dr. Fox's book contains many new illustrations, some in color, drawn from cases in the practice of the author. Among the original matter are descriptions of the author's operating table, operations for strabismus (divergent), ptosis, ectropion, treatment for dacryo-cystitis, conical cornea, transplantation of pterygium, also his localiser. The typography, paper and general get up are creditable to the publishers. We can heartily recommend the work as clear, concise, and thoroughly up-to-date.

Aseptic and Antiseptic Preparations and The Treatment of Emergencies after Abdominal Surgical Operations. By George Walkerhagen, M.D., Ex-President Brooklyn Surgical Society; formerly Consulting Surgeon, Norwegian Hospital, etc., etc. New York: E. R. Pelton, 1904. Price, \$1.00.

This book contains many excellent suggestions. For those who do abdominal surgery its pages will be found interesting. It would also prove of much service to a surgical dresser or nurse. We can recommend the book.

PROGRESSIVE MEDICINE VOL. I, MARCH, 1904.

A Quarterly Digest of Advances, Discoveries and Improvements in the Medical and Surgical Sciences. Edited by Hobart Amory Hare, M. D., Professor of Therapeutics and Materia Medica in the Jefferson Medical College of Philadelphia. Octavo, 337 pages, 7 illustrations. Per annum, in four cloth-bound volumes, \$9.00; in paper binding, \$6.00, carriage paid to any address. Lea Brothers & Co., Publishers, Philadelphia and New York.

No worker in medical or allied fields, whether he be specialist or general practitioner, whether his province be pure science, or applied surgery or medicine, can fail to find this series of the greatest service. The man of note who is preparing a paper will find here the modern references with digests of the articles he requires to make his bibliography complete, and the plain, every-day doctor puzzled by an obstinate case can instantly refer to the methods of diagnosis and treatment employed to-day by the most eminent specialists of the world.

It cannot be too much emphasized that this is not a mere collection of miscellaneous abstracts and translations gathered at random, but is a strictly original work in which men of international reputation have written, in monograph form, the advances that are being made in their respective departments, giving references to the original articles with careful digests, and in the light of their own experience and judgment selecting the wheat from the chaff, correlating results from different quarters of the globe, adjusting apparently contradictory observations, and everywhere indicating how and why and where progress has been made. The scope of the present volume includes extensive essays on such important and essentially progressive subjects as cerebral pressure, heart surgery, the treatment of tic douloureux, exophthalmic goitre, the transmission of disease by insects, the theories as to the etiology of rheumatism, tetanus, paratyphoid, modern views on the nature of hay fever, etc., in which the latest work of foreign and domestic observers is fully discussed.

Considered from every point of view, that of authoritativeness, completeness, adaptation to practical needs, agreeable style, availability for reference, convenient form, satisfactory press work, telling illustrations, and marvellously low price, the work is one that the medical profession may well be proud and grateful to possess.

ATLAS AND EPITOME OF OPERATIVE GYNECOLOGY.

By Dr. O. Schaeffer, of Heidelberg. Edited with additions, by J. Clarence Webster, M. D. (Edin.), F. R. C. P. E., Professor of Obstetrics and Gynecology in Rush Medical College, in affiliation with the University of Chicago. With 42 lithographic plates in colors, many text cuts, a number in colors, and 138 pages of text. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Canadian Agents: J. A. Carveth & Co., Limited, 434 Yonge Street, Toronto. Cloth, \$3.00 net.

This new addition to Saunders' admirable series of Hand-Atlases is excellent. It is unfortunate that medical students graduating each year know less about gynecologic operations than about almost any other department of operative surgery. This atlas, therefore, is opportune, and the excellence of the lithographic plates and the many other illustrations render it of the greatest value in obtaining a sound and practical knowledge of operative gynecology. Indeed; the artist, the author, and the lithographer have evidently expended much patient endeavor in the preparation of the water-colors and drawings. They are based on hundreds of photographs taken from nature and reproduce faithfully and instructively the various situations which they intend to illustrate. The text closely follows the illustrations, and we have found it fully as accurate. We consider it of great value to the up-to-date practitioner and surgeon, as well as the specialist.

