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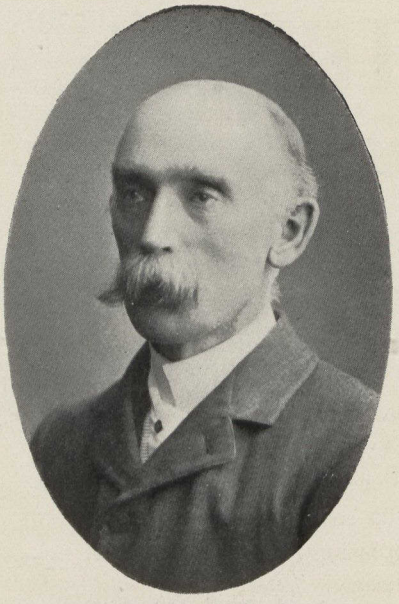

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ULTRAMICROSCOPIC ORGANISMS.

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WITH the discovery of bacteria and the demonstration of their form and dimensions by the older bacteriologists, the question very early arose as to whether, with the recognition of these minute forms of life we had reached the limits of size of organized beings or whether there were not smaller organisms yet which we had not seen or could not see because of their minuteness. This question became the more pressing, the more we sought in vain for the organisms which caused such diseases as scarlet fever, measles, small pox, rabies and many other forms of infection; and the idea was frequently expressed that there must be forms of life smaller than the smallest known bacteria, so small in fact, that they probably were beyond the range of microscopic vision, and that on this account we have failed to find the parasites of these diseases. In regard to bacteria a striking fact may be noted in the remarkable uniformity of size of the various members of the group. They vary, it is true, enormously in the length of their cells or cell complexes, but in regard to the thickness of the cell or the diameter of globular forms, individual members of the group vary very slightly from an average of 1·0 micron to 1·5 microns. If we take one of the largest as an example, called on account of its size *bacillus megatherium*, we find that its width does not exceed 2·5 microns, whilst the smallest of the disease producing forms the bacillus which causes epidemic influenza, has a length of 1·2 microns and a width of 0·4 micron. Recently Erwin von Esmarch has described a putrifactive spirillum from water which is 1-3 microns long and 0·1-0·3 micron wide, the smallest of the bacteria which has ever been cultivated.

The possibility of demonstrating the existence of organisms which are too small to see with the strongest microscope would seem to be a difficult problem, and so it is, and we consequently cannot proceed to the demonstration by ordinary methods of bacteriological research. It has been necessary to adopt certain, what might be called extraordinary methods to give evidence of their existence.

Fortunately for the success of the demonstration, those which have so far been discovered are all parasitic and consequently experiments can be made by animal inoculation and the presence of the hypothetical parasites demonstrated by the disease produced in the animal. In addition to this, however, we have in the laboratories, filters which can successfully filter out the vast majority of known bacteria and which have been used regularly for this purpose for many years. These filters are all of the same type, in that they have pores so small that bacteria cannot be washed through them. The first to be manufactured consisted of an unglazed porcelain and was called the Pasteur-Chamberland filter, but there are now a number of different forms such as the Berkefeld which consists of compressed infusorial earth, and which are equally successful. The impermiability of a Pasteur-Chamberland or a Berkefeld filter to bacteria is due to the fact that the minute passages or pores are not only small but tortuous and consequently the first organisms which pass on to the surface or into the mouths of the pores are caught and form a film which assists in rendering the filters even more effective. On the other hand it has been shown that many bacteria which cannot be driven through these filters by pressure can grow through their walls if given time and especially if they have the power of independant motion. The effectiveness of the filter is therefore due to the thickness of the walls and the tortuosity of the passages as well as to their minuteness.

An organism which could pass readily through such a filter would probably be of ultra microscopic size and it has consequently been by a combination of the method of animal moculation and filtration through such a filter that these organisms have been discovered.

Practically the first knowledge which we have of such minute living creatures resulted from the work of Loeffler and Frosch upon foot and mouth disease. These investigators undertook for the German Government a study of this disease which is a serious menace to the stock raising industry of various parts of the world and has for the human race the additional interest in that it is communicable to man.

In this disease, the characteristic feature is the presence of small vesicles or blebs upon the mucous membrane of the mouth and lips, and also about the hoofs of the forefeet. The eruption of vesicles is accompanied by more or less constitutional evidence of disease. The disease is exceedingly contagious, sweeping through a herd or from herd to herd with great rapidity. The vesicles on puncture yield a small amount of clear serous fluid and Loeffler and his colleague found that the contagion, whatever it was, was present in this serum. Micro-

scopic examination of this fluid did not show anything which could be interpreted as a living organism although a minute quantity of it was sufficient to infect another animal. They therefore assumed that it was probably ultra microscopic and endeavored to see if it would pass through the pores of a Pasteur filter. Their results showed that the fluid is equally contagious after passing through the filter and they therefore concluded that it was smaller than any known organism.

The objection might have been raised to their interpretation of these results, that they were dealing with an excessively virulent soluble poison. To meet this objection they proceeded as follows. They found that the minimum infecting dose of the fluid from the vesicle was $\frac{1}{50000}$ c.c. They therefore, after diluting the lymph and passing it through the filter, inoculated animal 1 with $\frac{1}{10}$ c.c.; from the vesicles which developed upon this animal they collected the lymph, (about 3 c.c.) refiltered and inoculated a second animal with the same amount and so on through a series of six animals. Given the same amount of lymph collected in each case and the same dilution, we see that if it were only a poison the last animal would have received less than one two billionth of a c.c. of the original lymph. As it had been demonstrated that at least $\frac{1}{50000}$ was necessary for infection it is evident that reproduction must have taken place.

Another of these interesting organisms has been discovered by Nocard and Roux in the so called contagious pleuro pneumonia of cattle. The cause of this disease has been looked for by a number of investigators, but although numerous bacteria had been isolated, no one of them turned out upon further study to be the essential parasite. Nocard and Roux proceeded to investigate in a somewhat different manner. They demonstrated that the contagium was present in the serous effusion in the pleural cavity and in the lungs, but again could see nothing: they therefore tried this experiment. A sterilized collodion capsule, a little larger than a ten grain quinine capsule, was filled with sterilized bouillon, inoculated with a trace of the serous fluid and placed by operation in the peritoneal cavity of a rabbit. After a time it was removed and was found to have become milky or opalescent. In this opalescent fluid, it was shown by inoculation the organism was present in increased numbers and upon microscopic examination it was possible to see enormous numbers of minute dancing points, so small that no structure could be made out with the highest magnification. This virus would also pass through a Pasteur filter. Here we have a parasite just upon the borders of visability.

Somewhat, later Beyerinck, a Dutch bacteriologist turned his attention to a curious disease of the tobacco plant, the so called mosaic disease.

This disease produces as its prominent symptoms the destruction of the chlorophyll of the leaves with the result that they become covered with yellow spots. It can be transmitted from leaf to leaf and from plant to plant by inoculation, the slightest trace of juice from the mosaic spot being capable of setting up the trouble in another plant.

Microscopic examination and culture methods were unsuccessful in revealing any bacterial organisms. The juice seemed absolutely clear and transparent, under the highest magnifications, although evidently very contagious. Beyerinck applied the filter test, and found that the filtered juice was equally virulent, and therefore concluded that here also we were dealing with an ultra microscopic virus. He went, however, a step further, and showed what was still more wonderful—that the contagion was diffusible—that it would pass by diffusion through a layer of agar jelly, just as a salt in solution might pass, and he therefore announced that he had discovered a *contagium vivum fluidum* or, really, a soluble toxine, capable of reproduction.

Another animal disease, which for some years baffled investigators, was a type of chicken disease which prevails in northern Italy. It was for a long time confused with the so-called chicken cholera, which is due to a well known bacillus isolated by Pasteur. But further study sufficed to separate it from this disease, and numerous attempts were made, without success, to cultivate from infected birds a specific micro-organism.

Within the past year, the discovery has been made by Centanni and by two Austrian observers, independantly, that in this particular disease, we have to do with a filterable virus. The blood of the animals contain the virus, and it is intensely virulent. A needle dipped in the infected blood, wiped off, and inserted beneath the skin of a healthy fowl, leads to its death in about thirty hours. This infected blood, when filtered through the densest of the Pasteur filters, does not show the slightest diminution in its virulence, and yet microscopic observation fails to reveal anything. Here again we have an example of a parasite of ultra microscopic size.

There are several other diseases of domestic animals which, as a result of the filtration test, combined with the failure to demonstrate organisms by the high magnifications, are to be classed as due to ultra microscopic organisms. One of the most important, recently discovered, is the African Horse Sickness, which McFadyen, in 1900, showed was due to a filterable virus. This virus, not only passes freely through the Pasteur filter, mark F, but even through the most compact form, mark B, which will hold back the virus of foot and mouth disease.

But undoubtedly the most important of all of these ultramicroscopic viruses, as far as man is concerned, is that of yellow fever.

It has this additional scientific interest that its demonstration has been of the most complete character and wonderful practical results have flowed from the careful study of the conditions of transmission.

Our present complete knowledge of yellow fever we owe to the late Major Reed, of the U S. Army Medical Service, one of the most eminent and reliable of American Bacteriologists, and his associates—Carroll and Agramonte.

Yellow fever is a disease which has been studied with the greatest assiduity ever since the development of bacteriological methods, and many have been the bacteria which have been isolated and made responsible for its ravages.

One of the earliest investigators was Stenberg, and his work is a really wonderful monument to the value of negative evidence. For although he isolated an immense variety of bacteria from yellow fever patients he did not venture to connect any one of them specifically with the disease, and only risked calling attention to the more frequent occurrence of a certain form which he called *bacillus x*. It is not necessary to enumerate all the subsequent students of this subject, but some years ago Sanarelli, an Italian, trained at the Paris Pasteur Institute, went out to South America to study yellow fever, and came back with the announcement that he had at last discovered the cause in a form which he called *bacillus icterogenes*.

He was a tried and careful observer, and his work had the seal of the Pasteur Institute, and it was accepted by the majority of bacteriologists, so much so that we kept our cultures of *bacillus icterogenes* under lock and key for fear we should be responsible for the spread of the dreaded Yellow Jack.

However, doubts began to arise when Stenberg demonstrated that Sanarelli's bacillus was his *bacillus x*, and a little later Major Reed demonstrated that both the Sanarelli bacillus and *bacillus x* were simply varieties of the hog cholera bacillus.

With the discrediting of *bacillus icterogenes* the work had to begin all over again, and with the finish of the Spanish-American War Reed and his associates proceeded to Havana to study yellow fever in one of its endemic centres.

But they went with the accumulated results before them of a series of very important investigations into etiology and disease transmission, viz., with the results of Manson's and Ross's work in regard to the transmission of malaria by the mosquito. As early as 1881, however, a

Havana physician Dr. Carlos Finlay had propounded the view that the mosquito was responsible for the transmisson of yellow fever and it was natural that Reed and Carroll should turn their attention to the influence of the mosquito.

The results of the work of these investigators was to show that yellow fever could be communicated by blood taken from patients on the first or second day of the disease. That it could be transmitted by a mosquito (*Stegomyia fasciata*) which had sucked the blood of a yellow fever patient, but only 12 or 25 days after the insect had had its meal of blood. That is the parasite required to live a certain time in the mosquito. Further they showed conclusively that it could not be transmitted by fomites.

The practical outcome of this work has been that by excluding mosquitoes from the sick, *i.e.* prevention of infection of mosquitoes, and exclusion of mosquitoes from the well, *i.e*, prevention of infection by mosquitoes: it has been possible to rid Havana of yellow fever. A practical result in disease prevention which has never been surpassed.

But the special interest which we have in this virus of yellow fever is in the fact that microscopic examination and culture methods failed to show organisms in the mosquitoes or in the blood during the first two days.

It was natural then that the filtration test should be applied and with positive results it was shown that the virus passed freely through a Berkefeld filter which was impermeable for bacteria.

It is quite probable that other human diseases may be found to be due to ultra-microscopic organisms but as far as some of the disease of as yet unknown etiology are concerned, this is not likely. It seems that rabies for instance is not filterable. It is held back by the Pasteur filter.* Similarly vaccine virus will not pass through the filter. In regard to other diseases we do not know anything definite.

We may now ask ourselves what is the nature of these minute living particles? Are they simply smaller bacteria than we are accustomed to deal with, or are they a minute species of some type of animal parasite, or do they belong to a class of organism smaller and simpler than anything we have yet considered possible?

These are difficult questions to answer, but in regard to the first, we may perhaps be a little more positive.

I called attention at the beginning to the marked uniformity of size among the bacteria. That in itself is no proof that there may not be bacteria many times more minute than those we are accustomed to, but it is a presumption against that view. A more important reason

*Recent work seems to show that the virus of rabies can be filtered through the most permeable of these filters.

however, is in the fact that we have not yet met with an ultra-microscopic organism of a non pathogenic character. They are all disease producers and if there were saprophytic organism of this character they would certainly have been found, because it is the commonest experiment in a laboratory to pass fluid through a Pasteur filter in order to sterilize them without heat. I only know of one observer who purposely filtered a large number of different putrifying mixtures, both animal and vegetable, with the hope of finding a saprophytic ultra-microscopic organism. This was von Esmarch, and he failed entirely in a very large series of experiments, only finding a small spirillum which would pass fairly readily through the most permeable of the Pasteur filters.

It is probable that the virus of contagions pleuro pneumonia does belong to the bacteria. It is, as I pointed out just visible, and it is also cultivable outside the body. But this is the only one of this group, which I believe can be assigned to the bacteria. As we shall see, it is probably only slightly smaller than the width of half a wave length of the middle part of the spectrum, and consequently does not really differ much in size from the ordinary bacteria, and very slightly from such a minute form as the bacillus of influenza.

But in regard to the truly ultra-microscopic forms, such as the virus of foot and mouth disease, the fowl plague of northern Italy; the African horse sickness and yellow fever, we are in the greatest uncertainty as to position. It is true that in regard to Beyerinck's virus of the tobacco mosaic disease, he cuts the knot at once by calling it a contagium vivum fluidum that is a living reproducing molecule or molecular complex so small and so simple that it is practically in solution in the fluids in which it is living and multiplying. There is nothing, *a priori*, to be urged against this view, but if such is the nature of these viruses, then we have to do with a new series of chemical compounds, with which we have as yet had no experience.

The nearest approach to a condition of matter comparable to such a living molecule is in the enzymes or unorganized ferments in the animal and plant body or the so called catalytic agents, such as colloidal platinum. But these although active in most minute quantities, yet are definitely used up and cannot reproduce themselves.

There is really no argument to offer against this view except that we naturally are loath to accept the existence of such a substance until we can more definitely prove it. If this should be the explanation, however,then we would be getting much closer to the hypothetical first form of life upon the earth in that the distance between a living reproducing molecule or molecular complex and a molecule of dead organic matter must be very short.

The conditions which govern the destruction of these ultramicroscopic parasites have been studied viz.: the thermal death point, and the effect of disinfectants, and it is found that they do not differ materially in susceptibility from the higher and larger bacteria. For instance, moist heat of 55° C. for ten minutes destroys the virus of yellow fever, but the spirillum of asiatic cholera is destroyed by 52° C. for ten minutes Solutions of fluid disinfectants such as carbolic acid and mercuric chloride act in the same way upon them as upon bacteria, but in this they resemble also the enzymes and even the inorganic catalysers, as Bredig has shown.

There is only one fact which it seems to me rather militates against this hypothesis and that is the one discovered by Reed and Carroll in regard to the virus of yellow fever.

They found that the mosquito which had become infected with the virus by feeding upon the yellow fever patient was not capable of transmitting the disease until at least twelve days had elapsed, and that then the incubation period in the infected person was five days. They also showed that 1.5 c. c. of the blood serum of a yellow fever patient withdrawn during the first two days of the disease and injected into a second person produced the fever in about forty-eight hours. Now it may be argued that the long sojourn in the body of the mosquito was necessary for a sufficient multiplication of the virus to produce an effective infection or that that time was necessary for the passage through the stomach to the poison glands, but it was found that the bite of the infected mosquito was harmless after eight or ten days, but harmful two or three days later, and we can hardly think that the difficulties of transit alone were sufficient to account for twelve days in travelling from the stomach to the poison glands. The phenomenon resembles much more that which appears in the transmission of malaria by the mosquito. Here the length of time which elapses is due to the parasite undergoing a necessary cycle of its existence in the body of the insect which results in the formation of minute sickle shaped spores which then travel to the poison gland and are injected into the next person bitten.

If the twelve days which the yellow fever virus passes in the body of the *stegomyia* is required for the completion of say a sexual phase of existence then we would have to place it in the animal kingdom as an ultra microscopic form related to the malarial parasites.

It will be seen, however, that a great deal more light must be thrown upon the subject before we can definitely place these invisible parasites in the scale of organized being, and the difficulties in the way are very great, first because of their minute size, second because as yet

we do not know how to cultivate them, and thirdly because they are all parasites and consequently can only be studied in the living organism.

In regard to their minute size the question may be asked, must they be definitely placed for all time outside the range of microscopic vision or may our optical equipment yet develop to such an extent that we may demonstrate their organism and even smaller particles?

The theoretical limit of the power of the microscope to demonstrate structure is about 0.25 micron, *i. e.* one half a wave length of the middle part of the spectrum. Below this magnitude minute particles will no longer show structure but will appear as diffraction discs. The smallest visible particle with the highest power of the microscope, structure being neglected is 0.05 micron so that our organism of contagious pleura pneumonia must be in size somewhere between 0.05 micron and 0.25 micron all the others must be under 0.05 micron. With ordinary methods they must always remain invisible but about a year ago Siedentopf and Zsigmondy, with the assistance of the Zeiss firm constructed an optical device which may lead us some distance in determining the approximate size of these parasites although it will never reveal to us anything of their structure. These investigators wished to study the condition of colloidal gold in the so-called gold ruby glasses. The point to be determined being whether the gold was distributed as discrete particles or continuously through the glass. They approached the question in the same manner as Tyndall many years ago attacked the question of the presence of fine dust particles in the atmosphere, viz., by the use of a fine pencil of sunlight.

By means of a heliostat, a spectroscopic slit aperture and a series of condensing lenses a very fine slit of light was thrown into the glass at right angles to the line of vision. The plane of light was observed by means of a very high power microscope and when this was sharply focussed the light plane appeared as a dark ground filled with enormous numbers of brilliant particles. Each particle showed no structure, simply a diffraction disc due to the light being turned and thrown into the tube of the microscope but nevertheless counts could be made and the size of the particles could be estimated.

The unit of measurement which they take is that used by the physicist and chemist, viz., the millimicron, written $m\mu$ $\frac{1}{1000000}$ mm, or $\frac{1}{1000}$ micron, and they found the size of the particles in the following manner. It can be demonstrated that the diffraction disc from particles smaller than .006 microns ($\frac{6}{1000000}$ mm) would be too small to see, consequently the size must vary between .25 micron and .006 micron. The number in a given cubic area of glass was counted, the amount of

gold estimated chemically, and from these data and the specific gravity of gold the probable size calculated. By this means the smallest particles seen were estimated to be about .006 micron, whilst the average size was about .05 micron.

Now if we remember for a moment the estimated size of a molecule, varying from say 0.5 millimicron for the largest, or according to other authors 2 millimicrons for a molecule of albumen, down to .05 millimicron, we see that the smallest particles that this method can reveal is still some distance from molecular size.

But if the method were applied to our ultra microscopic particles it might be possible to estimate how closely they approach the size of a molecule.

Recently Raehlmann, in the *Muenchener Medicinische Wochenschaft*, has applied the method to the study of coloured solutions and to solutions of albumen. In the albumen solutions he was able to see very minute particles, which disappeared when the solution was heated to the coagulation point. In glycogen solutions, when sufficiently dilute, particles could also be seen as well as in glucose and milk sugar solutions, peptone solutions showed an exceedingly faint diffraction cone, but individual particles could not be seen.

With a glycogen solution of proper concentration this interesting experiment was performed. A drop of diastase was added to the fluid, and immediately the cone of light in the microscope disappeared, and in their place larger and more scattered disc could be seen, which gave, according to Raehlmann, the same picture as that of dextrine or glucose. He thinks that in the glycogen what was seen was a special type of molecular complex, determined probably by the form of the simple molecule, and that by the addition of the diastase he was able to watch its passage into the isomeric sugar.

VISCERAL MANIFESTATIONS OCCURRING IN THE ERYTHEMA GROUP OF SKIN DISEASES.

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A MOST interesting and original paper on the "Visceral Manifestations of the Erythema Group of Skin Diseases" appears in the current number of *The American Journal of the Medical Sciences*, from the prolific pen of Professor William Osler. The perusal of it calls vividly to mind a long, trying, and in many cases obscure case which recently has been under my care. It also raises many points of interest

in connection with that most polymorphous group of skin diseases—the erythemata.

In the group are usually included "simple erythema, erythema exudativum, herpes iris, erythema nodosum, certain of the purpuras, urticaria and angio-neurotic oedema." While these diseases differ widely in causation, appearance and prognosis, they possess in common the fundamental condition of vascular dilatation, plus exudation of blood or serum, usually the latter. The organ which usually bears the brunt of the disease is the integument, but occasionally, either along with such manifestation or without it, the deeper structures are attacked apparently in the same way. The organs most apt to be thus involved are the kidneys, and this was the cause of death in most of Dr. Osler's series, but any organ or structure may apparently suffer in the same way.