 OBSTETRICS FOR NURSES.

By Joseph B. DeLee, M. D., Professor of Obstetrics in the Northwestern Medical School, Chicago; Lecturer in the Nurses' Training Schools of Mercy, Wesley, Provident, Cook County, and Chicago Lying-in Hospitals. 12 mo of 460 pages, fully illustrated. Philadelphia, New York, London: W. B. Saunders & Company, 1904. Canadian Agents: J. A. Carveth & Co., Limited, 434 Yonge Street, Toronto. Cloth, \$2.50 net.

Although this work was written, as the author states, primarily for nurses, yet from our interesting examination of it, we firmly believe that medical students will find in it much of value, since the duties of a nurse often devolve upon him in the early years of his obstetric practice. There are really two subjects considered—obstetrics for nurses and the actual obstetric nursing—and Dr. De Lee has combined them so that the relations of one to the other are natural and mutually helpful, presenting this important branch of medicine in a clear and interesting form. The illustrations have not been borrowed from any other works, as is too frequently the case, but have been made expressly for this book. The photographs were taken by the author from actual scenes, and are true to life in every respect. The text is the outgrowth of eight years' experience in lecturing to the nurses of five different training schools.

GOULDS' BIOGRAPHIC CLINICS.

Biographic Clinics. Volume II. The origin of the Ill Health of George Eliot, George Henry Leurs, Wagner, Parkman, Jane Welch Carlyle, Spencer, Whittier, Margaret Fuller Ossoli, and Nietzsche. By George M. Gould, M.D., Philadelphia: P. Blakiston's Son & Company, Toronto: Chandler and Massey, Price, Cloth \$1.00.

Some time ago, we received Dr. Gould's first volume dealing with the ill health of Huxley, Browning, Carlyle, Darwin, and DeQuincy. On that occasion we mentioned that the work Dr. Gould had done in the biographic clinic field was a substantial gain to medicine. The greatest progress in science, religion, and civilization has been accomplished by enthusiasts. Whether all that Dr. Gould contends for will ultimately be accepted by the profession is a matter of small moment compared with the fact that he has so forcibly and ably directed attention to a much neglected subject judged by what is now known of the effects of eyestrain, we think that Dr. Gould has made out a strong case for the position he takes. Indeed, it is within the knowledge of most practitioners to have met with such cases where proper correction of the errors of refraction effected remarkable relief from symptoms very similar to those of the celebrities studied by Dr. Gould. We can most heartily recommend these two volumes to our readers, and extend our congratulations to the distinguished author. The book is handsomely got up.

Aseptic and Antiseptic Preparations and Treatment of Emergencies after Abdominal Surgical Operations. By George Walkerhagen, M.D., Ex-President Brooklyn Surgical Society, formerly visiting surgeon Norwegian Hospital, &c., &c. New York: E. R. Pelton, 19 East 16th street. Price, Cloth, \$1.00.

In this little book of 45 pages, the author gives the general principles of aseptic surgery and the treatment of some of the more important complications, such as shock, typhoid, peritonitis, haemorrhage, vomiting, obstruction. The book will be found very useful for those doing abdominal surgery, or for nurses having abdominal section cases under their charge.

The old established firm of J. G. Ingram & Son, The London India Rubber Works, London, England, whose goods are well known all over the world, makers of surgical and india rubber goods, etc., with the idea of pushing their products in Canada have appointed Messrs. J. Judd, Mason and Brother, of Hamilton, as their agents.

VON BERGMANN'S SURGERY.

A system of practical Surgery. By Drs. E. von Bergmann, of Berlin, P. von Bruns of Tübingen and J. Mikulicz, of Breslau. Edited by William T. Bull, M.D., Professor of Surgery in the College of Physicians and Surgeons (Columbia University) New York. To be complete in five Imperial Octavo volumes, containing over 4000 pages, 1600 engravings and 110 full-page plates in colors and monochrome. Sold by subscription only. Per volume, cloth, \$6.00; leather, \$7.00; half morrocco, \$8.50 net. Volume I just ready. 936 pages, 361 engravings, 18 plates.