Dr. Osler's series consists of 29 cases of erythemas plus visceral complications, and seven of these proved fatal. As regards the age of occurrence,

8 were in individuals under 10 years of age.
10 " " " 20 "
8 " " " 30 "
None between 30 and 40 years of age.
2 " 40 " 50 "
1 " 50 " 60 "

My case was 63, and hence older than any of these. There were eleven females and eighteen males. The following is the description of my case:—

Case.—Mrs. A., aged 63. First seen in December, 1902, for swelling of the ears, nose and eyelids, with some nausea and vomiting. Duration of illness, about two years. *Previous history*—She had been an unusually healthy woman until the present illness began, two years ago, never having been seriously ill until her last (third) confinement, when she was five months in bed. Had always lived an active and abstemious life, and been an unusually small eater. No history of rheumatism, nor of any previous erythematous threatenings. Never had "nettle rash."

Family history—Negative.

Present illness—About two years ago, while feeling in her usual good health, a spot appeared upon the left thigh, quickly followed by several more in the same region. They were all of the same nature—white in the centre, surrounded by redness, were raised above the surface and were itchy and burning. After a while they became bluish in the centre. They lasted for several months and then gradually faded. During part of the time that they were present there was a

good deal of gastric disturbance. By the spring they had completely disappeared. The patient spent that summer (i.e. 1901), on the Continent and remained well, but on the voyage home patches of the same nature as the ones described appeared on the right thigh, and then gradually disappeared in the same way. The following summer (i.e. 1902), the ears became "inflamed" and much swollen and distorted, and they have never quite recovered, although they have improved from time to time. A few weeks before I first saw her, the eyelids became swollen and reddened, and the conjunctivæ much congested and lastly, the bridge of the nose was affected in the same way, accompanied by some obstruction in nasal breathing, pointing to involvement of the nasal mucosa.

The bowels have on the whole been regular.

Present condition. Patient is a rather pale, flabby woman of about 110 lbs. weight. Temperature 98°—99.5°; pulse 84, regular, and of rather high tension. Vessel wall normal for the time of life. The skin is normal except for the condition to be described. Both ears are greatly swollen and are distorted, being bent forward on themselves. They are hot to the touch and are tender on pressure. Are bluish red with a smooth dry surface. They burn and ache. There is no deafness and the external auditory meatus remains open. Round both eyes, there is much swelling of a similar nature which almost closes the eyes. The conjunctivæ are deeply engorged and there is some photophobia. Over the bridge of the nose is a slight patch of similar swelling, and this (as the history states) involves the interior of the nose, and she is forced to breathe chiefly through her mouth.

The tongue is somewhat furred and the breath is foul, and there is nausea and some vomiting.

The urine is scanty, very acid, and shows a heavy urate deposit on standing. Sp. gr. 1030. no albumen or sugar and nothing further on microscopic examination. Respiratory and other systems appear to be normal. The patient is depressed or sleeps badly.

The diagnosis of erythema multiforme in a lithæmic subject was made.

The patient was put upon a pure milk diet, was instructed to drink much water (which was very distasteful to her, by the way), a drachm of magnesium sulphate was given every morning and salicin in 10 grain doses thrice daily was ordered. The local condition was attended to by Dr. J. M. MacCallum who had referred the case to me for general treatment.

She improved very quickly at first, and four days later the following note was made:—"Much better. Erythema on nose disappeared in two

days. Ears and eyes not yet well. Spec. gravity of urine 1022. feels well and hungry. Bowels regular. Temperature normal. Is more cheerful."

After that the ears and eyes gradually improved and three weeks from the time that she was first seen (*i.e.* on January 5th, 1903), the following note occurs: "Face now well, but some obstruction still to nasal breathing. Has pain in the right hip, which is present only when she moves the limb but is then severe. Nothing to be seen or felt on examination." This condition gradually improved and was practically gone on January 20th, when a new invasion was noted as follows: "At first pain and redness on the left side of neck, then gradually this shifted to the right side. Three days ago patient lost her voice but can say "ah" in a low key. No stridor. To-day, has great difficulty in swallowing and the saliva collects in the fauces. Slight pain in the region of manubrium sterni. Nothing abnormal can be seen on examination of fauces."

24th January. "Some inspiratory stridor has developed. The voice has partially returned, so probably obstruction is below glottis."

26th January. "Has been very ill with tracheal obstruction, producing great stridor, chiefly of the inspiratory type. The stridor is dry. Voice partially present. There is great indrawing of the chest during the laboured inspiration, and it is evident on examination that the air enters the left lung with especial difficulty." Dr. MacCallum could see nothing abnormal in the larynx on laryngoscopical examination. During the night of 25th January, the obstruction became so great that considerable cyanosis developed. A 200th of a grain of atropine sulphate was given by the mouth and repeated in four hours. It produced great dryness of the throat, with dilatation of the pupils, with flushing and excitement. One-eighth grain of morphia hydrochlorate then given hypodermically produced heavy sleep which lasted for hours. This susceptibility to these two drugs was noted on several subsequent occasions. On awakening from the heavy sleep, the patient vomited and the obstruction was somewhat relieved; but on February 6th, nearly proved fatal again. After that it gradually died away, and on the 21st February it was noted that "the throat and trachea are now well, but both knees are swollen, red and tender. There is no fever." At the end of March the knees were nearly better, but pains and redness appeared in the shoulders. For the next month she kept fairly well, except for a short dry cough, apparently due to an irritation in the trachea.

On 1st May, she went on my recommendation to a watering-place, where the water is largely charged with sulphur. On 14th May I saw

her, as she was not so well, and found her coughing frequently, though no signs of respiratory trouble could be made out on physical examination of the chest. The temperature was 102° at night. Both feet were swollen, reddened and hot, especially about the ankles, and there was considerable œdema which pitted deeply and easily on pressure. Several of the interphalangeal joints of the hands were swollen in a similar manner.

She returned to town in the end of May, and on 5th June it was noted that "the feet are still swollen and œdematous Knees and other joints have improved, and the cough is better. Weight 91 lbs. (a loss of nearly 20 lbs.)".

13th July. "Weighs 94 lbs, cough gone. Tongue fairly clean; bowels regular; all redness now out of joints, but feet are still considerably œdematous; knees are rather stiff and veins over them are prominent."

She remained comparatively well from this time until the end of September when a recurrence of the tracheal obstruction took place and proved fatal, the heart becoming weak and irregular before death. To sum up, during an illness of nearly three years duration the erythematous process attacked successively the following parts: Skin of left thigh; skin of right thigh; ears *i.e.*, auricles; eyes; nose, including its mucous membrane; right hip; left side of neck; right side of neck; larynx; fauces; trachea and left bronchus; knees; shoulders; feet; hands; trachea again (producing death). It usually left one part as soon as another was attacked, but often the processes in two parts overlapped.

I have scarcely mentioned the treatment of the case as the results were chiefly negative. Everything which could possibly remove toxins of a gouty or rheumatic nature from the blood was tried and the case exhausted my resources, and apparently those of the several consultants who saw the case with me.

The inhalation of oxygen certainly gave some relief when the patient's power of obtaining air was limited by the stenosis of the air passages. I have already mentioned the marked idiocyncrasy that existed in the case towards atropine and morphine.

The pathology of these cases is not very clear, but the essential condition appears to be a localized vaso-motor dilatation, probably of the nature of paralysis. Raynaud's disease consists in a localized vaso-motor spasm, and this disease—erythema, appears to be of exactly the opposite nature—spasm in the one case and paralysis in the other. "The histological appearances consist in a dilatation of the vessels, cell proliferation around the vessel walls, some emigration and œdema of the lymph spaces round the vessels and in the cutis in different distribution." (C. Allbutt, System of Medicine, Vol. VIII. p. 672).

The causation of erythema multiforme is often obscure and varies in different cases. Drugs, septicæmia, acute specific fevers, especially acute rheumatism, may all cause different phases of the condition in certain individuals.

It is only natural to suppose that in individuals so affected, a special vaso motor instability must exist. Dr. T. D. Savill (*Lancet* January 30th, 1904) would have us believe that most cases of erythema are dependent more or less upon hysteria. He says, "Evidences of the hysterical diathesis can be revealed in between 85 and 90 p. cent. of my hospital cases of urticaria factitia. erythema (all kinds,) and circumscribed œdema taken collectively." And again he adds, that "exudative skin diseases (*i. e.*, urticarial, erythematous and hemorrhagic exudations) are products, in widely varying proportions, of reflex and emotional excitability *plus* hæmic changes. Among the co-operating causes sometimes in operation may be mentioned toxins of gastro-intestinal origin, articles of diet, traumatism, toxins of insects and other causes to be considered hereafter. But without the vaso-motor instability, innate—*i. e.*, hysterical—or acquired, these cannot act.

To my mind, at least, Dr. Savill has gone much too far in using the terms innate vaso-motor instability as another term for hysteria. All of us have seen many examples of urticaria, erythema from insect stings, tache cerebrale, etc., where no hysteria existed.

In the case of Mrs A. above recorded no such instability seemed to have been present until the onset of the disease which within three years proved fatal, and she was certainly not hysterical. And yet probably an idiosyncrasy towards some poison existed in a dormant state and as soon as that poison appeared in the blood the disease occurred. What the nature of the poison was is quite obscure. When first I saw the patient she was lithæmic, but the removal of this disorder made little or no difference in the erythematous disease and one must assume some other poison than that of gout to be to blame. From the fact that the disease continued, although during most of its course the gastro-intestinal tract was apparently in perfect order, we may probably infer that the poison was of tissue rather than or gastro-intestinal origin.

Cases of exudative erythema appear sometimes to be epidemic and such an epidemic is mentioned by Gall (quoted by T. C. Fox in C. Allbutt's System of Medicine, Vol. VIII.,) as occurring in Bosnia amongst soldiers. Two cases that I recently saw support this theory. They were both of the erythema nodosum type and occurred almost simultaneously in the person of two women who occupied the same bedroom.

In all Dr. Osler's series, the deeper viscera were affected and it is, of course, to this complication of erythema that he calls special attention. In no less than 14 out of the 29 cases did acute nephritis occur and uræmia accounted for five out of the seven deaths.

In my case the trachea was the only deep viscus affected but no more terrible complication could have occurred.

ON THE TREATMENT OF VARIOUS FORMS OF CUTANEOUS DISEASE BY THE X-RAYS AND LIGHT. [1]

By ALLAN W. JAMIESON, M.D., F.R.C.P.Ed.,
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THE epidermis when structurally intact has hitherto offered such an impenetrable bulwark and so successfully protects the underlying structures, that agents designed to exert action on tissue elements only very little beneath the surface have been found uncertain and inefficient. No doubt this statement—as Unna has shown—requires modification when the epidermis has become unsound and therefore porous. A certain, sometimes an undesirable, amount of absorption is in such circumstances possible, but this very unsoundness restricts our efforts, as the integument is apt then to resent interference, and harm in place of good may easily be wrought. The means hitherto at our disposal have either been direct caustics, or those which occasion irritation in the first instance. Of these latter, iodine may be taken as an example. In Unna's opinion there are a few substances, carbolic acid, resorcin, salicylic acid, and cantharidin, which can, acting from the surface, induce increased mitosis, and thus modify cellular changes within the substance of the skin. But even these, if the effect is kept below evident irritation, act by producing an exaggeration of normal moulting, a renewal which exceeds the natural. Quite recently, however, science has introduced agencies which have marvellously augmented our powers. In the x-rays assuredly, in the Finsen light under favourable conditions, in radium and high frequency currents, we have sources of energy which can influence the various tissue elements in and beneath the epidermis.

Till now it is only with the first two of these that my experience deals. Radium is not yet procurable, and we have not so far availed ourselves of the high frequency current. The literature of the x-ray and light treatment of cutaneous diseases has now reached such proportions and expresses such varied views that it seems inadvisable in the

[1] Read before the Medico-Chirurgical Society of Edinburgh, January 8th. Scottish Medical and Surgical Journal, February.

time available to attempt any resume or analysis. It appears preferable, therefore, to limit oneself to the consideration of the results obtained in the Royal Infirmary since these methods have been employed there. When we commenced to use the x-rays we had the old spring contact breaker, which, besides other disadvantages, did not enable us to procure a satisfactory quantity or quality of rays, and the effects were hardly as felicitous as we had anticipated, indeed were disappointing. But as soon as a mercury motor interruptor was substituted an immediate change was perceptible, our control over the influence we desired to produce became immensely greater, and in suitable cases improvement was very soon observable In employing the rays we have proceeded on the principle that in dealing with an agent still so mysterious and so capable of doing mischief as well as good, constant supervision must be exercised, and the cases under treatment are regularly inspected at short intervals. In this way the earliest signs of reaction are, as a rule, detectable, and exposures can be stopped before this has gone beyond its initial stage. There are indeed instances where reaction does not show itself till days, occasionally even weeks, after the last exposure, but when it appears thus remotely it is seldom severe.

Another point which has been closely considered is the due protection by lead masks of parts other than those involved in disease. This screening cannot always be perfectly accomplished. Thus sometimes affected areas encroach on bearded portions of the face. In such, shedding of the hair could not be wholly avoided, but this is a lesser matter than the cure of the ailment, particularly as the hair usually after a time returns. The distance from the tube has also exercised us considerably, as while the nearer the more intense the effect, there is at the same time a greater risk of burns. Hence a mean of from 4 to 6 inches has been adopted, and this has been found satisfactory. The duration has been on the average five minutes to each part exposed. The available days are Mondays, Tuesdays, Thursdays and Fridays, though some cases have been subjected to the rays more frequently in the case of those who have manifested great tolerance. Working with a comparatively high ampèrage and low voltage, since we draw our energy from accumulators and not directly from the main, we operate with a cold anti-cathode. As is well known there is a difference of opinion on this problem. My experience in private with a high voltage and low ampèrage employing a red-hot anti-cathode, is still too restricted to enable me to deduce any conclusion. While not in any way courting reaction, we have found that a moderate degree is not at all harmful, indeed is a good test that the rays are acting on the tissues; but since no one can say how far in any

given case such reaction may go, we have always stopped further exposures on its appearance. Burns of any severity have occurred almost exclusively in lupus, where a scar of some sort is nearly inevitable, or in favus or sycosis of an intractable kind, where it is of little or no moment. We have not had any x-ray burns leaving scars in rodent ulcer or in the two instances of mycosis fungoides, thereby affording additional evidence of the special applicability of this method to these. Sometimes the plan suggested by Dr. Norman Walker of painting with pure carbolic acid, in instances where the disappearance of the lesions was slow, has been followed by improvement. This has chiefly been employed in lupus vulgaris, where there are great individual variations in sensitiveness to the rays. On the other hand, a few cases react to but one or very few exposures and the interval had in them to be prolonged. As the tubes used do not possess any means of regulating the vacuum, they often become pretty rapidly "hard," and then, in our experience, less active. With ordinary care we have not found "soft" tubes—those having a sparking distance of under 3 inches—particularly apt to burn, while certainly more efficient in curing the lesions.

There is an element which exerts an occult influence on the rays, one in a large measure beyond our control and to which little if any allusion has been made in papers devoted to this question. This is the element of weather, one which here we have the opportunity of experiencing in all its phases. We have observed that on cold raw days reactions more readily occur. This is just what one might expect. But mere raw cold does not wholly account for it, since reactions also appear in the course of climatic variations which to residents in this country can hardly be regarded as exceptional. It was often noted, while I was connected with the City Hospital, that the temperature of all of our fever cases rose on one particular day apart from any very obvious meteorological change. The late Dr. Wood and I scanned the daily weather reports in *The Scotsman* in all their details, yet we were unable to fix on any constant factor which could be charged with the rise. And so with the reaction in the case of the x-rays, while cold is one, it is not the sole climate condition which favours reaction; still the exact combination without and within the patient which promotes a tendency to reaction cannot yet be condescended on more accurately.

During the last eighteen months there have been under treatment 133 cases of lupus vulgaris. The great proportion of these have been treated exclusively, and a larger number partially, by the Finsen light. There have been 30 cases of favus, 21 of rodent ulcer, and 12 of sycosis. In addition there have been 2 cases of mycosis fungoides. All these

have been dealt with entirely by means of the x-rays. Unfortunately it is impossible to represent our results by statistics. Nearly all the cases were treated as out-patients, and of these some discontinued attendance, or the exposures were interrupted for various reasons connected with the circumstances of the individual. It may be said, however, generally, that all who persevered have been, if not all cured, at all events very materially benefited.

1. *Lupus vulgaris.*—This bulks by far the largest. Now while in all the modes of dealing with this hitherto employed, while the centre clears up, the margin is apt to remain the seat of active disease, which ever tends to encroach on healthy skin. In very many examples the effect of x-ray treatment is to check progress at the margins, which scar over, though here and there small nodules persist in the centre even though this too has greatly improved. This was remarkably well shown in a case sent by Dr. Douglas of Cupar-Fife, on 21st March 1903.

H. T., 17. A healthy enough looking lad, who, however, had his knee excised ten years since by Mr. Miller for tuberculosis disease, and has had several strumous abscesses on his neck and face. The lupus on his nose commenced eighteen months ago, and has spread till the whole skin of the nose up to one inch from the root is affected. The surface was swollen and fungating, and covered with sebaceous-looking crusts. The disease had crept into the nostril from the side and beneath on the right, from above on the left, and this was blocked with scabs. As the result of the x-rays till now the entire nose has cicatrised, and only at the left side there is a small area doubtfully diseased.

Though if extensively involved, the interior of the nostrils may need the employment of scraping or other topical medication, in not a few the crusting there, so suspicious a feature, may completely dry up under the rays alone. This was well exemplified in the case of Nurse A., whose whole nose, a patch the size of half-a-crown on the cheek, and a considerable area under the chin were affected. This case had been actively treated by other methods with only temporary benefit. Not only now is there no visible trace of disease remaining, but the nose has almost assumed its original shape, with scarcely any scar, and the troublesome crusting within the nostrils no longer occurs. Undoubtedly the soil in lupus has to be reckoned with. When the skin is soft, pale and tender, and the child or adult exhibits very markedly the signs of the strumous diathesis, such are somewhat prone to react readily, and not always to go on as satisfactorily as one wishes, yet this constitutes no valid reason for not trying the rays, as in many most unpromising to appearance excellent results have ensued. Even if by the rays one can-

not be quite sore of an ultimate cure, what can be done is to reduce immensely the area of disease, and thus to bring it gradually within more manageable limits. Other and older methods are quite compatible with the use of the rays, and can be employed as auxiliaries with much advantage. A very good proof of the permanence of the effects was shewn in a case of Dr. Norman Walker's a sailor whose face had been nearly covered with lupus patches, and yet he had for a year followed his occupation, with exposure to all kinds of weather, without recurrence, when seen in December 1903, and this is not an isolated instance.

An important question has been raised by Dr. Robert Thin *à propos* of one of his cases we created with the x-rays and Finsen light. Shortly, her case was this. M. B,, 19, had lupus vulgaris as long as she can remember. In October 1901 there was extensive disease of the left cheek and many nodules scattered over the right. At first she had x-rays till the end of February 1902, when the light treatment was substituted and continued till the middle of June, with almost no improvement. The surface was then scraped and the x-rays resumed till August 28th. Some benefit ensued, "but this was almost immediately followed by an attack of tubercular peritonitis, which laid her up for several months, to be promptly succeeded by a deep abscess in the neighbourhood of the right hip." She presented herself again on June 15th, 1903, and the x-rays were used till August 24th, when reaction set in. Some advantage had been gained, "but in a few weeks another tubercular abscess appeared over the anterior superior spine of the right os innominatum, and this is at present (27th November) healing up." The question is whether the peritonitis and the abscesses were directly due to the x ray treatment or not. Nothing similar has occurred in our experience so far, and it is most unlikely that the action of the rays was to set the bacilli free in the circulation after the manner ascribed to tuberculin.

We have found that the modification of the Finsen light provided by our Marshall and Wood's lamp is most applicable to small patches of lupus, where firm pressure can be readily exerted from their being situated over bony structures, or for residual nodules similarly placed after x-rays treatment. One of our best cases treated exclusively by the Finsen light was that of Mrs. P., an otherwise healthy woman, aged 33. In her the disease commenced in childhood, and when seen on 1st April 1902, there was a patch the size of a penny in front of the left ear and another somewhat smaller in the centre of the same cheek. Exposures were continued for exactly a year, when she was dicharged apparently cured, with a fine soft level scar. Quite recently a slight

recurrence has occurred in the margin of the scar nearest the nose and treatment has been instituted.

Other cases nearly as successful have resulted. The method has the superiority over the x-rays that it does not give rise to burns, but it is much more restricted in its applicability and progress is slower Our lamp was originally calculated for ten ampères, bnt latterly we have raised this to fifteen and focussing lenses have been given us by the managers, which have added to the penetration. In the hope that this might be augmented in another way, the application of adrenalin, shortly before the lamp, was tried for some time, but was abandoned as the exaltation in effect was not at all commensurate with the expense.

2. *Rodent Ulcer.*—The curative influence of the x-rays in this disease is now universally conceded. Perhaps the best results of their unaided use were obtained in the case of fungating rodent of the face which was shown by me at the Meeting of this Society a month since; but uniform benefit has accrued in all cases. When progress is watched the margin is seen to recede, and with the absorption of the new growth, healthy epithelium advances from without inwards. The more completely the rodent is limited to the skin and subcutaneous tissue the more brilliant the success, but even when periosteum and bone are implicated a cure may follow. In other forms of cancer, however, the effects have not always been so good. In one instance, indeed, where there was a large gap in the cheek reaching down to and eroding the bones, fresh masses of cancerous growth sprouted up even while the rays were being actively employed. And yet mucous membrane removed from the cavity for examination was found quite healthy. The rays find their special field of applicability in situations such as the nose where excision is likely to occasion great disfigurement.

In order to shorten the time required for the absorption of patches of rodent, it is desirable to get rid of as much of the new growth as possible by scraping, supplemented by the applicatien of chromic acid fused on the point of a probe—care being taken not to employ this to large areas at a time.

As to permanence of results one cannot speak dogmatically, and that the disease may and does recur even after prolonged exposures and apparent cure is shown in the case of Philip I., aged 56, who was under treatment here two years since for widely diffused though superficial rodent of the right cheek. Under the combined employment of erasion, chromic acid and exposures to the x-rays, he went home with a fine smooth scar and no visible remains of the ailment. But he returned a few days since with a marginal extension, a deep groove all round the

still healthy cicatrix in the centre. This groove is specially defined at the lower border and shows there the characteristic rolled edge. When discharged he was warned to report himself at once should any reappearance of his trouble manifest itself, but this admonition he neglected to attend to. Some hold that the x-rays have less control over recurrences after previous use. An opportunity of testing the truth of the reverse of this idea is here afforded.

3. *Sycosis.*—Here only intractable cases have been treated. Some of these stood the applications with little more than the production of a sensation of heat. In others swelling, redness and pain rapidly followed. In all, however, after a longer or shorter time the hairs fall out, while the pustules become fewer and fewer. Yet, unless the part can be rendered absolutely bald, and a smooth, white, scar-like surface be left, the disease may recur. In such cases the fine returning hairs on being extracted can be seen to have a minute amount of pus at their foot.

4. *Favus.*—Here with loosening and falling out of the hair the disease dies out, a polished hairless surface remaining. But while in some, exposures amounting in the aggregate to about an hour will cause separation of the hair, in others a much longer period must elapse ere this is accomplished. Cases of favus are not prone to react unduly. A good example of the permanent effect of this treatment was seen in the case of J. D., 13. In him the disease was said to have lasted for two years, and almost the entire scalp was involved. X-ray exposures were commenced 3rd June, 1902, and continued nearly a year, successive portions of the scalp being dealt with in order till the hair had all fallen out. On 30th November, after six months' rest, the hair had grown thickly everywhere except a patch on the centre of the crown, where the disease had destroyed the hair before coming to the Infirmary.

5. *Mycosis fungoides.*—In this rare disorder the rays have proved the sole means of arresting an otherwise hopeless disease. The case treated a year since, and of which an account was published in the last volume of the Society's Transactions, continues well in so far that all the parts of the body then exposed to the rays remain free from recurrence, but in a letter recently received from her she states that one or two patches never submitted to their action. A case in my ward, at present in the erythrodermic or pre-mycosic stage, has so greatly improved as to be nearly well.

Can any inference be deduced from these observations explanatory of the mode of action of the x-rays? It seems to me that there may. That they exert no direct lethal effect on microbes is pretty widely accepted, and is supported by what occurs in sycosis treated by them.

Though the rays have the power of causing separation of the hair from the papilla, and inhibiting its growth and renewal, at least for a time, they only kill the staphylococci by removing the pabulum furnished by the hair and its sheaths *in situ*, and by emptying the follicular tube, much in the same way as an alveolar abscess comes to an end when the offending tooth is extracted. In proof of this we have seen that in sycosis the vitality of the staphylococci is not wholly destroyed, since pustules reappear in places coincidently with the regrowth of the young hair. In favus, again, epilation has been for long a favourite plan of cure, and the rays merely do this more thoroughly and more naturally, they do not of themselves put an end to the achorion. The apparent bactericidal action in lupus can be best explained by their promoting phagocytosis. The bacilli are few in number and scattered throughout the nodules, and are thus readily dealt with when the polynuclear leucocytes are increased in number and activity. In mycosis fungoides and rodent ulcer we have non-microbic diseases, at least in them no causal organisms have been isolated. The notable effect of the rays in the two latter diseases seems purely owing to a power which these rays possess of recalling aberrant cells to obedience to trophic nerve control.

ALCOHOL IN MEDICINE AND SURGERY.

BY JOHN FERGUSON, M.A., M D., Toronto.

SOME time ago *The Practitioner*, (British), contained a number of articles on the use of alcoholic liquors in medicine and surgery, and as a beverage. These articles are from the pens of persons of very large experience, and consequently carry much weight with them. I shall attempt to cull from them some of their leading thoughts.

Sir Samuel Wilks admits that, while alcohol is both an important article of diet and a good medicine, the answer to the question of its value cannot be given dictatorily. He thinks it is deplorable for a medical man to give alcohol to all his patients because they are weak. The custom of giving alcohol in every form of sickness and debility was much more prevalent a number of years ago than it is now. In the majority of cases, there is not much difference in the practice in any general hospital and a temperance hospital, with regard to stimulants, at the present day. Nowadays, patients brought into hospitals suffering from fever, pneumonia, rheumatism, or other diseases are put on simple diet, and alcoholics are only ordered when special conditions demand their use. Many physicians, however, still go too far in the employment

of alcohol, believing the weakness and the state of the pulse are indications for its administration. This is a great error, as the pulse may be weak, irregular, and frequent, and yet harm may be done by the free use of alcohol. This is oftener the case in organic diseases of the heart, where a heart tonic such as digitalis, and not alcohol, is what is required. In such cases, with weak heart action, the patient may easily be rendered drunk. So in typhoid fever, a patient, not accustomed to alcohol, may readily fall into a drunken state. It is as difficult to determine when a patient has had too much as it is to determine when it is advisable to order it. It would be well to regard alcohol often in the light of a sedative, rather than as a stimulant. In many nervous and painful affections, the proper administration of alcohol, for the procuring of sleep and the relief of pain, yields very satisfactory results. But in all these cases, great care is required to regulate the amount. In the nervous depression following severe illness, such as influenza, the use of wine is of decided advantage. In melancholia, however, it may be very disappointing, and the depression, after the effects of the alcohol has passed off, may be greater than ever. Small doses of morphia may do better. In some cases of typhoid fever, where the symptoms undergo a sudden change for the worse, as rapid pulse, high temperature, and delirium, the sedative action of alcohol cannot be gainsaid; and may change a well-nigh hopeless case into a favorable one. In elderly persons with bronchitis it is of the greatest value, and, when given at the critical time, has often saved the life of a pneumonia patient. But, to the extent that it can do good, it is also capable of doing great harm. In doubtful cases, it may be that alcohol is ordered to avoid the blame that all was not done that might have been done to keep the patient up. In the wasting, or marasmus of children, repeated doses of brandy sometimes work marvellous effects.

Sir Henry Thompson relates that when he was a boy of about 18 years of age—he is now 80—it was a common custom at dinners for the older persons to try to get the young lads to drink enough wine to make them drunk. This custom is now happily dead. He gives his own experience, that as a very moderate drinker of wine for many years, he suffered from rheumatism and hemicrania. He gave up stimulants entirely, and in a short time he was quite free from both these complaints. When 75 years of age, he thought he would put to the test the saying, *vinum lac senum*, wine is the milk of old age. He soon found out that it was injurious, and that his old infirmities returned. It is a fallacious notion to suppose that, as men grow old and infirm, they require more "support."

Sir W. H. Broadbent discusses the topic of "Alcohol as a Medicine." The point he lays down is, that alcohol is a medicine and should be pre-

scribed in disease with the same care that is taken in ordering any powerful remedy. In thinking of the good effect of stimulants, we must not overlook the bad effects of their prolonged use on the stomach, liver, kidneys, and cordio-vascular system. He expresses the hope that the idea that stimulants give strength no longer exists in the medical profession. Though a certain quantity of alcohol does undergo oxidation, neither muscular nor nervous is produced, but only some heat. One of the effects of alcohol is an indirect one. Under its influence there is a dilatation of the arterioles and capillaries, and, consequently, a quickened action of the heart because of the lowered resistance Any increased functional activity comes from the blood and tissues, and not from the alcohol. In chronic diseases, he holds that alcohol has no place in the weakness of childhood. In anæmia and chlorosis they are of very doubtful value. One of the most treacherous uses of alcohol is for the relief of depression, as there is an unfavorable reaction following their administration, and the habit of alcoholism is more likely to be formed in such a case than in most others. In renal disease, alcohol is contraindicated, whereas in phthisis it is of considerable service. In giving alcoholic stimulants in cases of debility, the rule should be followed of only giving them with food, and their good effects judged by the increase in the amount of food taken, as the result of this employment. In such cases, the best stimulant will be the one that increases the appetite most. The biscuit and glass of wine in the forenoon is not a legitimate employment of stimulants. He urges great caution in the use of stimulants in acute fevers. They are unnecessary in a large proportion of cases, but may be very injurious. In acute febrile cases, stimulants should not be given in the early stages, but should be withheld as long as possible. Even in the case of those who have indulged freely, it is safer to withhold them until it is clear they are necessary. In ordering alcohol for a fever patient, have close regard to the pulse. Its frequency and low tension with dicrotism rather than its strength are the main guides. If the stimulants are doing good, the pulse will be less frequent, steadier, better sustained and less dicrotic. When the tongue is dry and there are sordes on the teeth and lips, alcohol does good. If the stimulants cause excitement, sleeplessness, increased frequency of pulse, or gastric irritation, they are doing harm. If they are doing good they will promote sleep and diminish restlessness. The odour of the stimulant should soon disappear from the breath. If it lingers, or if it gives rise to the foul odour of the drinker, it should be withdrawn or reduced in amount. As to the amount given in 24 hours, 10 ounces are considered the maximum that will do good, and this

applies specially to pneumonia. In some cases of septicæmia even larger quantities may be given. The above amounts refer to whiskey or brandy. The good effects of the stimulants may be increased by ordering one or two doses of champagne in the day, along with the whiskey or brandy.

Professor G. Sims Woodhead, discusses the "Pathology of Alcoholism." He opens his paper by stating that cirrhosis of the liver and kidney is in most cases due to excessive use of alcohol; that pneumonia in the heavy drinker is particularly fatal; that fatty degeneration is often met with in many organs of those who are intemperate; and that many forms of nervous diseases have an alcoholic history. He strikes a severe blow at the teaching, that because alcohol can be oxidised in the system it is an aliment. It would be as proper to say that because diphtheria toxins may undergo oxidation, they are foods. The question is not one of oxidation, but of the good or harm that alcohol, even in small quantities, may do to the various tissues of the body. It must be borne in mind that alcohol has an extraordinary affinity for oxygen, so that the oxygen in the system is seized upon by the alcohol, and the oxidation of fats and carbohydrates is interfered with. This, of course, leads to imperfect metabolism. In the first place, there may be a great excess of fat in the system, found surrounding and throughout many organs. But there is another and more important action of alcohol. It increases the elimination of nitrogen, by causing destruction of protoplasm, and the accumulation of fatty degenerative products in the protoplasm of the cells. This fatty degeneration of the cells may go on while the person is very fleshy. There is the deposit of fat around and in the organs of the body, the fatty degeneration of the nitrogenous protoplasm going on at the same time. This fatty degeneration of the protoplasm of the more highly developed or specialised cells is seen best in muscle fibres of the heart; but it is met with in the muscular coat of the blood vessels, in the liver cells, and in the excretory cells of other organs. There is a strong tendency for calcareous matter to be deposited in the degenerated muscular tissue, and also for the overgrowth of the fibrous tissue in excretory organs such as the liver and kidney. So that, as a sequel to the fatty degeneration, there are a calcification of the vessels and a cirrhosis of the liver and kidney. These changes may be found in those who have taken what they call moderate quantities of alcohol. In the brain and kidneys, arterio-sclerosis is common, and in many cases can be attributed to no other cause than the use of alcohol and not always or necessarily in large quantities. But alcohol is not only a cumulative poison in itself, but also exerts its cumulative action in connection with

other poisons, as arsenic, phosphorous, antimony, lead, and similar substances, and also in connection with the poisons of disease-producing organisms and the waste metabolic products of the body. It has been well established that alcoholics yield more readily to the disease processes in cholera, diphtheria, phthisis, rabies, suppuration, and so on, than do those of the abstainer class. In cases of impaired respiration, as pneumonia and phthisis, alcohol must be given with much care as it must be oxidised, no matter what other products remain unoxidised. Attention is drawn to the fact that athletes, who are abstainers, train with greater ease and have greater endurance than those who are even moderate drinkers. Professor Woodhead gives this as his personal experience as well as from the observation of others.

Pearce Gould, F. R. C. S., Surgeon to Middlesex Hospital, takes up the topic "Alcohol in Surgery." He calls attention to the fact, that a drunken man will try to walk on a broken leg, will foul a wound, will lie on the wet ground when injured regardless of the results. The improper use of alcohol plays an important rôle in the causation of genito-urinary diseases. Drinkers are prone to delirium tremens after an injury, which adds greatly to its danger. For a number of years he has dispensed almost entirely with alcohol in his surgical practice. He condemns the use of alcohol in septic cases. It dries the mouth, furs the tongue, clouds the intellect, lessens the ability to digest food, and does not lessen tissue waste, nor aid in the elimination of poison products. Persons who have been addicted to alcoholic excess, possess a greatly lowered resistance against all forms of infections. In all septic and suppurative cases, he has found nothing but good from withholding alcohol. Convalescence is not aided by the administration of stimulants, and he regards it as of no value for such a purpose. In the matter of surgical shock, alcohol does not possess the value of the horizontal position, rest, external heat, morphia, and perhaps strychnia. When given by the mouth, it is not more valuable than hot water, and per rectum, is not much better than normal saline solution. Making all deductions, alcohol has a slight value, in small quantities, in the treatment of shock. He is of the opinion that alcohol does harm to patients with cancer. It seems to increase the activity of the disease, and it adds to the patient's pain. In some cases, alcohol given with the morphia at night, may secure better sleep than would the morphia alone. In cases of cancer, where the person has been accustomed to the use of stimulants, it may not be well to break off the habit.

James Edmunds, M.D., M.R.C.P., senior physician and consulting physician to the London Temperance Hospital, from 1873 to 1902, shows

that the alcoholic beverages consumed in Great Britain now cost $945,000,000 annually. He goes on to show that, if large numbers are put under observation, the abstainers average better lives than the moderate drinkers. In a life company, doing business with abstainers and the general public, over a period of 36 years the expected deaths, among the abstainers, should have been 8,838, whereas they were only 6,300; but among the general insurers, out of an expected death rate of 11,727 there were actually 11,241. He proceeds to examine the subject under the headings: A food provides the store of energy, a stimulant provokes expenditure of energy, a narcotic restrains the expenditure of energy. He regards a stimulant as a whip, as an exhauster of energy. Strong spirits, undiluted, injure the body at the points of entry, the mouth, the throat, and the stomach, and after entering the blood, the liver and kidneys, If to 1,000 parts of an animal's body weight 1.5 to 3 parts alcohol be given, the animal becomes very drunk. With 6 parts alcohol, the breathing and circulation are so paralysed that the animal rarely recovers. The lungs, skin, and kidneys eliminate much of the alcohol unchanged. Alcohol is neither food nor a stimulant, it is a true narcotic. When it appears to act as a stimulant, it is only by paralysing some inhibitory nerve energy.

In the above opinions there is a close agreement in the main. Between Sir Samuel Wilks and Sir W. H. Broadbent there appears to be a divergence of view in the case of children. The former regards "repeated doses of brandy or spirit of wine in cases of wasting in children —the so-called marasmus—as having sometimes marvellous effects." The latter remarks that "it may be said at once that alcohol has no place in the treatment of weakness in childhood." In this, however, the difference may not be great, as they may not have the same conditions in view. Sir W. H. Broadbent seems to refer to these cases of debility and anæmia met with in childhood, while Sir Samuel Wilks is no doubt thinking of the severer conditions encountered in mucous disease, chronic diarrhoea, rickets, congental syphilis, or tuberculosis. Sir W. H. Broadbent speaks of 6 to 8 oz. in pneumonia, and a larger quantity in septicæmia. Pearce Gould on the other hand says, "Of all the bad uses to which alcohol is often put, none is worse than its employment in any form of infective disease." While Sir W. H. Broadbent says, "The above quantities may be given, many cases do well without;" and in this he is in substantial accord with Mr. Gould. The administration of alcohol would appear to be reaching a settled state of opinion. The tendency of the above opinions is to limit the employment of alcoholic stimulants in the treatment of disease.

INFECTIOUS DISEASES AMONG SCHOOL CHILDREN.*

By CHARLES SHEARD, M.D., C.M
Medical Health Officer for Toronto, and Professor of Preventive Medicine, University of Toronto.

THE subject of this short paper is "How to prevent outbreaks of infectious diseases among school children, and the best methods to adopt tending to limit and suppress these diseases."

Bacteriological investigations into the cause of diphtheria have contributed considerably to elucidate the methods by which infection may be brought and the nature of that infection *per see.* This disease as most of you know, has been demonstrated by Professors Klebs and Loeffler to be due to a special micro-organism commonly called the Klebs-Loeffler Bacillus. It is a low form of vegetable life capable of re-producing itself with great rapidity under favorable conditions, demanding however certain special forms of food for its sustenance and growing upon a soil or medium very similar in conditions to those favorable to low forms of vegetable life; and whilst the contagion in other infectious diseases has not been so exhaustively studied there are fairly good reasons for assuming that in the majority of instances they are governed by the same physiological laws.

As an introduction to the subject, it would be important to consider some of the reasons which render children more susceptible to contagious diseases such as scarlet fever and diphtheria than adults. The conditions of child life and the habits of children largely account for this. It is certainly true, that outbreaks of these contagious diseases are much more prevalent during school terms than during vacation, and seasonal influence so much dwelt upon by statisticians of various countries should not be considered apart from the school room, which is operative during such seasons when these diseases are most prevalent. Children in schools are brought into more intimate contact than adults are in any walk of life and they remain in contact for a much longer period of time, often being crowded into a room the ventilation of which probably is not of the best. They sit in close contact, they communicate in a much more intimate manner than the conventional adult would, and with childlike confidence and simplicity interchange not only their garments, caps, mufflers, coats, and sometimes wraps, but even their toys, girls sometimes their chewing gum. The mouth organ, the kazou, the rubber judy squeaker, whistles, pea shooters, string, stick candy, and the like, are often found among the contents of a child's pocket. The methods in which children use lead pencils, wetting one end to mark with, chewing the other in

*Read at the recent Conference on School Hygiene, Normal School, Toronto.

"maiden meditation, fancy free"; cleaning their slates sometimes not in accordance with sanitary regulations, interchanging books, and a common drinking cup, will be sufficient to indicate to an ordinary reflective mind that if these diseases are dependent upon organisms which are lower forms of vegetable life and amenable to influences similar to those affecting higher forms of vegetation, seed, soil, and season; these are certainly splendid opportunities for the seed to be disseminated if seed exists.

In addition to the above, there is another very important and altogether different side to the question, and one which is so frequently operative through the medium of the school. I refer to mild cases of these diseases which possibly have proceeded without having been seen by any medical attendant, which have never been suspected by parent or teachers and which constitute in the school-room a fruitful and continuous course of infection, operative sometimes for many weeks, and which is, in my opinion, unquestionably the source of epidemics in schools in 99 per cent. of cases, and is frequently overlooked whilst the teacher, and even the sanitarian, proceeds upon a tour of investigation in the drains, the ventilation, and the cellars. I could furnish almost numberless illustrations of this, every medical man who has had anything whatever to do with school infection is aware how often a mild case of scarlet fever, never diagnosed, never treated, never suspected, has returned to school in the stage of desquamation, spreading the disease broadcast. The same can be said of sore throats, sometimes very simple sore throats, so mild that no doctor was required, with, however, sufficient exudation, and secretion issuing therefrom, teeming with the specific micro-organisms of diphtheria, furnishing seed enough to infect the school and lead to its closure; and worse than all, the child with dirty nose, with nothing whatever the matter with it only a dirty nose, with chronic ozaena or a sero-sanious ichorous discharge which even the medical man is apt to over-look, is the most venemous of all because when the child sneezes as it often does or coughs or wipes its nose upon its cuff, it scatters this infection upon book, garment playmate, everywhere.

If these are facts the lines upon which they must be overtaken are clearly indicated. The mouth toy must be banished from the school; space and air and sunshine provided for the child in the schoolroom; the the teacher must be instructed and educated up to the point of recognizing the indication of contagion in children; and the school children must be inspected by a competent medical inspector whenever contagious disease appears amongst the scholars.