This System of Surgery by von Bergmann, von Bruns and von Mikulicz, is, without doubt, the most important work on the subject that has recently appeared. Its first edition in the original, met with such a demand that the earlier volumes were out of print before the later ones were ready for issue. The second edition, carefully revised and brought thoroughly up to date, is the basis of the present English translation. The work has been done by Dr. William T. Bull and his collaborators with great fidelity and thoroughness. They have brought to their work not only enthusiasm and industrious effort but also a wide surgical experience, enabling them to add judicious references to methods of practice which have gained the preference of English and American surgeons. The number of illustrations in this translation greatly exceeds those found in the original—a feature, which without doubt, will much enhance the value and add to the interest of the text.

The work is encyclopedic in character. Many of its chapters exceed in scope and detail special treatises which have been published on their subjects. The great value of the work lies in its practical and clinical character, but there will be found an abundance of pathological data, details of original research and statistical facts, so that there can be no question of the inestimable value of these volumes to the student, the surgeon and the general practitioner. The first volume, which is now ready, covers the following subjects: Injuries and Diseases of the Skull and its Contents; Malformations, Injuries and Diseases of the Ear; of the Face, including Plastic Operations and the Neuralgias of the head; of the Salivary Glands, including Anomalies; of the Jaw; of the Nose and its Adjacent tissues; of the Mouth and of the Pharynx.

The other volumes of the system will follow in rapid succession.

The entire make-up of the volume reflects the utmost credit upon the publishers. In every detail of book-making the volume before us might well be regarded as perfect.

JULER'S OPHTHALMOLOGY.

Third edition. Revised and enlarged. A handbook of Ophthalmic Science and Practice. For Students and Practitioners. By Henry E. Juler, F.R.C.S., Ophthalmic Surgeon to St. Mary's Hospital; Surgeon to the Royal Westminster Ophthalmic Hospital, London. Octavo, 733 pages, with 190 illustrations and 25 full-page plates in colors and black. Cloth, \$5.25, net. Lea Brothers & Co., Publishers. Philadelphia and New York, 1904.

The favor which Dr. Juler's work has so long enjoyed is readily explained by a perusal of its contents.

It is practical from cover to cover, and the author's clear descriptions and concise statements, coupled with telling engravings and colored plates, merit the commendation so freely given.

The volume is very comprehensive, covering every affection of the eye, and it is particularly rich in matters of especial value to the general practitioner, such as questions of diagnosis; directions for the use of instruments; fitting of glasses; testing for color-blindness, imperfection of vision, etc. The sections on treatment are singularly full and satisfactory, and the whole is couched in clear, readily intelligible language.

The new edition shows thorough revision and an increase of about 200 pages in size, with several new plates. As a whole, Juler's work is one of the most satisfactory reference works a physician can have on his shelves, while to the specialist it is almost indispensable.

The publishers have got up the work in excellent style. The paper, type, binding and illustrations are of the best known to the book-making art. He did the American profession a real service in placing before it this Standard work of Dr. Jules.

 COMMONER DISEASES OF THE EYE.

How to Detect and How to Treat Them. By Casey A. Wood, C.M.M.D., D.C.L., Professor of Clinical Ophthalmology in the University of Illinois, and Thos. A. Woodruff, M.D., C.M., L.R.C.P., Professor of Ophthalmology in the Chicago Post-Graduate Medical School, Chicago, etc. 250 Illustrations; 7 Colored Plates. 500 pp. 5x8 in. Bound in Green Buckram, Gold Side-title and Top. \$1.75 net.

For the man in general practice this is an excellent manual. The author is careful to avoid all padding and useless theory, and gives only what is admitted by the best writers to be good treatment. Time is not wasted in the discussion of obscure subjects, and on the rarer diseases. This enables the author to treat fully the diseases usually met with and, at the same time, keep his book to its present size. We can very cordially recommend this little book.

THE MILITARY MEDICAL SERVICE OF RUSSIA.

Editor to the CANADA LANCET.