To cover this work in a practical manner is not always simple. It requires a recognized system and money. Municipalities generally incline

to the opinion that money for the ordinary sanitary work of inspection is waste, yet as a matter of fact there is no expenditure in connection with municipal economics which yields a larger and more direct return. Moreover, the Health Department and Inspectors must work in harmony with the Educational Board and school teachers, for the latter, when rightly informed upon ordinary health matters, constitute the strongest ally a Health Department can have. Every case of contagious disease must be promptly reported to the Health Office and the case as promptly followed up. The scholars exposed or domiciled in the infected house must be rigidly excluded from school during the incubation period of the disease and until such time as they can be certified to as no longer liable to convey the disease, and this certificate must be furnished by the officer who alone is personally responsible for controlling the epidemic. How frequently we see medical practitioners imperfectly informed as to the details and conditions of an individual case, sometimes actuated by the desire to meet the convenience of influential or wealthy patrons, furnishing certificates which are not always consistent with opinions usually entertained by physicians. In Toronto, I am happy to say, that with the co-operation of the School Board we have in the past been able to maintain the position that no child of a family wherein there has been contagious disease can be permitted to return to school without a certificate authorized and signed by the Health Officer. The ordinary contagious disease Inspector has, furthermore, instructions to report instantly to the principal of the school where the child has attended, and must ascertain for himself that no members of the infected family are in attendance at school, and if such children are found so to be, to remove them, and it is almost a daily experience that such supervision and constant watching is necessary. A full and complete record of the school bearings in every known case should also be kept. Such record must show the scholar's name, the room the pupil was in, when the child last attended school, where the other members of the family reside, and how the case is being handled, so that at a glance the supervising officer can judge accurately of the situation. The teacher also must be informed, and I am strongly of the opinion that at every teachers' convention, and on all occasions where school teachers assemble for the purposes of mutual improvement and the comparing of notes as to teachers' methods, time should be allotted for practical addresses upon ready means of detecting the various contagious diseases and instructing teachers as to what they would be justified in regarding as suspicious and important to refer to the Health Officer of the district, or his medical assistants, with the object of determining the existence or non-existence of infection.

In the City of Toronto, I am free to say that school teachers are well abreast of the times in this particular work, but I hope, with increased opportunity, they will become still more expert in this invaluable and practical field of usefulness. Not only is this important in connection with those diseases enumerated within the Public Health Act, but also in connection with some of the lesser forms of infectious diseases, such as ringworms, impetigo contagiosa, scabies, and the like. The School Board must also be educated up to the point of realizing the necessity of placing within the grasp of the child physical as well as mental force. Despite all that modern sanitarians have done, and are doing, how little some of our responsible bodies realize the value of fresh air and sunshine in the development of the physical life of a child. Shorter school hours and longer vacations are commensurate with brighter faces and clearer intellects. That homework and punishments which add to mental worry and fatigue make dull scholars duller, and bad ones worse; that the beauties of nature, the fields and the flowers have as much in them to admire as a monument raised to the vanity of a teacher who has taught his pupil to tell the time of the clock by algebraic equation; to know that basements were never made for school rooms; that the greater part of a child's life is spent in school; that his associations for all future time will date from that particular period and its associated memories, his school days should be as happy as it is possible for man to make them. Fresh air in abundance, freedom from odors, the best system of ventilation, light on every hand, with desks and lockers that will, as far as possible, secure and maintain independence in each pupil and his belongings, are, in my opinion, the rights of the scholar.

I have had in the past the audacity to suggest that some children would be helped by being cleaned and clothed and have been laughed at for my temerity but if those whom I am now addressing have seen some scholars as I have seen them, who have been compelled to attend school and sit with others whose odors mark their nationality as well as their family connections and stigmatize their home surroundings, they would believe with me that there was more force than fiction in the suggestion. The Provincial Board of Health last year very properly provided for the personal inspection of every pupil and every absentee where a case of scarlet fever or diphtheria appeared amongst the pupils of a public school. I will not say that in Toronto that has been done with mathematical exactness because we have over 30,000 school children to supervise, but I am proud to say that the work has been done in the spirit and with the assurance that it would prove satisfactory to all who

care to study our methods. The medical inspector is required to make constant and repeated visits to the school room for the purpose of detecting by a skilled medical examination the existence of latent disease or overlooked infection amongst the pupils; furthermore, to examine the absentees with a view to definitely understand the report, inform the cause of such absence so that the reason for the non-attendance of such at school will be on fyle in the Health Office.

We must not forget that parents are compelled to send their children to school, and it is the bounden duty of the health authorities and the municipality to see that every security is afforded them to avoid contact with infectious diseases.

SYSTEMATIZED COMPULSORY DRILL.*

By C. A. HODGETTS, M.D., C.M., L.R.C.P., Secretary Provincial Board of Health.

AT the outset of the paper reference was made to the marked attention hitherto given by educationists generally to the development of the mental qualities of the child to the apparent neglect of his physical development, with the consequent result that the sound mind and the sound body were not always found in the possession of the same individual.

The pendulums of both educational and public opinions are swinging, and we were convinced of the fact that life's battle is not always to the mentally strong, and a good physique was necessary in fighting life's battle and the two were not incompatible.

It was pointed out that the age of growth was the proper time to begin some form of physical education and drill, and that if this was carefully carried out under properly trained instructors, the result would be beneficial both to the brain and to the body.

For the purpose of carrying this out some fifteen or twenty minutes of each hour of the present school time should be spent by the child both in play exercises and drill.

For purposes of instruction it was suggested that the work might be placed in charge of the officers and non commissioned officers of the Permanent Militia of Canada, and all those who desire to qualify for commissions in the militia force should be required to instruct the youth of this province for a certain period before receiving their commissions. Further, it was claimed that a portion of each summer vacation might be spent in camps of instruction where the time could be taken up between sports, boating, swimming, drill and rifle practice, The cost of this latter form of instruction would not be great and might justly be borne by the Dominion Government.

The general idea of the writer was to express the fact that some form of physical education was necessary as a part of our educational system, and incidentally the rudiments of a military education were inculcated.

*Abstract of a paper read at the recent Conference on School Hygiene, Normal School, Toronto.

CURRENT MEDICAL LITERATURE.

MEDICINE.

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

HAY FEVER ETIOLOGY AND TREATMENT.

In *The Canadian Practitioner and Review*, January, Henderson late of Toronto, now of Prague, gives a resumé of the work which has been done by Dunbar, of Hamburg, in the study of this peculiar malady.

The fact that attacks are associated with the presence of pollen in the atmosphere had long ago led to the view that this was the causal factor, although the fact that the majority of persons were quite immune to this germ of irritation, gave support to the theory that some other agent should be considered.

Examination of a variety of flowering plants and grasses showed that the pollen of some gave rise to the symptoms of hay fever, while others were innocuous. To the first class belong "secale cereale," rye, barley, wheat, tea maize, Indian corn, lily of the valley, golden rod, and ragweed, while a negative result was given by rose, tilia ulmfolio, linden, artemesia, absesithium, warmut.

It was found that from certain parts of the pollen grains a substance could be derived which acted as a specific toxin of hay fever when applied to the mucous membrane of a susceptible person; this toxin was derived wholly from the "amyloid rods" in the outer coats.

It was found possible to elaborate an anti-toxin by the treatment of rabbits with the toxin, such that by its use the effect of the toxin was neutralized either by mixing the two substances before injection, or by injecting them separately. Moreover, in a number of cases of hay fever this anti-toxin was found to give excellent inhibitory or curative effects, but further work on this phase of the subject must be done before we can regard this new product as a specific.

A CASE OF HYDROPHOBIA.

In the *Columbus Medical Journal* for December, Hulse reports a case of hydrophobia in a girl of 14, resulting fatally after an interval of two months from the bite of a pup. There was noted in this case:—

1. The evil forebodings for weeks in advance of any other symptoms.
2. The peculiar stinging with congestion in the wound.
3. The intense hyperhidrosis, clothes wet.
4. The fact that ice can be used to allay thirst when water cannot.
5. The marvelous power of bromidia in controlling the convulsions and inducing sleep.

EHRLICH'S DIMETHYL-AMIDO-BENZ-ALDEHYDE REACTION IN URINE.

It has been suggested that the test with this reagent is a point of value in the treatment of tuberculosis, but Clemens, in the *American Journal of Medical Sciences*, opposes this view. From his clinical examinations it was found that while the reaction never appeared in health, it was commonly seen in acute gastro-intestinal affections of an inflammatory nature. Positive reactions are most commonly found in tuberculosis, but is found also in the non-tuberculous. It is not due to the presence of the body which gives the diazo reaction, but common to all cases seems to be an increased catabolism of tissue albumins.

A NEW DIABETES THEORY.

In the *A. M. A. Journal*, Feb. 6th, Ramus advances a new theory of diabetes. His conclusions from experiment differing in some respects from the views of other observers:—

1. That in normal blood dextrose undergoes chemical modification before absorption by the tissues.
2. That in normal blood alcohol develops from disintegration of dextrose.
3, That alcohol is present in minute quantities in the urine of total abstainers.
4. That in chemically pure solutions of dextrose and levulose treated with pancreatin, sugar is lost and alcohol (and carbonic acid ?) developed, the change being more marked in the case of levulose.
5. That the agent responsible for the chemical reaction is an enzyme normally present in blood.
6. That this enzyme has its origin in the pancreas alone, for when that organ is removed dextrose remains unchanged.
7. That interference with or disturbance of this function of the pancreas initiates a group of phenomena known clinically as diabetes mellitus.

ANALYSIS OF GLUTEN FLOUR.

The *New England Medical Monthly* describes the results of an analysis of these preparations by the chemist of the New Hampshire State Board of Health. The chemist of this department who made a careful examination of fourteen preparations of gluten flour now on the market was able to find in most a large percentage of carbohydrates, that is, the smallest ratio was 7.8 per cent. while the largest was 75.25 per cent.

In commenting upon these facts, he states: "Our results agree with other published analysis in showing that many of the so-called diabetic foods, or gluten flours, are of the same composition as whole wheat or Graham flour, and carry but little less starch than ordinary white flour. Some of the highly recommended and widely advertised 'Diabetic Flours' consist solely of whole wheat flour, and by reckless misstatement and deliberate fraud are sold at enormous prices as a cure for diabetes. The action of these manufacturers becomes not only fraudulent but even criminal when we realize that these goods which are sold to invalids are backed up by the most absurd claims for usefulness and are hereby used freely with positive detriment to the sufferer."

WINDS AND LUNG DISEASES.

In the February number of the *St. Louis Medical and Surgical Journal*, Swayne calls attention to the fact that high and persistent winds are followed by an increased mortality from phthisis and other lung diseases. The reason for this is to be found, not in the wind itself, its temperature or velocity; but in the fact that when the wind is high, windows are kept shut, ventilation is interfered with and the blocking back of the air on chimneys and flues causes the escape of toxic and nauseous gases into dwelling-rooms with the result of reduced vitality and resisting power and consequent illness.

SOME LAWS IN MEDICINE.

In the November number of the *Physician and Surgeon*, Cutter gives some useful therapeutic hints. "Hearty food is for the heart" and so in cases of enlarged or failing heart give beef and beef essences, as much as the patient can make use of, giving more power and reducing fibrin elements in the blood, and not providing fermentation debris. To give sedatives to a heart already overwhelmed and engorged, the writer thinks is faulty therapeusis.

SCARLET FEVER PROTOZOON-LIKE BODIES FOUND IN FOUR CASES.

In the January number of the *Journal Medical Research* Mallory, of Harvard, describes the finding of certain protozoon-like bodies in the skin of a boy who died forty-eight hours after the first appearance of the eruption of scarlet-fever. These bodies were found in the protoplasm of the epithelial cells of the epidermis, between these cells, and free in the lymph-vessels and spaces of the corium just beneath the epidermis, they varied in size from two to six or seven microns in diameter and are devisible into two groups, certain oval or elongated and lobulated bodies staining with methylene blue, the second group are distinguished by their radiate character, usually spherical the centre staining a dark blue.

Three pieces of skin were preserved from the case, from thorax or abdomen and extremities, and from these it is seen that whatever these bodies are, they are not easy to find, as only one piece of skin showed them in any number.

In six cases where death occurred early in the disease they were not found at all, while in a number of cases in the desquamative state they could not be found.

These bodies can be interpreted as artefacts, degenerations, or protozoa, the fact that while all the specimens were treated in the same way, they were found in only one, in any number, argues against their being regarded as artefacts, while the fact that they were found in various parts of the epidermis seems to show that they were not due to degeneration.

Should the writer's theory be supported by future investigations, he suggests that the name 'cyclaster scarlatinas' might be given to them.

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.

PERITONEAL SALINE INFUSIONS IN ABDOMINAL OPERATIONS.

In the Journal of the *American Medical Association*, January, a paper on the above subject is contributed by John G. Clark and Charles C. Morris. When infectious micro-organisms are introduced into the peritoneal cavity, the lymph and leucocytes which are normally present, as a circulating peritoneal medium, at once assume a combative rôle. An immediate increase of leucocytes is noted; but after a few minutes these are transported into the general lymph paths, and for a

short space of time there is a marked deficiency of leucocytes. Then an exaggerated peritoneal leucocytosis is noted, the intensity of which is in direct proportion to the degree of the irritation. Thus a very irritating fluid, such as turpentine or glycerine, may give rise to so profuse an exudation of serum and escape of leucocytes from the blood vessels into the peritoneal cavity as to actually cause the animal's death through excessive depletion.

In experimental infections of the peritoneum, the index of lethality may be judged by the varying degrees of leucocytosis. Thus an excessive degree of leucocytosis followed by a rapid decrease with increasing gravity of symptoms indicates that the toxicity of the micro-organisms has overcome all phagocytosis or germicidal action of the blood serum, and that there will be a fatal result. Not only on the quick delivery into the peritoneal cavity of serum and leucocytes, but also on their rapid exit depends the safety of the patient in the first stages of peritoneal infection. There are no blood vessels within the body capable of such quick action in this physiologic function as those circulating in the omentum, in which wide-spread capillary anastomosis of extremely thin-walled vessels provide the best anatomic conditions for the rapid escape of leucocytes and serum into the peritoneal cavity.

If there is this excessive peritoneal leucocytosis after an infection, or from traumatic or chemical irritation within the abdominal cavity, the blood examination after an abdominal operation should serve as an indicator of this phenomenon. Already clinical observations have proved the constancy of the increased leucocytosis after even a minor abdominal operation. The greater the leucocytosis within twenty-four to thirty-six hours after the operation, the more likely is the infection to be overcome. The greater the leucocytosis, the more quickly will the peritoneal irritation or infection be subdued, unless it is so lethal as to overcome every combative force of the animal economy, as is seen in some very lethal cases of steptococcic infection. It is found that in animals, even the light flushing of the peritoneal cavity with hot salt solution will invariably produce a general leucocytosis.

In their laboratory experiments, the writers found that peritoneal saline infusions saved 44 per cent. of the animals, into whose peritoneal cavity a minimum lethal dose of virulent staphylococcus aureus had been injected.

From their clinical and laboratory studies, Clark and Morris reach the following conclusions: 1. The use of salt solution does not increase, but unquestionably minimizes, the dangers of pyogenic infection. 2. In addition to the reduction of mortality, the convalescence of the patient

is rendered infinitely more comfortable and satisfactory through the reduction of thirst, the increase in the urinary excretion, and the minimizing of vesical irritation. 2. The salt infusion should not be employed in those cases in which absorption by the peritoneum is greatly impaired, as in certain conditions accompanied by ascites, in ruptured extra-uterine pregnancy in which the peritoneum is already overtaxed with the removal of hemorrhagic debris, and in cases in which there is a considerable pus-producing focus left in the peritoneal cavity. In cases of localized abscess in any part of the abdominal cavity, which may be evacuated effectually by the usual surgical drains, it should under no circumstances be broken up and thus throw the danger of infection on the general peritoneal cavity. 4. In all cases where the abscess sac may be extirpated completely, peritoneal saline infusions should be employed, and surgical drainage by gauze or tubes discarded.

FRACTURES OF THE RADIUS.

In the December number of the *University of Pennsylvania Medical Bulletin*, Hobensack discusses the treatment of fractures of the radius between the insertion of the pronators and with these conclusions.

(1). In the treatment of any fracture, the best result cannot be obtained unless the part be dressed in that position in which reduction of the fracture can be maintained. In other words, the muscular action must be carefully studied, so as not to have unnecessary resistence from them.

(2) Fractures of the radius between the insertions of the pronators should be reduced and fixed with the forearm in the position which corresponds to that in which the upper fragment is found, thus obviating the tendency to displacement of the only fragment that is controlled with difficulty.

(3). The comparatively perfect reduction and immobilization secured by this method, dispose of the tendency to the excessive exudation of lymph, formation of exuberant callus, and ossification of the interosseous ligament.

(4). Judicious massage and passive motion, begun early, favor prompt union and restoration of function, although they do not always entirely prevent temporary atrophy, loss of power and decrease of the mobility of the part, as no manipulations can thoroughly compensate for the natural exercise of the tissues which is a major factor in the processes of nutrition and absorption.

CIRCUMCISION.

Bransford Lewis, in the *International Journal of Surgery*, January, describes a method of circumcision which consists in so fixing and holding the prepuce with clamp and tractor, that the suturing may be done with ease and accuracy *before the cutting*; and but one cut suffices.

The older and most usually employed operation for circumcision requires four successive cuts, viz.—1. Removal of the redundant cuff of skin and a part of the mucous layer. 2. A dorsal slit through the mucous layer. 3. Removal of the left side of the mucous layer, and 4. Removal of the right side of the mucous layer, with, finally, the suturing of the skin to the mucous layer, by placing, without efficient support, one stitch at a time. In his operation, Lewis places the stitches, two at a time, and guides them with precision by the clamp.

The technique of Lewis' operation is as follows: Encircle the penis at its base with a rubber band, then, with the penis and foreskin relaxed mark the site at which the removal is to be made, about one-quarter inch in front of the corona glandis. In this site at the middle of the dorsum, insert a sharp hydodermic needle and insert *one drop* of a four or five per cent. solution of cocaine, withdraw the needle and at the same point make a slight incision with a very narrow bladed bistoury just large enough to permit the entrance of the blunt pointed hypodermic needle, through which the remainder of the cocaine solution is injected. This needle is first made to encircle the penis as far as the frenum on one side, running between the skin and mucous layer of the prepuce, the solution being deposited as the needle is withdrawn. It is then re-introduced through the same incision and passed to the frenum on the opposite side, and the solution is again injected as the needle is withdrawn. In this manner a complete ring of cocainized tissue encircles the penis at the exact site for the introduction of sutures and the subsequent cutting. Complete anaesthesia is accomplished in about one minute and systemic absorption of cocaine is prevented by the rubber band previously applied at the base of the penis.

An assistant now adjusts and holds the tractor in position, its long arm reaching well into the sulcus and its short arm resting against the frenum. The assistant pulls the prepuce well forward and prevents it slipping off the tractor by holding it with the thumb above and forefinger below.

The clamp is then applied and compresses the four layers of the prepuce together in front of the glans penis and behind the end of the tractor. Double-length sutures (16 or 18 inches each) of catgut or silk

are inserted through the fenestra of the clamp, at intervals of one-quarter inch. They are passed through the fine layers of the foreskin and usually five sutures are sufficient.

When all the sutures are adjusted, that part of the prepuce anterior to the clamp is cut off with scissors. This is all the cutting required. While it is being made, the assistant should slightly relax his traction as it is desirable, not to cut too close to the clamp and leave too narrow a margin for the sutures.

The tractor is removed with the redundant foreskin, and the clamp, which allows the sutures to slip through the open ends of its fenestra, is also laid aside.

The sutures are now caught up in a bunch with two forceps at their outer ends, and with two others at their middle, between the two opposed layers of mucous membrane. Here they are drawn up and cut, leaving two sets of sutures, one passing through the skin and mucous membrane on the right side, the other set having a similar position on the opposite side. Two additional sutures are now placed, one at the dorsum and one at the frenum.

The rubber band surrounding the penis is cut, and all bleeding vessels are caught and tied with small sized catgut. All sutures are now tied and the resulting stump is even and symmetrical. A dry dressing is then applied. Lewis encircles the penis with a piece of cotton enclosed in a layer of gauze, and then saturates this dressing with compound tincture of benzoin, applied with a medicine dropper; on drying, this forms an antiseptic splint. The dressing is renewed after three or five days, and in eight days the parts are usually securely healed and no dressing is needed except some dry dusting powder.

It is not usually necessary for the patient to suspend work or lay up after the operation.

GYNÆCOLOGY.

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

SHOULD THE UTERUS AND OVARIES BE REMOVED IN OPERATING FOR DOUBLE PYOSALPINX?

Carlton C. Frederick, B.S., M.D. of Buffalo, writes in the November number of the *American Journal of Diseases of Women and Children*, on the above subject as follows: Whether to remove all of a woman's sexual organs, at the time that it became necessary to remove both tubes

for pus, has been a mooted question since surgical gynælcology has begun its modern development.

The woman who has a pair of pus tubes is, as a rule, an invalid. Some are able to be about and attend to small duties of their vocation. Pain is an almost constant symptom, and that alone, on physical exertion, serves generally to confine her to her couch a greater part of the time. Some cases suffer less severely. Fever, emaciation and anemia are common to a large percentage of them. Occasionally we have severe cases with no fever, headache, or general emaciation. Sterility and suppression of all sexual feeling are the rule, and when the inclination does exist, the pain produced by coitus is well nigh unbearable. Dysmenorrhœa is almost universal; and, if it existed before, it is certainly aggravated by the disease of the tubes.

Too frequent, too profuse, and too prolonged menstrual flow are common. Leucorrhœa is a prominent symptom in the early history of the disease, but is not so marked in cases of long standing.

The history of operative procedure in these cases has passed through three quite well-defined periods. Tait and his followers, for several years, removed both tube and ovary through the suprapubic incision, leaving the uterus. In making a pedicle common to both tube and ovary there was of necessity a portion of the proximal end of the tube left behind. Many of these patients were cured, others were not. Some of the uncured ones returned and had the uterus removed and a cure resulted. The natural inference was that the uterus was the offending organ, while in reality it was the remaining portion of diseased tube that continued the trouble. Hence arose the teaching, that the uterus should be removed with the diseased appendages.

Then the French School resorted to vaginal operation for pus tubes, removing every vestige of uterus, tube, and ovary, whether it was necessary or not. Dr. Frederick, says: "I have sat in the clinic of many a noted operator and have seen a comparatively healthy uterus and both healthy ovaries removed by vaginal section for a salpingitis of one side, and sometimes there was no pus in either tube. This extreme procedure went on till the fashion of vaginal section began to wane, and the right-minded operators began to return to the abdominal route."

The physiological effect of total removal of the pelvic organs is an enforced menopause with its train of nervous symptoms. The younger the woman, the more intense these symptoms are, and the older she is, that is, the nearer she is to the normal age of the natural menopause, the less severe are those symptoms.

Then came the present conservative method of treating diseased tubes and ovaries, and in double or single pyosalpinx we must resort to complete exsection of the tube, or tubes, in order to arrest the disease. By this is meant complete removal of the tube and corner of the uterus down to the uterine mucosa, closing the V shaped chasm in the corner with catgut and whipping over the free edge of the broad ligament out of which the tube has been stripped. It is as unsurgical to leave a part of the diseased tube as to leave a part of the diseased appendix.

With both tubes removed, the woman is sterile. So she was before operation. Besides, she was sick and suffering pain at all times, and especially at menstruation. Removal of her diseased tubes will cure her pain and her dysmenorrhœa, that is, if she is not normally subject to painful menstruation. Although sterile, every woman during the child-bearing period should have her menstrual function preserved to her. Its loss is prejudicial to her well being. Therefore, we should not remove the uterus if it can be retained; we should not remove any more ovarian tissue than necessary, but we should remove the tubes *in toto*.

THE DANGERS OF DELAY IN OVARIOTOMY.

In the *Bristol Medico-Chirurgical Journal*, of December, 1903, T. Carwardine, M.S., M.B. (Lond.), F.R.C.S., writes an interesting article on the above subject. Delay on the part of the patient is permissible, though unwise; but delay on the advice of a member of the profession is usually inexcusable, when once the diagnosis of an ovarian cyst is made.

The question to be discussed here is this: Once an ovarian cyst is diagnosed, is it safe to defer operation? He illustrates the dangers of delay by referring to cases.

1. The size of the tumor becomes in time an element of added danger, through (*a*) pressure effects, (*b*) increased difficulty in operating, and (*c*) increased shock.

2. Inflammation is more likely to occur in large than in small ovarian cysts. This may result in peritonitis, with adhesions, or in a suppuration, which is a serious complication, and renders the patient extremely ill. Here the adhesions become very general and extremely firm. Occasionally, a suppurating cyst has been known to burst into the bladder, bowel, vagina, or even through the parietes. Fæcal infection is a danger to which all fluid collections contiguous to the intestines

are liable; and, in the case of infection of a large ovarian cyst, the symptoms soon assume a grave aspect.

3. The mobility of a cyst may cause serious consequences. The symptoms of torsion of the pedicle closely resemble those produced by intestinal obstruction, except that stercoraceous vomiting is unusual, and attacks of pain and vomiting accompanying a tender abdominal tumor, are conspicuous features. Torsion may merely cause a venous obstruction at the site of constriction. At this stage, hemorrhage usually takes place into the cyst, which may be so great as to cause its rupture or the death of the patient. Finally, the arterial circulation is also arrested, and the parts beyond the level of torsion become a blackened mass. This is usually described as gangrene; but, unless infected, the mass does not present the characters of moist gangrene, and there is no stench; and, as adhesions form during the process of strangulation, a certain amount of nutrition is provided by them. Strangulation is the effect of persistent torsion, and results in a necrotic appearance of the parts involved, which become swollen, succulent, and rotten. A tumor may be completely separated from its original attachment by torsion of its pedicle, and become transplanted by adhesions to a distant part of the abdominal cavity. In this case, the original association is apt to be overlooked or forgotten.

4. Intestinal obstruction may be another result of delay in the removal of an ovarian cyst. It may arise from (*a*) direct pressure, from (*b*) adhesions between the cyst and gut, or from (*c*) strangulation by the pedicle of a cyst crossing the axis of the bowel in some peculiar manner.

5. Changes in the cyst wall are rupture, malignancy, and calcification. Rupture may result from injury, strain, or over-distension, and may be repeated after the cyst has refilled. Malignancy of the wall of an ovarian cystoma, or of the matrix of a solid tumor, needs no argument for its early removal. Calsification of the wall is a rare, secondary change, which has occasionally been met with.

6. Adhesions become very serious obstacles to the removal of old and large ovarian cysts. The vermiform appendix is frequently involved in adhesions, and then should be removed

Even in pregnancy, there is considerable danger in delaying the removal of an ovarian tumor. There is a risk of the tumor obstructing delivery, or rupturing during its progress.

From the foregoing considerations, it is a reasonable rule of advice, that, under all ordinary circumstances, an ovarian tumor should be removed as soon as diagnosed, and that delay is dangerous.

X-RAY THERAPY AND SKIAGRAPHY.

Under the charge of JOHN McMASTER, B.A., M.D., C.M., Toronto.

FINSEN LIGHT AND X-RAYS COMPARED.

Dr Jay F. Schamberg, *St. Louis Medical Journal*, January, 1904, gives results of treatment of a number of skin diseases with actinic rays of light and with x-rays. 111 cases in all were treated, of which 57 were treated in the Light Department of the Philadelphia Polyclinic. The apparatus used in the Polyclinic was that brought from London by Miss Kirkbride. This lamp is a modification of Lortet and Genoud apparatus. This lamp differs from the original Finsen's lamp by requiring only 15 to 16 amperes at a pressure of 110 volts, whereas the Finsen's lamp requires about 80 amperes. In both the lenses are kept cool by a current of running water passing between them, and the heat is further absorbed by passing the radiation through lenses of rock-crystal. The parts to be treated are rendered anæmic by pressure exerted by lenses that do not absorb or abstract the ultra violet or actinic light. The red blood forms a screen which absorbs the actinic rays and prevents them penetrating to the deeper tissues.

At the Polyclinic the lamp has been used since March, 1903, and some 880 treatments given to 12 patients. The treatments which at first were 30 min. were extended to $1\frac{3}{4}$ hrs. each. This was found necessary to obtain reaction and reach deep tissues. The results with this apparatus have been unsatisfactory, none having been cured of the 12 reported, although improvement has occurred in some. The cases were on the whole of long standing and inveterate. The treatments were carried out by Miss Kirkbride who had opportunity to observe the technique used in London. The formation of the lenses enabled large areas to be treated at each seance, whereas with the Finsen lamp only an area of a square centimetre could be covered. The failure is attributed to want of concentration and volume of the radiation. In the Finsen lamp the volume of the actinic light is much greater and it is concentrated upon a very small area, thus penetrating the affected parts to a much greater depth. The results with the Finsen light are very gratifying. These failures only emphasize the insufficiency of the multitude of simplifed lamps that are being foisted upon the public. It is found that pigmentation does not occur to any extent in diseased skin. Healthy skin, however, is rapidly pigmented. It is thought that the

lamps of the Lortet-Genoud pattern may be of service in the very superficial cases. The Paris physicians claim to have had a measure of success with it; its limitations are however recognized in London where it is used only on the very superficial lesions, the Finsen lamp being used on the more deeply situated nodules. This actinotherapy is chiefly used in treating lupus vulgaris and erythematosis. Tubercular ulcers, rodent ulcers and acne vulgaris have been cured by the Finsen light but more uniformly successful results are attained by the x rays. Finsen has cured 30 cases out 49 of alopecia areata. In 18 cases treated by Hyde & Montgomery with the modified lamp no result was noticed in 13.

ACTION OF FINSEN LIGHT AND X-RAYS COMPARED. The actinic rays produce in a few hours distinct reaction characterised by erythema and vesiculation. The blisters heal in about a week. Repeated treatments render the skin less easily affected and blisters result only after long treatments. A distinct bactericidal influence is exerted. Subcutaneous tissues are not affected. The very opposite is true of x-rays. The effect of x-rays is cumulative, the parts treated becoming more and more susceptible. The rays penetrate deeply affecting not only the skin but the subcutaneous tissues and internal structures. They are not bactericidal. Improvement rapidly follows the reaction by actinic light; it is slow in making its appearance with x-raying but may continue for a long time after their use. Curative changes may take place without any evidence of inflammatory action from x-rays.

In lupus the comparative value of x-rays and Finsen light is about the same, the cosmetic effect being in favor of the x-rays. No method of treatment in vogue can approach either. Some cases do better on one and some on the other method of treatment. The light has the disadvantage that every treatment produces a dermatitis lasting a week or more. This is inconvenient to the ambulant patient who is obliged to wear some dressing. The light can only be applied to small areas and takes considerable time at each sitting. Extensive areas can be treated in a few minutes by the x-rays; such cases are cured in a few weeks by the x-rays, whereas many months are required by the light. Both treatments are painless but considerable soreness results from each light treatment. Lupus of the mucous membranes, especially of the nose and mouth, cannot be satisfactorily treated by the Finsen light. It usually responds rapidly to x-rays. Ulcerative lupus precludes the use of Finsen light but reacts well to Roentgen rays Both agents are of great value and should be used to supplement each other. Time will better determine the special indications for each.

X-RAYS IN EPITHELIOMA. 27 cases were treated for cancer of the skin and mucous membrane. Statistical reports might be misleading, as much depends upon the extent and situation of the growth. A number did not remain long enough under treatment to warrant a proper estimate of the treatment, 13 of the above cases, however, were cured. Most of these were cases of superficial epithelioma about the face, two were of the lip, and one of neck deeply seated which recurred after removal. A nodular epithelioma of the lip after 8 treatments was rather larger, and the patient gave up the treatment. With deep seated skin cancers his results have not been encouraging. The rays have a special field of usefulness in small epitheliomata situated about the borders of the eyelids, the alae of the nose and in other similar regions. The destruction of tissue is small and the deformity resulting very limited. In rodent ulcers about the orbit it is the best treatment; they cannot be removed by the knife. Rodent ulcers of the orbit which would be fatal otherwise have been cured by x-rays.

ACNE AND ECZEMA. In acne the x-rays are most effectual, no other remedy at present can compare with it in treatment of this dermatosis; old as well as new lesions yield to its effect. Some new lesions may appear but they soon depart. The most rebellious cures will give good results, and what is most satisfactory in that the cures are as a rule permanent. The x-rays in proper doses seems to stimulate the normal structures of the skin to healthier activity.

In these cases soft tubes and short exposures are the requisites.

X-RAYS IN THE DIAGNOSIS OF RENAL CALCULI.

Dr. Charles Lester, of Philadelphia, in the *Brooklyn Medical Journal* discusses the advantages of x-rays in diagnosing the presence or absence of renal calculi. He has tested the accuracy in 305 cases. Calculi were found in 89 cases, 60% of these were located in the ureters. The negative diagnosis was more accurate than the positive. Errors were made in 9 cases or less than 3%. In only one of the 45 cases of diagnosis by the usual methods that were subsequently operated upon was a calculus found. This method has these advantages:—It is free from the dangers that accompany exploratory operations and catheterizations; it is more accurate and comprehensive; occasions no pain, injury or inconvenience to the patient; the exact situation and number of calculi, if seperate, are determined, rendering an operation for removal complete; the danger of operating on the wrong kidney is avoided; the field of operation is limited to locality of calculus; operative trauma decreased and rapid recovery thus facilitated. The accuracy that has been demonstrated in the

negative diagnosis makes it unneccesary and unreasonable to open the kidney in search for a stone during nephrorrhaphies or exploratory operations; the diagnosis can be made early when suspicion points to a calculus; the symptons are often vague and misleading out of all proportion to the seriousness of the case. A small quiescent calculus may form the gravest menace. Its impaction may result in unilateral anuria and the destruction of one kidney or complete anuria and the death of the patient. The symptons may subside and an anuria be present, an undetected calculus is always dangerous. The presence or absence of calculi should be determined after a suspicious attack of renal or ureteral colic. If found to be too large to be passed it can be removed at once and the kidney saved from farther injury. If its size shows that it can pass and there are no threatening symptons a course of conservative expectant treatment can be followed, such a course is reasonable when based on such exact knowledge. It has been adopted in many cases by the author and has resulted in all the calculi being passed in 19 cases. The method is not infallible, as much depends upon the accuracy of its employment and interpretation.

R-RAYS IN DEEP-SEATED CARCINOMA, SARCOMA AND TUBERCULOSIS.

In the *Journal A. M A.*, January, 1904, Arthur Dean Bevan, M. D., Professor of Surgery, Rush Medical College University, Chicago, describes the action of x-rays upon carcinoma, sarcoma and tuberculosis of deep seated organs in conjunction with the adminstration of iodine or arsenic, etc. In Hodgkin's disease he finds that the rays will cause the disappearance of the enlargements. Toxic effects follow their use in some cases, in others the enlarged glands disappear, yet no general improvement takes place and fatal results ensue after considerable time. In many cases however the results are all that can be desired. The careful use of the x-rays is therefore indicated in all cases. In tuberculosis within the abdomen, of peritoneum and intestines he has had some interesting results. One case of hyperplastic tuberculosis of the descending colon with perforation and circumscribed abscess was drained and afterwards closed by operation. X-ray treatments were given for 5 or 6 months and 75 grains of potassium iodide administered daily. Under this the patient gained 40 lbs. and resumed manual labor, the large mass about the colon disappeared; no inference can be drawn but it is supposed that the x-rays influenced the liberation of iodine in the affected region. Many cases of tubercular peritonitis with large masses and

quantities of fluid in the peritoneal cavity with rest and *x*-raying improved greatly, the masses and liquid both disappearing. The whole field of tuberculosis, outside of lupus, is an open one, and promising for experimentation. Sarcomas have been made to melt down and disappear by x-rays. This treatment has, however, been most unsatisfactory in his hands. Springing from the mesoblastic layer they are essentially deep seated growths. If the cells were on the surface as epithelium no doubt but the rays would destroy them as it does cells of epitheliomata, or if a great open wound were left after removal of the growth so that but little tissues intervened favorable results could be obtained. One case of a glioma of the orbit which recurred was eradicated by the rays, little or no normal tissues overlying the growth.

In recurring carcinoma of the breast in and about the scar, the rays will cause absorption of the masses even if of considerable size; and, if these are the only carcinomatous foci in the body, a cure might be hoped for with their disappearance. The deep mediastinal or other lymph glands are too often affected at the same time and the cases go on to a fatal end although the superficial enlargements are made to disappear. Some benefit both locally and generally is conferred by the raying. In estimating the value of x-rays in carcinoma three facts seem to control the results largely and ought to be considered—(1) The situation, superficial or deep seated, (2) The rapidity of growth and the resisting power of the cells in the case, (3) The size of the new growth. In regard to the first, the destructive action is in direct proportion to their superficial position, *i.e.*, the more superficial the greater the destructive power. Not much effect is exerted upon cancer cells beyond a depth of a centimetre. Cancer cells differ markedly in different cases as to their resisting power. The rapidity of growth is a fair index of their resisting power. Slow-growing cancers have less resisting powers, and rapidly growing ones high resisting powers. The size of the lesion is important and the value of the x-rays varies inversely as the size of the growth; the smaller the growth the more evident the effect, the larger the less the effect. The question whether under some circumstances the x-rays stimulate these growths and their dissemination is one which is difficult to answer, but personally he has seen no evidence of it.

He has seen cases grow and dissemination occur while under treatment, but he has seen the same thing in many cases while under no treatment of any kind. He interprets these cases which grow rapidly while under x-ray treatment as being cases which were not influenced by the agent and believes that the same growth and metastisis would have occurred with or without the raying:—

"What should be our position in regard to the use of the x-ray as a therapeutic agent in carcinoma?

"It is, I believe, the treatment of choice in slowly-growing superficial epitheliomas, the rodent ulcer type, especially those of wide extent without regional involvement, and especially lesions of this kind, situated about the face and eyelids where a radical removal of the lesion with the knife would result in marked disfigurement and deformity from the resulting scar, even when skin grafting is employed. In all other forms of carcinoma, where the lesion is of rapid growth or more deeply situated than the skin, or even when limited to the skin is of considerable thickness, the case should be treated by extirpation and followed by a course of x-ray treatments, probably, as a rule, about 20 exposures immediately after the healing of the operative wound.

"As has been repeatedly shown (especially in cases of breast amputation for carcinoma where recurrence has taken place in and about the scar), these secondary masses can be made to disappear with the use of the x-ray. There can be but little doubt that these secondary nodules, masses of epithelial cells the size of a bean or a walnut, were at the time of the operation very small collections of cancer cells which gradually grew from microscopic to macroscopic proportions, and it is reasonable to suppose that if the x-ray can destroy these bean-sized and walnut-sized cancer masses it could much easier have destroyed the microscopic masses of cancer cells from which they developed. I believe, therefore, that we should give this post-operative x-ray treatment a thorough and extended trial in our carcinoma cases, and believe that we shall considerably increase our number of permanent cures after cancer operations by this means.

"The most interesting question, to my mind, in connection with the action of the x-ray on cancer cells is this: Would it not be possible in some way to so extend the action of this agent which has the power of destroying cancer cells under certain conditions—that is, at certain depths and cells of certain resisting power—to a point where it can destroy them under all conditions? The fact that under certain circumstances, as Hodgkin's disease and lymphatic leukemia, the x-ray does produce effects on masses of cells of low resisting power at great depths, might encourage us to hope that under certain favorable conditions it might affect cancer at great depth.

"Of course, if this could be accomplished our cure for carcinoma would be found. As it is to-day, the x-ray as a cure for carcinoma has, as we have seen, a very limited field. In answer to the last question, I have thought that the desired result might be accomplished in one of two

ways, or possibly both. First, that physicists might so improve our x-ray apparatus that we could obtain the destructive effect on the cancer cells at all depths, and yet without too great danger to the intervening tissues; and, second, that it might be possible to so diminish the resisting power of the cancer cells by some means, as, for instance, the ligation of the arteries supplying the region, thus shutting off the blood supply, or by means of some chemical agent introduced either into the general circulation or locally injected, that even with the x-ray as at present developed we might obtain destructive effects at greater depths. In connection with this last proposition my mind naturally turned to iodine and arsenic as the agents which have shown evidence of power to affect deep-seated masses of new cells of low vitality, as iodine in syphilis actinomycosis and plastomycosis, and arsenic in malignant lymphoma (Hodgkin's disease).

"In working out this idea we have made some experiments to determine the effect of the x-rays on solutions of iodide of potash to determine whether it would produce any chemical change and set the iodine free.

"The first experiment was simple, and interesting in its results. We took a solution of starch and iodide of potassium and submitted it to a 10-minute exposure of the x ray, such as we used for therapeutic purposes. We had control solution under the same conditions minus the x-ray. It was found that the x-ray liberated about twice as much iodine as was liberated from the control solutions.

"After all, however, the clinical test of such a therapeutic scheme is the important test, and we have employed this method of treatment which, I think, should be called radiochemic therapy, in a number of cases. In a case of inoperable mouth carcinoma I ligated both external carotids, and placed the patient on iodide of potassium internally, and the x-ray. The tumor was diminished greatly in size, and almost disappeared. The patient died four months later of pyæmia, and the post-mortem showed a mere remnant of the original growth, and no regional or general involvement. Two of the most striking cases of benefit from this method of treatment have, however, not been in carcinoma, but in other conditions—one a case of actinomycosis of the neck, which cleared up surprisingly rapidly under the x-ray and iodide of potassium, and the other a tumor of the colon, already referred to, almost certainly tuberculous, which has almost disappeared under the same treatment. In our carcinoma and sarcoma cases we have combined with our x-ray either iodide of potassium or arsenic, and, although I have been encouraged by the results, the cases are too few and the difficulties in the way of deter-

mining the value of this combined treatment are so great that it is impossible at present to draw conclusions. I have, however, no hesitation in presenting this suggestion of composite therapy, with the hope that others may be sufficiently interested to investigate its possibilities.