SIR,—Last month I contributed an article on the Japanese military medical service and it may be of interest to follow this up by some facts about the military medical service of Russia. It may be stated at the outset that facts relating to the Russian army are not easy to obtain. The American army officer attached to the Russian column during the occupation of Peking, in 1900, was able to report but little about it. The succeeding facts are derived from an article by Major John Van Rensselaer Hoff, U. S. A., in the report of proceedings of the American Association of Military Surgeons, 1895, and to Surgeon-General Longmore's Manual of Ambulance Transport.

The strength of a Russian infantry battalion is 1,000, officers, non-commissioned officers, and men, with two or four battalions to a regiment, about the strength of a British brigade, viz., 4,000. All the non-combatants are grouped into a company, called a non-combatant company. The medical personnel are allotted to the units in proportion to strength, thus in a four battalion infantry regiment there are a senior and four junior surgeons, one senior and twelve junior dressers (called "feldshers"), one compounder, fourteen dresser pupils, one hospital sergeant and three hospital orderlies. A cavalry regiment has about 800 men in four squadrons. The medical strength is one senior and one junior surgeon, one veterinarian, six "feldshers," two feldsher pupils and three hospital attendants. The service is essentially regimental, but as the regiments usually correspond in strength with our brigades there is not a very great disparity. The material, tents, etc. of the regimental hospital, accompanies the fighting body and is transported in four medical store carts. There are also four four-horse ambulances and a waggon to carry thirty-two stretchers, two per company. The war strength of a regimental hospital is eighty-four beds. Upon this regimental service is engrafted, in active service, a divisional organization

Military surgeons in Russia have no military rank, but they have a standing of their own in the "chin" or official class. There are no special names for grades. Their standing is really a social or court rank according to the order of precedence. All surgeons are called "vrachi" and they stand in the "chin" from the ninth class, a junior surgeon, to the third class, being the highest medical officer. The highest apothecary ranks with the fifth class. Surgeons in Russia wear a uniform of dark green, the collar and cuffs of the same color, piped with red. The shoulder knots are of silver and smaller than those of combatant rank.

The trowsers are dark green, without stripe and the undress cap of the same colour, with red piping.

The divisional service consists of what is called the "sanitary division" and consists of a bearer company, a divisional ambulance hospital and two "mobile" field hospitals. Longmore states that the personnel of the field hospital consists of eight surgeons, sixteen dressers, fifty orderlies and attendants. The hospital accommodates six officers and 160 men. The bearer company consists of one officer, one sergeant major, six sergeants and 200 bearers. The transport section, of one officer and 108 drivers. There are twenty-four ambulances, an equal number of store waggons, six stretcher carts and two medical store carts.

The "mobile" field hospitals each afford accommodation for ten officers and 200 men. The personnel consists of two surgeons, two other officers (transport), 107 non-commissioned officers and men, four sisters of mercy, fifty-seven horses and twenty-five waggons. Their work, location and movements correspond to the field hospitals of other armies. During a battle these hospitals are established in rear of the line of battle. The divisional hospital ambulance constitutes the dressing station which is located immediately in rear of the fighting line. There are also reserve field hospitals, 240 in number, which in war are established on the lines of communication.

The Russians possess military sanitary convoys, twenty in number, which are mobilized in time of war for the transport of sick and wounded. The strength of each is, one combatant officer in command, two surgeons and ninety-eight men, two sisters of mercy, 137 horses, twenty-seven four-horse ambulances, a kitchen waggon, seven store waggons, and one medical store cart. In time of war the field dispensaries are mobilized. They are intended to supply the divisional and field hospitals with medical stores.

The base hospitals are permanent military hospitals, of which there are eleven in Europe and six in Asia.

The headquarters staff of the medical department of the Russian army consists of one chief surgeon and his assistant, one chief inspector, four principal officials, including an oculist. There is a director-general but it is uncertain whether he is a medical man or not, probably not, as Longmore says that he is assisted in his duties by the chief surgeon. He takes orders from the chief of the general staff and is in immediate communication with the minister for war.

The total strength of the medical department of the Russian army, consists of 2,808 surgeons, 232 pharmacists, 3,804 medical staff, "feldshers," and 3,455 company or regimental "feldshers".