"It does seem plausible, however, that, given an agent which will destroy carcinoma cells and not the cells of the surrounding tissues under certain favorable conditions for its action, *i.e.*, superficial situation and low resisting power of cancer cells, it is quite possible we may find some way of enhancing its action so as to reach cancer cells at all depths and of all degrees of resisting power and secure in this way a carcinoma cure.

"In conclusion, the x-ray at present is indicated as a therapeutic agent:—

1. In the superficial epitheliomas above described.
2. As a post-operative treatment in most of our carcinoma cases.
3. In our inoperable cases, as a justifiable piece of experimental work in the hope that this line of investigation may possibly lead to valuable results."

OPHTHALMOLOGY AND OTOLOGY.

Under the charge of G. STERLING RYERSON, M.D., C.M.,
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CHARACTERISTICS OF OCULAR HEADACHES.

Casey Wood, in *The Medical Review of Reviews*, November 1904, has come to the following conclusions as to the results of eye strain induced by civilization:—

1. Forty per cent. of all chronic headaches and eighty per cent. of all frontal headaches are partially, or wholly, of ocular origin.
2. Their site, in order of frequency, is (a) supraorbital, (b) deep orbital, (c) fronto-ocipital, (d) temporal, or (e) a combination of these.
3. Near work is the chief exciting cause: reading, writing, drawing, painting, fancy work, typesetting, typewriting, sewing and music.
4. Patients suffering from headache often observe that other eye symptoms result from the use of their eyes for near work, especially with artificial illumination.
5. Shopping, theatre, and church-going, as well as riding in street cars and railway trains often induce it.
6. The letters and lines in reading and notes in music blur, run together, and get mixed up.

7. Patients with ocular headaches are generally astigmatic, or far sighted, or have some other refractive error, or have some weakness of the ocular muscles.

8. Patients with ocular headaches often complain of lachrymation, photophobia, foreign sensations, specks floating before the eyes, itching and burning of the lids, redness of the eyes, etc.

9. The signs of eye strain above mentioned and the headache are of ocular origin, *although the vision is normal and there is no manifest astigmatism.* The patient, in such case, overcomes his hyperopia or astigmatism, or both, by continuous muscular effort.

10. About ten per cent. of all ocular headaches are incurable, in our present knowledge, and some are hereditary.

ACUTE OTITIS MEDIA.

Dr. Frank D. Boyd, in the *Journal of the Amer. Assn.* in discussing acute otitis media, lays stress upon the necessity for early diagnosis: 1 Because of the pain which usually accompanies the attack; 2, Because of the deafness which very frequently follows; 3, Because of the danger to life by extension of the inflammation to the brain. The symptom of earache is so common in some families that Boyd is inclined to think it hereditary. A child suffering from earache is in danger of becoming deaf and we should not spare any trouble in this case to relieve the trouble and warn the family of the danger. The subacute catarrh called "earache" leads to chronic changes and impairment of hearing. McLeod Yearsley, quoted by Boyd, has this to say regarding the early recognition of ear disease in children, "The frequency of deafness in children, due to the failure on the part of the attending physician to recognise the existing ear affection in infancy is to be deplored. Often it is not until long afterwards that the real trouble is appreciated and it is then too late to effect a cure by treatment. Neuralgic pain in children is extremely rare. Loss of weight and elevation of temperature should always demand an examination of the ears. To the general practitioner, the value of the exclusion of ear diseases cannot be overestimated." "Conclusions: (1) We should consider earache as a warning note of danger to the patient, both as regards function of hearing and of life; (2) In making a diagnosis we should avoid opiates as much as possible, for they always mask the symptoms. Paracentesis of the drum membrane should always be performed as soon as pus or serum are seen to be held behind it.

THE EFFICACY OF THE TREATMENT OF ACUTE PURULENT OTITIS BY ASEPTIC DRAINAGE.

H., Gradle, in the *Journal of Amer. Med. Assn.* draws attention to the superiority of the treatment of acute purulent otitis by aseptic drainage. Its principles are paracentesis as soon as the diagnosis is made and continuous absorption of the discharge by an aseptic gauze drain in the meatus and a large gauze pad over the auricle. After sterilization of the meatus and auricle by means of carbolic solution, the sterility of the gauze is still further assured but the liberal use of powdered boric acid in the dressing. The external gauze pad is changed as soon as moisture shows, while the tampon in the meatus may be left from 24 to 48 hours.

A valuable table has been presented to the German Otological Society by Koerner. Among 78 cases, the time required for healing was 7 days after paracentesis done on the first day, 9 days after the operation done on the second day, and up to 26 days after paracentesis done on the seventh day and later. Gradle believes that the treatment was shortened at least one-third by the use of the dry treatment. The length of time of discharge of some 40 cases in which the method was successfully carried out, was from 5 to 12 days. The change from a serous to muco-purulent discharge depends upon imperfect removal of the discharge. If the drainage is not perfect, the unfavourable change in the character of the discharge speedily shows itself. Secondary infection through the meatus with other bacteria may also occur later on and prolong the disease. The treatment by aseptic drainage requires care and skillful supervision in order to be successful

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THE GREAT VALUE OF DRAINAGE AND ICE IN THE EARLY STAGES OF MASTOIDITIS.

Sargent F. Snow read a paper under the above caption, before Section of Otology, A. M. A., which is published in the *Am. Journ. Med. Assn.* Snow believes in conservative ear surgery but: 1. Conservatism must be confined to cases not complicated by extreme or intercranial symptoms. 2. Free drainage must be secured promptly by a skilled otologist. 3. The patient must be kept within easy reach, and treatment continues for a few days until active symptoms have subsided.

From a twelve years experience of mastoid cases, Snow thinks in any line of treatment, short of operating externally, free drainage should be secured. This should be accomplished by what may be termed a

tympanico—Wilde's, or tympano-canal operation. The drum is cut upward through its posterior half up to or through the attic folds and outward along the internal mastoid, or posterior superior wall of the external auditory canal. Such an incision is done with a spear shaped knife, strong enough to lay open the tissues to the bone, thereby lessening periosteal tension to the immediate region of the inflammation, as well as giving free drainage to the attic and tympanum. An anæsthetic is necessary. While in some cases a simple puncture of the drum may be all that is necessary it is much better to be on the safe side and make the incision both deep and free. Why should we hesitate. No damage to the hearing comes for repair sets in quickly. Antiphlogistic measures are supplementary to drainage, but serve as a great aid in controlling pus formation and inflammatory action. In those cases, characterised by much pain and pushing forward of the auricle from the cellular inflammation in the soft tissues about the canal, hot injections and fomentations afford much relief; in fact, irrigating the ear with a quart of water at 115° every 20 minutes, is an excellent mode of treatment. The temperature should be recorded every three hours to make plain the variations, and in no event does it appear good policy to mask the symptoms with opium. If ice is used, to be effective it should be continuous and prolonged. The Sprague ice bag, kept properly filled and put on so that it is maintained in immediate contact with the skin over the mastoid, is without question an excellent antiphlogistic.

His conclusions are: 1. A conscientious observation of my cases has impressed me with the great advantage we at once obtain over the disease, if we secure such free drainage from the middle ear and attic that a tympano-canal incision will give. 2. While many cases will get well simply because we secure proper drainage, the constant application of ice does much to reduce morbid activity and hasten recovery.

In the discussion which followed the reading of this paper, Dr. Ed. J. Brown, of Minneapolis, recommended the carbolic-glycerine treatment of Hartmann, (10 per cent.) He had discarded both hot and cold applications. Dr. C. M. Cobb, Boston, said it does very well to be conservative, but I am absolutely certain that I have no means of knowing what is going on under the bandage. The patient either lives or dies under conservative treatment without any reference to the treatment after the first few days. Dr. Gradle, in replying, said many doubtful cases recover without operation, but the risk they run is much greater than if they had been operated upon earlier.

LARYNGOLOGY AND RHINOLOGY.

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Fellow of the British Laryngological, Rhinological and Otological Society.

THE IMMEDIATE RELIEF OF HYSTERICAL MANIFESTATIONS OF THE LARYNX.

In the issue of the *Jour. A. M. A.* for 16th January, Leob gives details of a simple, painless, and successful method of managing this type of hysteria. In all manipulative measures, suggestion is a strong factor, and it is essential that the physician should have the patient's confidence. The method Leob uses requires no instrument except the index finger and a ready tongue on the part of the operator. At the first sitting, having recognized the case as one of hysteria, he states to anyone who happens to accompany the patient, that the case is quite clear and easily relieved; but, turning to the patient, says, 'You must agree to let me do what is necessary. I cannot consent to undertake the treatment, unless you are willing to submit yourself to treatment." The patients invariably say that they are willing to stand anything, provided there is any likelihood of cure. Of course, he gives an absolute promise of relief, and sends the patient home to think and worry about it; or, if it is desirable, proceeds to work at once. In any event, he generally delivers a short, and more or less sentimental talk, to aphonics on the word "home," which he states is the first word they will utter, the most beautiful and easiest to produce in the English language. Having secured the requisite confidence and interest, he places the patient on a chair, inserts the index finger of the right hand into the pharynx, and presses the epiglottis over the glottis until the patient becomes somewhat uncomfortable, when he withdraws his finger, saying in a loud, commanding voice, "Now, say home! home! home!" The patient responds, and the command is continued as often as necessary, until the patient repeats not only "home," but any word suggested leaving the office talking as well as any one. At the next sitting, he looks into the larynx, states that everything is in perfect shape, and the treatment is concluded.

OUTBREAK OF DIPHTHERIA AND SORE THROAT DUE TO MILK.

The epidemic occurred in a town of 10,000, in which the disease is endemic, usually eight or ten cases yearly. During a period of twelve days, forty-nine cases of diphtheria appeared, distributed among twenty-

six houses: and sixty-five cases of sore throat in fifty-one houses. After excluding the usual causes of infection, the milk supply was considered. It was found that all cases were supplied by the same dairyman. An investigation of the sanitary conditions of his dairy showed them to be in a fair state. All residents of farms were healthy except the wife of the dairyman and a farm hand. Swabs were taken from the throats of all. Microscopic examination showed the specific bacillus present in each. The bacilli, after isolation, were inoculated into guinea pigs. That from the farm hand produced death in 72 hours. The only explanation to offer for contamination is carelessness and dirty habits during milking.—*Australian Med. Jour.*

THE LARYNGEAL COMPLICATIONS OF TYPHOID FEVER.

Dupuy, *N. Y Med. Journal*, Dec. 26, concludes that the 256 collated cases reported in the last fifty-eight years, which for evident reasons are only partially correct, afford eloquent proof that the subject of typhoid fever affections of the larynx calls for general recognition.

Evidence, bacteriological and clinical, strongly supports the view adopted by the majority of observers, that the laryngeal involvement in most instances, is a direct typhoid fever infection. A huge death rate as shown by statistics when this complication exists, teaches the salutary lesson of always examining the larynx when the danger signals of hoarseness, dyspnoea, or dysphagia, set in. The favorable results, which follow operative interference, offer such a contrast to the high mortality without operative, that there can only be unanimity of opinion as to its propriety. Tracheotomy is the most approved, because, in most cases the only possibls surgical procedure that can save life.

NASAL POLYPI : A STUDY OF ONE HUNDRED AND FORTY-SEVEN CASES.

J. Payson Clark (*New England Medical Monthly*, Nov. 11, 1903,) declares that his greatest hindrance in the study of these cases was the difficulty of sufficiently impressing upon patients the importance of following up treatment and reporting as often as desired for observation. The usual site for these growths is in the region of the middle turbinated bone, from some part of the outer wall of the nose concealed by the middle turbinate, but more often from the turbinate itself. The writer finds no evidence of any constitutional diathesis or impairment of the general health standing in any causative relation to this affection. More than half the cases were between thirty and fifty years of age. A neglected injury to the nose might conceivably result in polyps. Suppuration of one of the accessory sinuses is another predisposing cause of the growth of nasal polypi. Sneezing was marked in about a third of the cases. The discharge varies from watery to mucous. Only a small proportion of cases are caused by sinus disease (usually ethmoiditis). A local vasomotor disturbance, which may be of constitutional origin, stands in a causative relation to polpyi in a certain proportion of cases. The removal of the whole middle turbinate will be found necessary in many cases when the growths are diffuse.—*Medical Age, 10th Feb.*

PROVINCE OF QUEBEC NEWS.

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

Dr. Harvey Cushing read a paper on the removal of the Gasserian ganglion for tic douloureux before the Montreal Medico-Chirurgical Society, on February 5th.

Dr. Cushing began by stating that neuralgia of the fifth nerve varied in character and distribution, from a mild toothache to the terrific agony of a tic douloureux involving the three branches. He wished to understood that he at once excluded from operative interference all cases of simple neuralgia of local nature which were usually quite amenable to medical treatment. The operation was a serious one, and only to be undertaken when all ordinary measures had failed.

Horsley and Macewan were the first to attempt removal of the Gasserian ganglion, with the unfortunate result of death of both patients within ten days. Rose, of King's, next boldly attempted to attack it through the superior maxilla, an operation extraordinary for its difficulty and danger, but which was none the less successful in a certain number of cases. Many modifications have been proposed since that time, modifications in the method of approach, and in the method of dealing with the nerve and ganglion when exposed.

The three principal ways were: the low or maxillary, Rose's route; the high or temporal, Horsley and Krause's route; and the direct or sphenoidal zygomatic route. Rose's method, though improved, had not been generally accepted; and Krause's method had superceded it, but there had been a tendency throughout to make the low operation higher and the high, lower, so that the direct method had come into being by a natural process of evolution.

In the low method it was found that, owing to the depth of the wound, the confined incision and the bleeding, it was hard to remove even part of the ganglion, and impossible to extirpate it completely, and even by the high route it could scarcely be managed. In consequence of this, the operation had been simplified by merely cutting the root behind the ganglion. Fraser and Spiller investigated this method, and many observations tended to show that there was regeneration with return of pain in a number of instances; this point, however, had not been definitely settled.

In New York an attempt had been made to divide the nerves after they emerged from the ganglion, and interpose rubber tissue between the divided portions. In the first place, the rubber tissue would not prevent regeneration if regeneration were possible, and, again, such a division was in no way superior to an extra cranial severance, and it was an invariable rule that it was better to leave things alone than to do a primary operation which would cause any deformity.

In the spring of 1900, at Philadelphia, the direct method was first reported. The operation was then described as being much lower than the Krause method, extending into the temporal fossa through the zygomatic arch and below the meningeal artery, which was one of the troublesome points of the high operation. If figures could be at all relied upon, the direct operation was much less severe than either of the other two. Tiffany calculated that there was a mortality of 22 per cent. by Rose's method. The high operation had been accompanied by 10 per cent. of deaths. By the direct method the lecturer had operated upon 25 cases with one death, and he knew of 50 more cases with a general mortality of 5 per cent.

In reference to the steps to be taken in the actual operation, Dr. Cushing insisted upon practice upon the fresh cadaver. Dissecting-room specimens were of little or no value on account of the difference in sensation and resistance of the parts.

The incision was made in a horse-shoe shape with the convexity upwards over the temporal fossa and the base on the zygoma. The temporal fascia was divided in the same curve as the skin, and the zygoma shelled out and removed. The temporal muscle was then removed, and an opening about 3 c.m. in diameter made in the skull with rougher forceps. The meningeal artery could then be seen running across the opening. On pressing back the dura with a retractor the ganglion came into view, and nothing further was required than "patience and a blunt dissection" to remove it *in toto*. The zygoma was not replaced and no osteo plastic flap attempted. The reason for completely removing the zygoma was that the asymmetry of the face from atrophy of the pterygoid and temporal muscles was much more marked when the arch was present to accentuate the peculiar contour of the face. The wound healed rapidly, and except in a few instances drainage was not required.

To illustrate, Dr. Cushing cited a typical case which was one of the first to be operated on by the direct method. In 1899 a man who had been suffering from tic douloureux for ten years applied for relief by operation. He had been treated in every imaginable way orthodox and

heterodox, and on one occasion he had been given ½ grs. strychnine every three hours, in consequence of which he had strychnine poisoning. A peripheral operation had been done in 1897 with only temporary relief. At the time he was seen he was suffering untold misery, the slightest movement, an attempt at taking food, a breath of air, would bring on a paroxysm, and even when perfectlly quiet it would return every 90 seconds and last for 40 seconds. On August 4th, 1899, he was anæsthetised with chloroform, and an easy, practically bloodless operation followed. The sutures were removed on the third day and the patient made a good recovery. It so happened that this first operation was practically bloodless, but this was by no means the rule, and upon one occasion the operation had to be postponed on account of hæmorrhage.

The average age of the patients was sixty years, seven were over seventy, and age could not be considered as a contra indication. Strangely enough, fifteen out of twenty cases were men, and the right side was affected in four out of five cases.

The post operative complications were few, convalescence was rapid, and the wound healed quickly. Drainage was used in but six cases, and these patients complained of hemicrania; the lecturer thought that this headache was of dural origin. He had a few cases of herpes following operation, but in these the anæsthetic area of the affected side was not involved. As a result of cutting the motor branch the jaw movements were of necessity a little awkward, but the patients were able to masticate remarkably well. The area of anæsthesia was carefully mapped out in each case, and found to correspond very well with the accepted distribution. The anterior part of the internal auditory meatus was quite insensitive, as was the anterior wall of the Eustachian tube as far as could be explored. The eye symptoms were not dwelt upon owing to lack of time, but it was found that the nutrition was not altered and no permanent disability resulted from the operation. Taste was not affected.

In every case the ganglion was carefully examined by neurological experts, but no pathological lesions could be detected.

Not the least interesting part of the programme was the splendid collection of photographs and drawings used to illustrate the lecture.

Dr. Cushing spent the greater part of his stay, in Montreal, in visiting the colleges and hospitals of the city. He also operated upon an obscure case of trifacial neuralgia, caused by a new growth beside the lingula of the sphenoid.

Dr. Lafleur reported at the Medico-Chirurgical Society a case of myxoedema, showing photographs taken before and after treatment, and exhibiting the patient.

She was a woman, aet. 50, who had been sent to the Montreal General Hospital for Bright's disease in September, 1903. Six years before, her feet, face and eyelids became swollen, her skin became dry, rough and sallow, her hair fell out, her memory became poor, and muscular weakness became marked. This condition continued until treatment with thyroid extract grs. i. three times a day was instituted. Improvement was at once noticed, and by gradually increasing the dose to grs. iii. the patient regained perfect health.

Dr. Grimmer gave an exhibition of lantern slides and living cases of the utility of paraffin injections in correcting deformities of the nose.

Dr. Bell read the report of an exploratory operation for the purpose of locating the cause of indefinite abdominal pain, which resulted in the removal of two needles, a hat pin, and a piece of glass from the stomach, intestines and surrounding tissues. The patient denied all knowledge of the origin of the articles, and was quite certain that he had never swallowed them.

More than three thousand patients passed through the wards of the Montreal General Hospital in 1903. The outdoor patients numbered almost 36,000.

Mr. James Crathern, president, who occupied the chair read the following report:—

The excess of expenditure in 1903, over ordinary income is $13,453, against an excess expenditure last year of $10,774. The increase this year covers the extra cost of fuel, including last winter's supply of $2,000, increase in salaries, $2,000, required to secure more efficient service, $2,300 paid out in December for insurance for the next three years; ambulance, $300; water, $200; making a total of $6,800. Ordinary income in 1903 was $91,763 against $87,439 1902; but we regret to state that receipts this year to date, are $2,500 short of the same period last year.

Unconditional legacies were received during the year amounting to $18,745.

On December 31, 1902, the endowment fund amounted to $43,500, to which has since been added during the year $7,000.

The total number of patients which passed through the wards in 1903 were 3,066, against 2,878 in 1902, or an increase of 188.

The outdoor patients numbered in 1903, 35,984, against 31,993 in 1902, an increase of 3,991. These figures indicate the necessity for increased subscriptions.

In connection with the change made at the last quarterly meeting, Dr. Shirres has been elected neurologist.

MEDICAL SOCIETIES AND GATHERINGS.

TORONTO MEDICAL SOCIETY.

The regular meeting, January 28th, 1904, was held at St. Michael's Hospital, the President, Dr. Silverthorn, in the chair. The minutes of last meeting were taken as read and adopted. The committee reported progress *re* legislation affecting the taxation on doctors' income.

Dr. Hunter was called to the chair and Dr. Silverthorn showed a case of tatooing. In addition to the tatooing on the arms, forearms and the calves of the legs, there was a large representation on the chest of the British Coat of Arms. He had been a soldier and had come to the hospital with a neglected wound of the throat, two days old, it was sutured but the invertion of the edges had prevented union and the stitches had sloughed out.

Dr. Dwyer had a case of spastic paraplegia which was discussed at length by Drs. Ferguson and Webster.

Dr. McKenna exhibited a case of pericarditis with effusion. Some of the fluid had been removed by hypodermic needle and was clear, then twenty-four ounces were aspirated, which were found to be tinged with blood. The fluid had recurred and the pericardium was greatly distended again. There was very little expectoration. Dr. Bruce described the aspiration. Dr. Uren described a similar case. Dr. Ferguson enquired as to the etiology of the effusion. He recommended incision and free drainage. Dr. A. Fletcher suggested that the removal of some of the fluid and the injection of a solution of mythelene blue might be tried as had been done successfully in pleurisy. Dr. Webster asked for the source of the blood in the second tapping. Dr. Wilson enquired about the condition of the lungs. Dr. Dwyer said that he had examined the lungs and that there was a condition of bronchitis on both sides. In reply it was stated that no culture had been made. The bacillus tuberculosis had not been found in the sputum.