The Russians rely largely on the Red Cross Society for additional help in men and material in time of war. The society is under the immediate patronage of the Empress and is at all times an active organization, in which it differs from the British Society, affording relief from flood, famine, and pestilence, or any great national disaster. It is to be regretted that many important details are wanting in this account of the medical service of Russia, but sufficient has been written to show that they have, on paper at all events, a well organized service, but not very strong numerically. When it is considered that they claim an army of a million men on a peace footing, the medical service seems quite inadequate.

G. STERLING RYERSON,
Colonel, Canadian Army Medical Staff.

MISCELLANEOUS.

EFFICACY OF ANTISEPTICS WITH SPECIAL REFERENCE TO THE MERIT OF GLYCO-THYMOLINE.

By C. H. POWELL, A.M., M.D.

Professor Principles of Medicine and Clinical Medicine, Barnes Medical College, St. Louis, Mo.

EVER since the introduction of Lord Lister's principles to the medical profession physicians have studiously and patiently investigated the many antiseptic agents introduced to their notice from time to time by different pharmaceutical establishments of recognized repute. Some of these preparations have not stood the test, and as a result "have fallen by the wayside." Others in proportion to their merit are filling an appropriate place in the prescription book. Of these there are but a very few indeed, and at the head of them all my experience induces me to place Glyco-Thymoline. This remedy, aside from possessing properties of a most positive nature is handled by the Kress & Owen Company in a most thorough ethical manner. The medical press is selected by this firm to the exclusion of all other mediums in order to keep the Glyco-Thymoline conspicuously before the profession. Not only that, but as a further evidence of the sincerity of the firm in believing their product all that is claimed, a liberal sample is sent any physician who may desire to test Glyco-Thymoline. Without going further into the merits of this solution as an antiseptic possessing decided therapeutic properties, I desire to report a few cases wherein by careful and persistent use this alkaline, alterative solution has given me most excellent results.

Case I. Mrs. M. W., widowed, aged 42, consulted me for nasal difficulty of several months' standing. An examination of the nasal

fossæ revealed several very interesting conditions. There were grouped together possibly seven or eight foci of ulceration, some of these spots ran together presenting more or less of a serpiginous ulceration. Each ulcer was covered with a dirty gray ash colored exudate which adhered firmly to the underlying schneiderian membrane. I first applied on absorbent cotton, a fifty per cent. solution of peroxide of hydrogen, and having removed the purulent secretion sprayed the nose thoroughly with a twenty-five per cent. solution of Glyco-Thymoline in distilled water. I instructed the patient to report the day following for a renewal of the treatment, and to my surprise found a healthy looking surface in place of a suppurating wound. I repeated the spraying of the nasal fossæ some three or four times more, and complete healing took place, the nose returning to its normal condition within a week's time from the first application.

Case II. Mrs. F. K., married, aged 30, was brought to me for a disturbance of the throat, which owing to the fact of a member of the lady's family having recently died of tubercular disease, was a source of much worry and mental anxiety to both the lady and her husband. The tonsils were somewhat congested and showed upon their surfaces little points of deposit dipping down into the tonsillar crypts. I immediately sprayed the tonsils with a full strength solution of Glyco-Thymoline and at the same time gave the lady a six-ounce bottle fifty per cent. strength to use as a gargle. In three days' time she called to get some more of the solution, which she stated was very prompt in relieving her of her troublesome tickling sensation. Upon inspection I found the throat entirely cleansed of all exudates and the hyperæmic appearance of the tonsils was entirely removed, the gland assuming an almost normal hue. I again sprayed the tonsils with a full strength Glyco-Thymoline and renewed the bottle for her, or rather requested her to have the bottle refilled at the drug store. She called again to see me in a few days, and stated she was entirely relieved of all unpleasant symptoms, and did not think further treatment was necessary. I accordingly dismissed her as cured.

“SULPHAQUA.”

“We have examined the packets sent out by this Company for extemporising a sulphur bath. The idea is somewhat novel, decidedly convenient, and thoroughly efficacious.

The heat of the water in which the salts are dissolved induces a chemical inter-action, which will be noticed to take place in the vessels used for solution. A copious precipitate of sulphur is produced, and at

the same time there is a distinct evolution of sulphurous fumes; the sulphur is thus given off in a nascent condition and it appears as an exceedingly fine powder.

The effect upon the bather is peculiarly pleasant: the products of chemical inter-action are free from any deleterious or irritating substance; the whole process is easy, interesting, and speedy; the results are delightful, reminding one of the natural, warm, sulphur baths; and we consider the use would be attended with equally beneficial results in cases requiring such treatment, besides the advantages of having Harrowgate or Homburg brought within our own homes. We certainly recommend a trial of Sulphaqua.

This Company also put up packets sufficiently large to make a bath for the face and hands only. It is important to note that no hydrogen sulphide is evolved, and therefore does not blacken the paint of the bath."—*Health* Vol. xxxii., page 271.

SUPPURATING APPENDICITIS OPENING INTO THE BLADDER.

By DR. ENRIQUE FORTUN,
Surgeon of Hospital No. 1, Havana.

JUAN G., a Spanish merchant, 37 years old, with evident syphilitic antecedents, began to suffer about two months ago acute pains in the right iliac pit, while a tumefaction was observed in that region.

He became an inmate of a clinic of this city, where his case was diagnosed as malignant neoplasm. After remaining about 20 days in said clinic, the patient decided to leave for Spain; in the meantime, he stopped at a hotel here. While there he was taken with violent fever and ague, with a temperature of about 41 degrees C., and the first micturition following this attack did show the presence of a great quantity of pus.

Dr. Parra, who was attending the patient, did me the honor to ask me to assist him. I called on him the night after the evacuation of pus had occurred.

The first symptom to which my attention was called upon examination was the dimension and hardness of the liver, with swellings, the massiveness of which continued uninterruptedly in connection with the massiveness of the iliac pit, in which region (the right iliac pit) an accentuated muscular resistance was observed, though that region instead of being swollen presented a depression, at the bottom of which the rim of the hepatic gland could be felt by the hand. The temperature was 38 degrees, the pulse beat between 80 and 90, and the general condition of the patient was rather satisfactory.

The diagnosis offered no doubt in our opinion: Suppurating Appendicitis with evacuation into the bladder (the urine which was shown to us was extremely fetid and mingled, and it did contain a large quantity of pus) and syphilitic cirrhosis of the liver.

We advised the patient to consent to be operated upon, which he did. On the following day an incision of about 7 centimetres was made into the middle of the depression observed in the iliac pit. We rapidly reached a perfectly defined cavity, which contained a little pus mixed with mucosities. We washed out the cavity with *Hydrozone* and plugged it with iodoform gauze. On the following day, when we dressed the wound, upon careful examination of the cavity, we did not find any connection with the bladder, but we could extract the appendix, which was affected by faeces.

A complete cure was accomplished in a month, and during that time the liver decreased considerably in volume. Since the third day of the operation antisiphilitic treatment was followed.

The communication between the cavity of the abscess and the bladder healed after 12 days of treatment.—From *Revista Medica Cubana* of July, 1903.

RHEUMATIC PAIN AND FEVER.

In *The Medical and Surgical Bulletin* we find the following under the caption of "Acute Articular Rheumatism," by Dr. E. G. Evans:

"Salol is the best intestinal antiseptic we have, and Antikamnia as a pain reliever is, without doubt, unsurpassed; therefore, the combination of these two remedies in the form of the well known 'Antikamnia and Salol Tablets' affords us the ideal medicament for pain and fever in rheumatic conditions. Patients appreciate the fact that when administering Antikamnia, you relieve the pain without giving them morphia, while the salol acts as a germicide and antiseptic, tending to ameliorate generally the symptoms of the disease. Antikamnia and Salol Tablets (each tablet contains $2\frac{1}{2}$ grs. Antikamnia and $2\frac{1}{2}$ grs. Salol) are best given in doses of two tablets every three hours, until ten or twelve tablets are taken during twenty-four hours. The patient's bowels must be kept open and the diet should be light. Alcohol is contra-indicated, and water should be freely and frequently given. The bed covering should not be too heavy, but warm. Cold water packs, as well as hot fomentations are very beneficial."

A REMARKABLE CURE OF A REMARKABLE CASE.