Dr. Wainwright showed a case of specific ulceration. Dr. Hay asked if any mercury had been given. Dr. Ferguson asked how long the ulceration existed. In reply, it was stated: Iodide of potash is of use in the third stage, but mercury must be given for the cure of the syphilitic disease. The ulceration had lasted for a considerable time but could not say how long.

The regular meeting was held February 11th, 1904, Dr. Silverthorn in the chair. The minutes of the previous meeting were taken as read. Dr. P. Scott was elected to membership. The committee *re* the assessment bill had been able to find out the proposed change and so reported. Considerable discussion followed and Dr. Rudolf suggested an alternate scheme.

Dr. Rudolf read a paper on *Visceral Manifestations of Erythema.* Dr. Ferguson said that the theories of toxic, nuerotic, and vasomotor causes had been ably advocated by different writers. There seemed to be some peculiar sensitiveness or instability of the central nervous system. Dr. Webster reported a case, seen some years ago, of a bloody discharge with mucus from the bowel with marked erythema, and sometimes the blood and mucus without the erythema. Dr. Patton had seen a case following the birth of the first baby in a young woman.

Dr. J. McMaster gave a very interesting exhibit of over one hundred x-ray photographs.

THE NATIONAL SANITORIUM ASSOCIATION.

The Trustees of the National Sanitorium Association have issued their Sixth Annual Report. They report that the year just ended was one of progress and encouraging results. Thanks are extended to those who have given assistance to the Association. The attendance of patients was greater than for any previous year. Over one thousand have been cared for in the two Muskoka Institutions of the Association. Attention is called to the large amount of literature that has been distributed on the subject of Tuberculosis and the value that this must be to the public.

The Secretary stated in his annual report that the death rate in Ontario from tuberculosis during the past three years had been steadily decreasing. There had been a fall from 3,484 to 2,694 or a reduction of 790. It was mentioned that there was a debt of $25,000 on the Muskoka Cottage Sanitorium Association. It is hoped that this may be wiped out soon. In the Free Hospital for Consumptives at Muskoka, 225 patients had been received during the past eighteen months. The number of absolutely free patients were 37; maintained by Toronto, 49; by Hamilton, 4; partially paid for 90. The daily average amount received from individuals or municipalities, 34 cents; and the average stay of patients, 133 days. Cost of maintenance was $23,136.02. The amount received from patients, Government grant and municipalities was $9,710.36, showing a shortage of $13,425.66. To this must be added a deficit from last year of $208.85, making a total shortage of

$13,634.51 In response to appeals, $10,375.46 had been received, still leaving a deficit of $3,258.55 for the year. An effort is to be made to endow 25 beds. It requires $300 a year to maintain a bed. This would call for an income of $7,500. Three life insurance companies have contributed each $500.

The Physician-in-charge of the Muskoka Cottage Sanitorium submitted a very full report. He selects 115 patients for special study as to the benefits derived from treatment. Of these 24 were discharged as apparently cured; 41 with the disease arrested; 30 with marked improvement; 17 as unimproved; 3 as failed. Of all patients admitted, bacilli were found in 87% and absent in 13%, at the time of admission. During four years 531 patients were admitted. Of these, the right lung was affected in 158, the left lung in 67, and both lungs in 306. In the year 1897-98, 12 were discharged apparently cured. One of these has disappeared. The remaining 11 are in good health. 23 were discharged with the disease apparently arrested. Of these 3 have disappeared 5 have died, and 15 remain as well or better than when discharged. In 1898-99, 21 were discharged as apparently cured. One has died, and 20 are in good health 32 were discharged as with the disease arrested. 13 of these have died and 19 remain as well as, or better than, when discharged. On the whole Dr. J. H. Elliott's report is decidely encouraging. Dr. C. D. Parifitts's report of the work done in the Free Hospital for Consumptives is hopeful in its tone. Of 97 patients under treatment for periods over one month, 5 were discharged apparently cured, 20 with disease arrested, 27 improved, 41 not improved, and 4 died. The average duration of stay was 170 days.

The officers of the Association are Lord Strathcona and Mount Royal, President; Sir W. R. Meredith, Toronto, Vice-President; W. J. Gage, Toronto, Chairman. Executive Committee: J. S. Robertson, Toronto, Secretary; Dr. J. H. Elliott, Physician-in-charge of the Muskoka Cottage Sanitorium; and Dr. C. D. Parfitt, Physician-in-charge of the Free Hospital for Consumptives, Gravenhurst.

ANNUAL MEETING OF THE ONTARIO BOARD OF HEALTH.

The Provincial Board of Health held its annual meeting 4th February, in the Board of Health Office, at the Parliament Buildings, Dr. Kitchen, of St. George, in the chair.

Dr. C. A. Hodgetts presented his report, showing that during the year there was a marked decrease in smallpox and scarlatina. Diphtheria prevailed extensively, but was by no means of such deadly effect as

formerly, because of the intelligent use of anti-toxin. The greatest prevalence was during the fourth quarter, the death rate being 13.47 per cent. of cases, which is slightly in excess of the yearly rate. Enteric statistics are imperfectly returned, but it was quite prevalent during the year. The deaths from tuberculosis during the year amounted to 2,072 Dr. Hodgetts makes a strong plea for municipalities to establish sanatoria for consumptives.

The death rate in the province for 1903 was given as 12.6 per 1,000. March was the most fatal month, when the rate rose to 14.7, and June was apparently the safest, when the rate fell to 11.3.

Mr. E. J. B. Pense, M. P. P., Kingston, and Dr. James, M. P. P., East Nipissing, presented a number of suggestions to the board from Queen's University medical faculty. For a grant of $500 per annum they will make free examinations of sputum for tubercle and pneumonia, of blood for typhoid, and other classes of examinations needed by the board, and sent by practitioners, health boards and municipalities anywhere in the Province. The board's attention was also drawn to the resolution passed by the Association of Executive Health Officers in 1900 proposing the establishment of branch board of health laboratories at places like Kingston and London, where trained men are available. The Queen's faculty offers to place its laboratories and the services of its experts at the disposal of the Provincial Board of Health in return for a nominal grant sufficient to pay the actual cost of the work. They endorsed Dr. Bryce's scheme for appointing county medical health officers as an ideal one, but at present impractical, and they urged the establishment of branch laboratories as the first practical step towards a comprehensive scheme.

The splendid work of the retiring secretary, Dr. Bryce, was marked by the presentation to him of a grandfather's clock.

The members of the Provincial Board of Health, the medical faculty of the University of Toronto, Hon. J. R. Stratton, Dr. P. H. Bryce, the retiring secretary; Mr. T. H. Preston, M. P. P., and Mr. Daniel Burt, M.P.P., were entertained at dinner at the King Edward in the evening by the chairman of the board, Dr. E.E. Kitchen, of St. George. Mr. Stratton, in his address, expressed his entire sympathy with the work of the board. He spoke of the entirely non-partisan character of its work, said the new secretary, Dr. Hodgetts, had been appointed because of his peculiar qualification for the duties, and said he had appointed one Conservative to the board, and if a vacancy occurred would appoint another, making two Conservatives to three Reformers. Mr. Stratton also expressed sympathy with a proposal to have medical health officers appointed to cover a group of counties. Dr. Adam Wright, for the

University of Toronto bore strong testimony to the fair treatment which the university had always received from the Government. Dr. Reeve, Dean of the university medical faculty, and several other speakers bore tribute to the excellent work done by Dr. Bryce. Mr. T. H. Preston replied eloquently to the toast of Canada.

THE CONFERENCE ON SCHOOL HYGIENE.

On February, 2nd and 3rd, a conference of educationists and doctors was held in the Normal School, Toronto. Hon. Mr. Harcourt, Minister of Education, had called together a number of persons engaged in educational work, and several medical men who are paying attention to sanitary science and hygiene.

Mr. Harcourt, in opening the meeting, spoke of the great value of health—*Mens sana in corpore sano.* While it was possible for a person to accomplish much in spite of ill health, it was nevertheless true that good health was of much advantage to the individual. It was important that close attention should be paid to the health of the children attending school; and that every effort should be made to secure the best hygienic conditions in the schools. It was for this reason that so much attention had been given to gymnasium practice. He referred to the saying of Agassiz that the ideal human being was the one who had "the mind of sage in the body of an animal." He said that deliberations of the conference would no doubt influence the people of Ontario with half a-million school children.

Dr. Charles Sheard read a paper on "how to prevent outbreaks of infectious diseases among school children and suppress them when present." His excellent address appears in this issue of THE CANADA LANCET.

Dr. P. H. Bryce took up the subject of the "The great relative prevalence of preventable diseases in children of school age, as revealed by the Ontario Statistics." During his remarks he drew attention to the fact that some of the children's diseases were too prevalent; but called attention to the great reduction that had been effected of recent years The death rate from these infectious diseases had been reduced one-third. It 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 capable of. What it is apparent is necessary is, (1) a conviction that disease is disseminated, (2) that we be convinced by the results of the methods that an enormous saving of cases of disease and deaths is possible, and (3) that we possess scientific methods so certain when persistently and systematically carried out, that

they will suppress outbreaks of epidemic diseases 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."

Dr. C. A. Hodgetts, Secretary to the Provincial Board of Health, discussed the question of "Compulsory Drill for School Boys." An abstract of this paper appears on another page.

Number of other topics were discussed, such as the air space for school rooms, the methods of teaching gymnastics and drill, the providing of suitable amusements for children at schools and in their playgrounds, and whether too many subjects are now taught.

TORONTO DOCTORS AND THE ASSESSMENT BILL.

The medical practitioners of Toronto held several meetings to discuss the provisions of the new assessment bill, in so far as they affected medical men. At the first meeting a committee was appointed to report to an adjourned meeting. The committee prepared a number of resolutions and recommendations which were approved of at the second meeting. The committee was continued in office to report again at a further meeting. The clauses of the bill that affected physicians are as follows:—

9. (1) Irrespective of any assessment of land under this Act in cities, towns and villages, every person occupying or using land in the municipality for the purpose of any business mentioned or described in this section shall be assessed for a sum to be called "business assessment" to be computed by references to the assessed value of the land so occupied or used by him, as follows:—

(e) Every person practising or carrying on business as a barrister, solicitor, notary public, conveyancer, *physician, surgeon, oculist, aurist, medical electrician,* dentist, veterinarian. civil or mining or consulting or mechanical or electrical engineer, surveyor or architect, for a sum equal to fifty per cent. of the said assessed value.

(2) Where a person comes under two or more clauses, to be assessed under the one which imposes the highest tax.

(4) Where any person mentioned in sub-section 1 occupies or uses land partly for the purpose of his business and partly for the purpose of a residence, he shall be assessed in respect of the part occupied for his business only, *but this provision shall not apply to persons assessed under clause (e) of sub-section 1.*

The general concensus of opinion was that the bill bore too heavily upon the medical profession. It was hoped that some concession might be secured. The opinion was held by many that as doctors do so much charity work, they should be exempted from the business tax. The house a doctor lives in is no guide to his income.

It was thought that if the words in italics in sub-section 4 were omitted from the bill the medical profession would be placed up n a fair basis with regard to other classes. If this change were made a doctor would then pay a business tax on the assessed value of that portion of his residence which he used for his offices. This would be very much more favorable than to be called upon to pay a business tax on half the assessed value of his entire residence.

It was thought physicians and surgeons throughout the Province should interest themselves in securing a mitigation of the business tax proposed in the bill. At a conference between Hon. J. M. Gibson and the committee, Mr. Gibson agreed that the business tax be paid on 25 per cent. of the value of the residence. Thus, if a doctor's house be assessed for $4,000 he would pay a realty tax on this amount and a business tax on 25 per cent. of the value of the house, or on $1,000.

The feeling was very general among those present at these meetings that there should be an association among doctors for business purposes.

At a further meeting, held on 24th February, the arrangements effected by the committee regarding the assessment bill, that the business tax be paid on 25 per cent. of the value of the residence, was approved of, and the committee thanked for its efficient work.

Dr. N. A. Powell then addressed the meeting on the subject of antitoxine. He contended that the price of antitoxine was too high, and that efforts ought to be put forth to secure it at more reasonable prices. On motion of Dr. Powell, a resolution was unanimously adopted that the Federal Government be asked to establish a laboratory for the preparation of antitoxine for Canada; and that, until this is accomplished, the Government take steps to secure, at lowest cost, a supply from the Lister Institute of Preventive Medicine, in London. A committee was appointed to take charge of this matter.

The formation of an association for business purposes was then discussed; and, on motion of Dr. J. Ferguson, it was agreed that such an association would be in the interests of the profession, and the chairman was instructed to appoint a committee to formulate a scheme for the same, and to report to a future meeting.

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EDITORIAL.

PHYSICAL DEGENERATION.

Major-General Sir Frederick Maurice, some time ago in the *Contemporary Review*, called the attention of the British public to the fact that an alarming proportion of the young men in Great Britain were physically unfit for military service. It appears, from his observations, that sixty per cent. of men wishing to be soldiers prove unfit. This large percentage consists of the following groups: Those unfit to be taken before the examining medical officer, those rejected by the medical examiner, and those who break down within two years of enlistment.

He goes on to trace the physical breakdown to heart weakness, pulmonary troubles, and rheumatism. Much of the trouble arises from early decay of the teeth, causing indigestion, due to faulty feeding when young through ignorance of the mothers, bad sanitary conditions, insufficiency of milk, and proper nourishment. His conclusions are that there are five men unfit for military service for two who are fit. This is a serious affair for Britain. A long and arduous process of education will be required along the lines of education, housing, air, food, cleanliness, and temperance, before the average standard of the general population is attained. Sir Frederick Maurice states, however, that the effort must be made.

Surgeon-General Don, who had examined over 100,000 applicants, stated that he was convinced judicious physical and military drill, if combined with sufficient food and healthy environment, will signally contribute to the moral as well as to the better physical development of boyhood and early manhood. He then directs attention to the gain in weight and chest measurements that follow systematic training and drill. Further, he lays particular stress on the fact that physical training did great harm to underfed children. The muscular system must receive sufficient nourishment. Such a weighty opinion as the above cannot be ignored.

The *British Medical Journal* appointed a commissioner to enquire into the causes of the physical degeneration to which attention had been drawn by the remarks of Sir Frederick Maurice. The Commissioner found that the principal causes are: Town life and overcrowding; im-

proper and insufficient food for the mothers and the children; faulty conditions in the education, often including badly ventilated schools, long hours without recreation, unnecessary exposure to infections; lack of personal hygiene and cleanliness; the inattention to proper exercises, games and amusements during school life, and the instruction of teachers in these matters; and, lastly, the evil effects of drinking, especially among women.

On this latter point, it is a matter for congratulation that a very strong committee, consisting of such well-known physicians and surgeons as Elizabeth Garrett Anderson, Sir Thomas Barlow, Sir William Broadbent, Sir Lauder Brunton, William Carter, Professor John Chiene, Andrew Clark, T. S. Clouston, Professor Cunningham, A. Pearce Gould, T. D. Griffiths, Sir Victor Horsley, Sir Henry Littlejohn, Jordan Lloyd, Sir William Macewen, Sir John W. Moore, A. W. Mayo Robson, Robert Saundby, Sir Henry Thompson, Sir William Turner, John Tweedy, Sir Samuel Wilks, Dawson Williams, Professor Sims Woodhead, and others, have been appointed. This committee has drawn up a form of petition for signature by the members of the medical profession, asking that the teaching of temperance and hygiene be made compulsory in the schools of Great Britain and Ireland. The committee refer with pleasure to the fact that this is done in all the Provinces of the Dominion of Canada, except Quebec and Prince Edward Island, in which provinces the teaching of temperance is optional, but very general.

Happily, some of the conditions that are telling so severely against the health of the British people do not exist in this country to the same extent. Nevertheless, there is need for constant attention to the subjects of hygiene and temperance, and the conditions surrounding the school life of the children. At a recent convention of educationists in Toronto, much attention was given to the important question of drill and gymnastics for the children. This is a matter well worthy of the best thought of those who have charge over the youth of this country. We would quote the words of Professor Clifford Allbutt, to the effect that, "for a physically degenerated civilization there is nothing but extinction, whereas for the sturdy barbarian there may be a great future."

The general condition of the health of the people of this country is, upon the whole, in a very satisfactory condition, but there is room for improvement. It is one of the hopeful signs of the times to see prominent educationists, scientists, physicians and publicists, taking an active interest in the furthering of the cause of the health of the people, and especially along the broad lines of the value of a wide-spread knowledge of hygiene and temperance.

THE PHYSIOGNOMY OF DISEASE.

The late Sir William Gull used to say, that "mistakes were oftener made by not seeing than by not knowing," and the late Sir George Humphrey taught his students "eyes first, eyes second, hands third." We should ever remember that we treat patients and not diseases, and that our minds should be open for the reception of information from all sources. We ought to view the patient as a whole, and not merely the organ affected.

Sir Dyle Duckworth, in the latest volume of *International Clinics* has an interesting article on "Physiognomical Diagnosis in Disease." He states that before any questions are asked, a careful survey should be made of the patient, to ascertain what manner of a person the practitioner has to deal with. A careful guess should be made as to the age, occupation and past life of the individual. Then the condition of the various organs, vessels and limbs must be passed under review. The question should be asked "Is the disease cerebral, thoracic, abdomical or articular?" In this way, a shrewd idea may be formed as to the nature of the patient's ailment, and a favorable impression created. When the questions are put they have a far more definite aim, and go to convince the patient that in some way or other the doctor already understands the case.

Many diseases present a rather characteristic facies, such as tuberculosis, diabetes, aortic aneurism, Grave's disease, pericarditis, cancer, chronic jaundice, hepatic cirrhosis, cardiac dilatation, malarial cachexia, chronic alcoholism, Addison's disease, cretinism, pernicious anæmia, chronic tubal nephritis, collapse and morbus ceruleus. Melasma may arise from Addison's disease, arsenical poisoning, abdominal tuberculosis or chronic phthiriasis; erythema may suggest an arthritic habit or rheumatic infection. The posture of the patient often throws light upon the case. Note should he be made of the red gum of phthisis, the blue gum of lead poisoning, and the fungating gum of scurvey. A few scattered vascular stigmata on the face point to alcoholic cirrhosis of the liver. Small cutaneous nodules on the hands or over bony projections point to rheumatic infection and almost certain endocarditis. Fluted or vertically lined nails point with much certainty to gout. Transverse furrows on the nails point to past ill health, the date of which can be guessed by the position of the furrow, as the nail requires about six months to grow. These furrows indicate the arrest of bodily nutrition at the time of the illness. Visible scars may point to previous injury, operation, tuberculosis or syphilis.

Chubbed fingers and a thickened condition of nose and ears direct attention to some source of thoracic obstruction, congenital cardiac malformation, mixed blood currents, or chronic pulmonary fibrosis. No other form of disease ever causes this chubbing or thickening. Tremors of the fingers often suggest Graves' disease or chronic alcoholism, and when the hands and arms are thus affected we look for paralysis agitans or mercurial poisoning.

THE NUMBER OF DOCTORS.

In the United States there are 135,000 doctors; in Canada about 6,000; Germany, 27,000; Great Britain, 42,000; Russia. 12,500; France, about 60,000. In the United States there is one medical college to every 500,000 of the population; in Great Britain, one to every 2,350,000; in Germany, one to every 2,500,000; in Austria, one to every 5,000,000; and in Canada, one to every 500,000. It is estimated that the average income of each doctor in the United States is $1,500 a year.

THE APPOINTMENTS OF DRS. BRYCE AND HODGETTS.

A short time ago, when Hon. Clifford Sifton was in Toronto, he made arrangements with Dr. P. H. Bryce to become the Medical Inspector of Immigration and to oversee the care of the Indians. These are highly important duties, and will bring in their discharge very great responsibilities. Mr. Sifton made an excellent choice in the selection of Dr. Bryce. For twenty-two years he has acted as Secretaty to the Ontario Provincial Board of Health; and for several years also as Registrar-General of the vital statistics of the Province. In these capacities he displayed much energy and executive ability. His annual reports compare favorably with those of a similar character issued by any country or state. Immigration to this country is one of the most important questions now before the people, and the services of Dr. Bryce will be of undoubted value to this department and the country. We wish him every success.

Dr. C. A. Hodgetts has been appointed to the position of secretary of the Ontario Provincial Board of Health, which was rendered vacant by the removal of Dr. Bryce to the Department of Immigration, Ottawa. Dr. Hodgetts has acted as Inspector for the Provincial Board of Health for about thirteen years. He has been most energetic and capable in his management of a number of outbreaks of scarlet fever, diphtheria and small-pox. He has displayed good judgment in many difficult and trying positions. We feel sure that he will give a good account of

himself, and that the work of the Provincial Board of Health will not suffer any deterioration in his hands.