By G. H. F. House, M.D., Ex-President of Indianapolis Board of Health, Indianapolis, Ind., writes: "I have just had such a remarkable cure of a case, that I feel it my duty to report it. November 20th, 1903, I was called to see Mr. B., aged 73 years; kidneys congested; bladder irritable; only one ounce of urine passed in thirty-six hours; both legs three times their normal size; abdomen full of water; heart action bad; difficult breathing. Tested urine, but found no albumen; urine full of pus, blood, urates and phosphates. Put him on Sanmetto and digitalis; punctured the legs (and they have dripped gallons of water—thought he would die). After six days, slight improvement. Kept up treatment, and at this date, January 13th, 1904, the swelling is gone and the breathing easy, urine nearly normal, appetite good, and almost well. He is now on the eighth bottle of Sanmetto. It is the most remarkable recovery I have had in twenty-seven years' experience, and I am compelled to give Sanmetto the praise. It is a grand medicine."

PREVENTIVE MEDICINE.

The Maltine Company of Brooklyn, N.Y. have published this little book for gratuitous distribution among the medical profession. It contains two prize essays. The Maltine Company offered two prizes, one of \$1,000, another of \$500, for the two best essays on Preventive Medicine. Dr. W. Wayne Babcock won the first prize on the subject of "The General Principles of Preventive Medicine," and Dr. Lewis S. Somers the second prize, on "The Medical Inspection of Schools: a problem in Preventive Medicine." There were 209 essays offered. They were examined by Drs. Daniel Lewis, Charles A. L. Reed, and John Edwin Rhodes. The two published essays are of very high merit.

ERGOAPIOL (SMITH) IN DYSMENORRHEA.

J. Ridly Simms, of Racine, Wisconsin, writes as follows regarding the value of Ergoapiol (Smith) in the treatment of dysmenorrhea:—

In congestive dysmenorrhea, and in that form which is accompanied by fetid discharge, the indications are to diminish congestion, by promoting the contractions of the uterus and relieving of the accumulated blood, to stimulate glandular activity in the mucosa, to restore the tone of the uterus and the nutrition of its tissues to normal, and to relieve spasm and pain.

The following cases illustrate the effects which I obtained with the use of Ergoapiol (Smith) in the treatment of dysmenorrhea:—

Some months ago I was consulted by a young woman who had suffered from scanty, fetid menstruation, accompanied by a great deal of pain, since the birth of her first child seven years previously. Her labor had been followed by a tear of the perineum which had been left unrepaired, and also a laceration of the cervix uteri. This patient consulted a specialist, but his treatment did not give her relief. Examination revealed the presence of the uterine and perineal lacerations already mentioned, and disclosed a chronic endometritis that had given rise to a fetid discharge and to pain during each menstrual period. I repaired the tears, curetted the uterus, and hoped in this manner to obtain permanent relief of the patient's symptoms. After she had recovered from the operations, she declared that she was feeling better than she had been for years. But very soon the fetid discharge and the pain returned at each menstrual period, and evidently something else had to be done if I wanted to save my reputation. I then tried local applications, alteratives, uterine tonics, etc., all without avail, until finally Ergoapiol (Smith) was given. The result was immediate relief and a gradual and permanent improvement in the menstrual flow until it was free from pain and devoid of any disagreeable odor.

This patient was evidently suffering from congestive dysmenorrhea which was intensified by the presence of lacerations of the cervix and the perineum which had existed since parturition. The result attained illustrates very well how Ergoapiol (Smith) acted upon the uterus, restoring its tissues to normal condition and re-establishing the menstrual function upon its normal basis.

Another type of dysmenorrhea, that which I term "nervous," but which the authorities term "neuralgic," is illustrated by the following case which recently came under my care:—

The patient was a young woman who had been married two years, but had not borne any children. She stated that she had pain during the menstrual period from the first onset of menses, and at the time of examination she also complained of a fetid discharge. The menstrual flow was scanty and rarely of blood red color. Just before and after the period she had backache and headache, her complexion was unhealthy, not bright and clear as that of her sister, and she appeared older than she really was. She always dreaded the onset of the menses which recurred with a regularity that is not always present in these cases. She was easily excited, and received impressions vividly and indelibly. Her digestion was poor, and she was often sleepless, irritable, and peevish.

Vaginal examination revealed a slightly thickened os and slight endocervicitis with erosions of the cervix. Cod liver oil, malt extract, hypophosphites, and aromatics, in combination, 25 per cent. of each, were given freely during the intervals between the menstrual periods and for three days before the expected menstruation Ergoapiol (Smith) was given in capsules, one being given three times daily until the discharge ceased. At the fourth period after the beginning of the treatment she was relieved of all her symptoms, and was free from pain and fetor during menstruation. Locally, tincture of iodine and occasionally tampons of ichthyol and glycerine were applied. The cure was permanent and in every way satisfactory.

MUSCULAR SORENESS AND RHEUMATISM DUE TO GRIP.

In speaking of the treatment of articular rheumatism, Hobart A. Hare, M.D., Professor of Therapeutics in the Jefferson Medical College and Editor of *The Therapeutic Gazette*, says: "Any substance possessing strong antipyretic power must be of value under such circumstances." He further notes that the analgesic power of the coal-tar products "must exert a powerful influence for good." The lowering of the fever, no doubt, quiets the system and removes the delirium which accompanies the hyperpyrexia, while freedom from pain saves an immense amount of wear, and places the patient in a better condition for recovery. The researches of Guttman show conclusively that these products possess a direct anti-rheumatic influence, and among those remedies antikamnia stands pre-eminent as an analgesic and antipyretic. Hare, in the last edition of his *Practical Therapeutics* says: "Salol renders the intestinal canal antiseptic." This is much needed in the treatment of rheumatism. In short, the value of salol in rheumatic conditions is so well understood and appreciated that further comment is unnecessary. The statements of Professors Hare and Guttman are so well known and to the point and have been verified so often, that we are not surprised that the wide-awake manufacturers placed "Antikamnia and Salol Tablets" on the market. Each one of these tablets contains two and one-half grains of antikamnia and two and one-half grains of salol. The proper proportion of the ingredients is evidenced by the popularity of the tablets in all rheumatic conditions and particularly in that condition of muscular soreness which accompanies and follows the grip. The Antikamnia Chemical Company, St. Louis, Mo., will send samples to physicians on application. Please mention this journal.

DR. HAMILL'S EXCHANGE LIST.

When a physician desires to sell his practice and property it is of first importance that it should be done with as little publicity as possible—hence the purchase and sale of medical practices forms an important department of medical affairs, and one that nearly all physicians find necessary to use at some time or other. Appreciating the needs of the profession in this line, Dr. Hamill has for ten years been perfecting a system which we consider almost faultless as to efficiency, promptness and secrecy, and we cordially recommend Dr. Hamill as an expert in this line and advise our readers to take advantage of his ripe experience when they think of selling out their practice. See list of practices for sale by Dr. Hamill among our advertising pages.

 PEPTO-MANGAN (GUDE).

Regarding Pepto-Mangan (Gude), it affords me much pleasure to inform you that I prescribe your preparation almost daily. It combines palatability, which is of especial importance in pediatric practice, with most remarkably prompt efficiency.

DR. RUEDELL.

Rhaunen, August 16, 1901.

It affords me especial satisfaction to express my pleasure regarding the excellent effect of Pepto-Mangan (Gude). I have employed this preparation repeatedly with great success. The rapid and marked improvement of the appetite in anæmic patients, as well as the improvement in the general condition, was most surprising. I intend to continue the further use of your valuable remedy with the greatest confidence, and remain with an expression of my highest esteem.

DR. LEOPOLD EGLSEER,

District Physician.

Obernberg, a/S. Upper Austria.

As to the outcome of my observations with Pepto-Mangan (Gude), I would inform you that I have derived most satisfactory results from this excellent preparation in chlorosis and anæmia, in nervous dyspepsia, and in all diseases caused by a poor condition of the blood. I therefore prescribe this preparation gladly and frequently, and have often said a good word for it among my colleagues.

DR. MARE ECKSTEIN.

Vienna, August 28, 1901.