Dr. Hodgetts was for a time connected with No. 4 Bearer Company, under Major Fotheringham. He now holds the rank of captain. During the South African War he acted as Honorary Secretary to the Canadian Red Cross Society for which he received the reward of being made an honorary associate of the Order of Saint John of Jerusalem, England. He enters upon his new duties immediately. Dr. Bryce having already assumed his new duties.

FIRE PROTECTION IN PUBLIC INSTITUTIONS.

The public conscience is stirred now and again by some sudden catastrophe. The recent fire in Chicago has directed attention to the safety of the public in theatres and public halls. It is often only too true that such awakenings are of short duration, and the public mind is soon lulled to sleep again.

While this subject is before the public thought, it would be well to give careful attention to the safety of the inmates of our hospitals asylums, poorhouses, prisons, jails, schools, etc. Every facility should be furnished for the speedy removal of the inmates to some point of safety The attendants in all such institutions should be thoroughly drilled in the proper actions to take in the event of fire breaking out.

The great value of fire drill has been, within the past few weeks, well exemplified in two of the Toronto public schools. But while all can rejoice in the successful manner in which the pupils and teachers made their escape from the burning building, it is very desirable that steps should be taken to render such fires practically impossible. Some day, a fire may occur in a school, or public institution, in such a way as to block up the passages and thus cut off the lines of escape. Fire drill would then fail to save the lives of the inmates.

It is of the utmost importance that in every hospital throughout the country steps be taken to safeguard these institutions. The electric wiring, the furnaces, and all pipes and chimneys should be inspected and put in an absolutely safe condition. It is as in many other things, prevention is better than cure. It is only about a year ago now when some eighteen persons lost their lives in a hospital fire in Chicago. It is not our intention to say anything at present regarding the provisions for the rapid and safe removal of patients from the Toronto Hospitals. We are, however, of the opinion that, if put to a severe test by a large

fire, they would be found inadequate. It must ever be borne in mind that it would be a hard task to empty a hospital of its inmates, so many of them being bed-ridden.

The imperative demand, therefore, is prevention. All fire plant and electric wires should be made safe. The nurses and orderlies should be taught fire drill. There should be in all wards buckets of water, and at convenient places hose attached and ready for instant use. Such provisions would cost but little, and might at any time avert an appaling holocaust.

A HOME FOR THE BLIND.

The Annual Report of the Ontario Institute for the Education of the Blind, at Brantford, has just been issued. The Principal, Mr. H. F. Gardiner, makes some important recommendations. He strongly urges that something be done for the indigent blind who cannot maintain themselves. He thinks they should not be sent to the poorhouse nor committed to the jail. This class could not be properly cared for in the Institution in Brantford, which is intended for the education of blind youths.

Dr. Chamberlain endorses this suggestion, and remarks that there are fifty to seventy blind persons in Ontario who are homeless and have no means of support, nor anyone to care for them.. He thinks a house and workshop should be erected beside the present Institution. They might be put at such employment as they can do. We hope this recommendation may be carried out. There is no more worthy object on which some of the public funds could be expended than in providing a home for the destitute adult blind. We feel sure that no one in the Province would raise his voice against any such expenditure. There is no more suitable place for it than as an addition to the present institution at Brantford.

THE PREVALENCE AND COST OF CONSUMPTION.

From Virchows Archives we learn that tuberculosis is very rare during the first year of life; that from the first to the fifth year it is infrequent, but regularly fatal; that from the fifth to the fourteenth one-third of all bodies are found to contain tubercles; that from the fourteenth to the eighteenth year tubercular lesions are found in one-half; that from the eighteenth to the thirtieth year 97 per cent. show tubercular changes; and that after the thirtieth year 99 per cent. of all bodies reveals tubercles. About 10,000 die in Canada annually. The loss to the country in time, expenses and lives is about $22,000,000 a year.

PERSONAL NEWS ITEMS,

Dr. J. Muirhead Leney has left Montreal and intends locating in Winnipeg.

Dr. Ingram, late of Emsdale, is now assisting Dr. Freeborn at Magnetawan.

Dr. J. Switzer Freeborn, is a candidate for the Federal House, for Parry Sound.

Dr. F. A. Taylor, of Moncton, and Miss St. Clair Snow were married January 28th.

Dr. F. W. Campbell, Dean of Bishops Medical College, has resumed practice again.

Dr. A. E. Vipond, who has been visiting his parents in England, has returned to Montreal.

Dr. G. C. Ferguson has given up his medical practice in Strathroy and has removed to Toronto.

Dr. Smith L. Walker has returned to Truro after practising some years in Los Angeles, California.

Dr. W. M. Whilan, of Whitney Pier, was married on the 28th January to Miss Curly, of Sydney.

Dr. J. H. C. Willoughby, of Saskatoon, was on a trip to Chicago and other points east a short time ago.

Dr. H. D Johnson has been appointed a member of the staff of the City Hospital, Charlottetown, N. S.

Dr. Gibson, a graduate of Queen's University, Kingston, is about to open up a medical practice in Calgary.

Dr. Irwin, Toronto Junction, who has been ill for some time with laryngitis and la grippe, is recovering.

Dr. A. Thompson, of Dawson City, is spending a few weeks with his relatives at his old homs, Elmsdale, N.S.

Dr. Conway Cartwright, of Ottawa, paid a visit a few weeks ago to Rev. C. E. and Mrs. Cartwright, of Kingston.

Dr. James McClurg has been appointed jail surgeon at Sault Ste. Marie in the place of Dr. Adams who resigned.

Dr. E. Flath, of Chelmsford, and Miss Irwin were united in the bonds of matrimony, in the early part of January.

Dr. M. M. Allan, who recently opened an office in Port Elgin, has already worked up a large and successful practice.

Dr. Gordon M. Byers, 192 Peel street, Montreal, who had spent the past three months in Germany, has returned home.

Dr. and Mrs. Massue-Fortier have returned from their wedding trip, and are located at 321 Sherbrooke street, Montreal.

Dr. F. R. Seager's residence at Brigden was wrecked by the explosion of the acetyline gas plant, and the family had a narrow escape.

After an extended visit with friends and relatives in Ontario, Dr. W. J. and Mrs Cross left, a few weeks ago, for their home in Australia.

Drs. J. G. McDougall, of Amherst, and James McLeod, of Wallace, have gone to London, to carry on post graduate study for some months.

Dr. G. R. McDonagh, of Toronto, left in the early part of February, for the West Indies. He will return to his practice about 15th March.

Dr. E. B. Fisher, of Fredericton, and Dr. Hand, of Woodstock, attended the New Brunswick Provincial Board of Health meeting, in St. John recently.

Dr. A. S. Morrison, 543b Wellington street, was appointed physician to the fire department, Montreal, to replace Dr. Daoust, who has left the city.

Dr. McLean Simpson, New Glasgow, N. S, is removing to Emerald, where he will succeed Dr. Johnston, who has taken the practice of Dr. Wickham.

Dr. Chesney McClure, of Lethbridge, Alta., and Mr. W. O. McClure, of Cleveland, were in Brampton a few weeks ago attending the marriage of their sister.

Dr. Anglin, of Kingston, is now improving satisfactorily from his attack of Septicaemia. He was in the General Hospital, Kingston, for several weeks.

Dr. Louis P. Farrell, of Halifax, of the Indian Medical Service, has been ordered from India to active service in Somaliland with the Somaliland field force.

Dr. Gammack, who was in Sarnia with his brother-in-law, Dr. R. D. Scott, attending the funeral of Mrs. Scott, has returned to his home at South Bend, Ind.

Dr. Vrooman, M. P., for South Victoria, was operated on for appendicitis in The Toronto General Hospital a short time ago. He is reported as doing well.

Dr. F. B. Harkness, of North Gower had a dangerous attack of appendicitis recently. An operation became necessary, his condition was reported as favorable.

Dr. E O. McDonald, of New Aberdeen, Glace Bay, was united in marriage, 7th January, to Miss Colena Frances Cameron, daughter of Dr. Hugh Cameron, ex-M.P.

The late Dr. D. S. Bowlby, of Berlin, bequeated $1,000 each to the St. John's church, to the Synod of the diocese of Huron and to the Berlin and Waterloo Hospital Trust.

Dr. Steele, of Almonte, spent a couple of days in Arnprior, with his brother Dr. Howard Steele, who was suffering from an attack of appendicitis but is now recovering.

At a meeting of the ex-pupils of the Normal School, it was decided to ask permission of the Government to erect a tablet in the school in honor of the late Dr. Sangster.

Dr. Wm. Ness, of St. John, left Thursday for Uncle Sam's domain. He purposes practising in the vicinity of Lewiston, Me. Best wishes from all for the doctor's success.

The residence of C. D. Strong, of Moncton, was the scene of an interesting event 12th January, when Dr. Fred King, of Cranbrook, B.C., was married to Miss Edith Keith.

Dr. Charles Shaughnessy, who has been an invalid for some time, and who went to the Adirondack region, New York State, for treatment, has returned to his home, in St. John.

Miss Jean Robinson, daughter of Rev. J. M. Robinson, pastor of Westminster church, Dubeque, Iona, was united in marriage to Dr. Walter Livingston Coulthard, of B.C.

Dr. A. F. McLaren, of Lancaster, who is going to Medicine Hat, N.W.T., was entertained by his friends at the Algonquin House, Stanley Island, the Mayor of Cornwall presiding.

Dr. Blackader, Mountain street, Montreal, who returned home from the Montreal General Hospital much improved in health, left about the end of January, for a short visit to Bermuda.

Dr. Edward Fahey, who left this city a few weeks ago for St. Paul, has passed the Minnesota Medical Council examinations and is now eligible to practice his profession in that State.

Dr. Kitchen was in Toronto, during part of January, on Provincial Board of Health business, and while there attended the Medical Association banquet held at the King Edward Hotel.

Dr. O. Morris, of Vernon, B. C., was in Victoria. He remains over until after the meeting called in the interests of forming an association for the Prevention of the Spread of Tuberculosis.

Dr. J. M. Park has been appointed House Surgeon at the City Hospital, Hamilton, succeeding Dr. Hess, who has gone to Dundas to take Dr. *Bertram's practice, while he is in the south.*

The list of practices for sale by the Canadian Medical Exchange, conducted by Mr. Hamill, is so unusually inviting this month that we advise intending purchasers to carefully examine the same.

Dr. A. E. and Mrs. MacIntyre, who were passengers on the *Parisian*. were married recently in Germany. They are *en route* to Quebec. Dr. MacIntyre was formerly an editorial writer on the *St. John Telegraph*.

Dr. W. C. Billings, N. S. Marine Hospital Service, who has been in St. John on detached duty to the immigration service, has been promoted, having passed as assistant surgeon, with the relative rank of captain.

A pretty and very quiet wedding was solemnized in St. John's Church, Toronto Junction, on the afternoon of January 25th, when Mrs. F. M. Fraser, of Hylinda, Toronto Junction, was married to Dr. S. H. McCoy, of St. Catharines.

Dr. Theo. Coleman, head physician for the Canadian Copper Cliff Company has resigned, and will move with his family to the City of Hamilton, where he will go in for private practice. He is succeeded by Dr. R. J. Gibson of Sault Ste. Marie.

The death of Mrs. Sippi, wife of Dr. C. A. Sippi, Bursar of London Asylum for the Insane, occurred January 26th, at the family residence, London Junction. Mrs. Sippi had been unwell for some time, her ailment finally developing into pneumonia.

Dr. McLean, of Winnipeg, had recently a very narrow escape, while driving in his cutter, his horse was struck by a street car and knocked down. The cutter was dragged a short distance by the car. The doctor escaped unhurt though his horse was killed.

Dr. Herod, of Thorold, who located here about two years ago, and remained about two weeks, has returned to town and opened an office in the Macartney block on Front street. During the past two years the doctor has been with the Clergue Co. at the Soo.

Dr. T. J. Moher, Assistant Superintendent of the Institution for the Feeble Minded, Orillia, has been promoted to the position of Medical Superintendent of the Asylum for the Insane, Brockville, in place of the late Dr. Murphy, who died suddenly a short time ago.

Dr. J. Nisbet Gunn, Graduate in Medicine, of Toronto University, 1902, who has just returned from a year in England and on the Continent,

passed the M.R.C.S. and L.R.C.P. examinations of London recently. He intends practising with Dr. W. Gunn, of Clinton, Ontario.

Dr. Marshall, who for the past five years has been engaged practising medicine in Michigan, has been spending some days here visiting his brother, Mr. J. G. Marshall, Midland. Dr. Marshall expects to commence the practice of his profession in Ontario in a short time.

Dr. Yamel Kin, whose medical degree is said to be the first ever conferred upon a Chinese woman in the United States, talked to the members of the Boston Twentieth Century Club last month. She told them they were too nervous, too unstable, too impressible, too strenuous.

Jas. G. Cranston, M. D., was presented recently at Arnprior, with a very beautiful silver tea set, in acknowledgment of his services as chairman of the Board of Education for thirty-five years. The Doctor is now Mayor of Arnprior. Mrs. Cranston is a sister of Mrs. Yarker, of Toronto.

A very pretty wedding took place on Wednesday afternoon, February 3rd, at the residence of the bride's parents, Mr. and Mrs. Hugh McDonald, Chatham, when their only daughter, Miss Grace, was married to Dr. C. C. Bell, son of Judge Bell, of Chatham. The Dr. and Mrs. Bell will reside in Chatham.

Miss Margaret Borthwick, who is well known in Galt, through having lived there several years, is credited by the *News*, of Marcon, Georgia, with having made a plucky attempt to prevent the escape of a negro who had attempted the murder of Dr. Elder, chief surgeon of the city hospital, in that city.

The income on the real and personal estate of the late J. B. McIvor goes to his sister, Mrs. Alexander Mackie, during her life. After her death the estate is to be divided between the General Hospital and Queen's University, the hospital getting the larger share. The value of the estate is about $20,000.

Dr. P. H. Bryce, formerly secretary of the Provincial Board of Health, has assumed the duties of his new position as Medical Inspector of Immigration. Dr. Bryce will have charge of the medical staff who examine the immigrants at the ports of entry and also those who look after the Indians. He will move his family to Ottawa.

A pretty wedding was celebrated at Guelph, Thursday afternoon, Dec. 31st, when Miss Amy Martin, second daughter of the late W. E. Martin and Mrs. Martin, was united in marriage to Dr. Oswald C. Withrow, M. R. C. S. (Lond.), L. R. C. P. (Edin). Dr. and Mrs. Withrow left for a short trip to eastern points. On their return they settled in New Hamburg, where he had purchased a practice.

Monday evening, 4th of January, the home of Dr. H. R. Carter, of Port Elgin, N. B., was the scene of a pleasing event. His friends from Shemogue, Upper Cape, Baie Verte and Port Elgin met at his home in appreciation of his recovery from his recent illness. Rev. J. H. Brownell. of Shemogue, on behalf of the friends, presented the doctor with a most elegent ebony and gold cane, the best that could be procured.

The calamitous fire which swept the business section of Baltimore on Sunday and Monday, February 7th and 8th, destroyed the February number of the *Maryland Medical Journal*—the Tuberculosis Exposition number—containing the valuable papers of Knopf, Flick, Adami, Ravenel, Thayer, Hoffman, Salmon, etc. Through facilities afforded in Philadelphia, the forms were reproduced from proofs on file outside the fire zone, and the February Journal was issued a few days ago.

The quarantine regulations, which were imposed upon the Mimico Asylum on account of the development of smallpox in one of the newly appointed nurses, were suspended three weeks ago, and the danger of the spread of the contagion which at first existed is now happily past. Dr. Hodgetts, Secretary of the Provincial Board of Health, expressed himself as well pleased with the thoroughness of the quarantine as maintained by the management of the asylumn, and the consequent protection which it has afforded.

OBITUARY.

JOHN HERBERT SANGSTER, M.A., M.D.

A notable figure in the Canadian Medical and Educational world, passed away at the King Edward Hotel, on Wednesday, 27th January, 1904, in the person of Dr. John Herbert Sangster, of Port Perry. Along with Mrs. Sangster, he came to Toronto the day previous to meet their daughter and her husband, Dr. S. C. Corbett, of Winnipeg, who were returning from their wedding trip to the Bermudas. For about two years, Dr. Sangster had suffered from heart disease; but was feeling unusually well the day before his death. About 3 o'clock in the morning, Mrs. Sangster noticed that he was breathing heavily and summoned Dr. Corbett, who was in an adjoining room; but Dr. Sangster expired almost immediately. Dr. Sangster was born in London, England, in 1831, and came to Canada with his parents while he was quite young. He was educated at Upper Canada College, and was one of the first students of the Provincial Normal School when it was opened in 1847. At the time of his death, he was the only survivor of that class.

In spite of his youth—he was then only sixteen—his ability attracted the favorable notice of the then Principal, T. J. Robertson, and of the then Chief Superintendent of Education, Rev. Dr. Ryerson, through whose influence he was appointed successively assistant master of the Provincial Model School, head master of the Hamilton Central School, assistant master of the Model Grammar School, second master of the Normal School, and, finally, in 1866, Principal of the same institution, which position he filled till 1871. During the whole term of his connection with the Normal School he was professor of chemistry and botany in Rolph's Medical School, which was the medical faculty of Victoria University. He prosecuted the study of medicine meanwhile, and took his degree of M. D. On his retirement from educational work in 1871 he settled in Chicago, but after a brief residence there returned to Canada and began the active practice of medicine in Port Perry. In 1874 he was defeated by Mr Goldwin Smith in a contest for a seat in the Council of Public Instruction. He was eminently successfuly in his profession, and in November 1894, he was elected a member of the Ontario Medical Council. In that connection he will long be remembered for the strong fight he made for a number of years for a change in the composition of the council. His chief objection was to the presence upon the council of colleges not teaching medicine, and his fight was to a great extent successful when the matter came before the Legislature. Having succeeded in his effort, he became an ardent supporter and one of the most useful members of the reformed council.

Between 1858 and 1871, Dr. Sangster prepared and published a number of school books, which became the exclusively authorized text books in the public schools of the province. Perhaps the best known of the series was "Sangster's Arithmetic." He was also noted for his talents as a writer upon public questions and his powers as a public speaker. In July, 1892, he was the orator of the day at the "hoisting of the flag" ceremony in London, Ont., when he spoke upon the subject, "One Century's Transformation in Canadian Life," and at the Normal School jubilee celebration at Toronto, November, 1897, he delivered a remarkably able address on "Progress in Education." During the equal rights movement in 1890 he was the author of a series letters signed "Gacchus," which attracted much attention. Among his later public appearances was the one at the reunion of former Central School pupils in Hamilton, where he was the honored guest of many of those whom he had taught half a century ago. Dr. Sangster's first wife, was Miss Mary Smith, and eight children were born to them. Of these, four are still living, as follows: Mrs. Arnold Pettit, of London, Ont.; Mr. John A. Sangster, a

successful teacher, in Quebec, and Mr. Robert Sangster, who holds a responsible position with an insurance company, and Dr. Chas. H. Sangster, of Buffalo.

His second wife was Miss Caroline Elizabeth McCausland to whom he was married in 1871. She survives him together with one daughter, the wife of S. C. Corbett, of Winnipeg, and three sons, Dr. Sangster, of Port Perry, and two others in the civil service at Ottawa.

The remains were interred at Port Perry.

EDMUND G. KITTSON, M.D.

Dr. Edmund G. Kittson, died 5th February, rather suddenly, at his residence, James Street, Hamilton. He was born in Cobourg, Ont., 52 years ago. Besides a widow, he leaves one son, Norman. Deceased was in good health during the day, but before retiring said to his wife: "If I want you I will call you" In the morning on going into his room, she found him in convulsions and he died in the afternoon.

BOOK REVIEWS.

SAUNDERS' AMERICAN YEAR BOOK FOR 1904.

The American Year-Book of Medicine and Surgery for 1904. A Yearly Digest of Scientific Progress and Authoritative Opinion in all branches of Medicine and Surgery, drawn from Journals, monographs, and text-books of the leading American and foreign authors and investigators. Arranged, with critical editorial comments, by eminent American specialists, under the editorial charge of GEORGE M. GOULD, A. M., M. D. In two volumes. Volume I, including *General Medicine.* Octavo, 673 pages, fully illustrated; Volume II, *General Surgery.* Octavo, 680 pages, fully illustrated. Philadelphia, New York, London: W. B. SAUNDERS & Co., 1904. Per volume: Cloth $3.00 net; Half Morocco, $3.75 net. J. A. Carveth & Co., Limited, 413 Parliament Street, Toronto, Ont.

The American Year-Book of Medicine and Surgery continues to maintain its high place among works of its class. Indeed, the issue of 1904, now before us if anything, is even better than the excellent issues of previous years. Such a distinguished corps of collaborators which the editor, Dr. George M. Gould, has enlisted as his assistants is sufficient guarantee that the essential points of progress are brought in, and the collaborators' notes and commentations are excellent. In the illustrative feature the 1904 issue fully maintains its reputation, there being fourteen full-page insert plates, besides a number of text-cuts. We pronounce Saunders' Year-Book for 1904 the best work of its kind on the market, as it has always been.

GILLIAM'S TEXT BOOK OF GYNECOLOGY.

A text book of practical Gynecology for Practitioners and Students by D. Tod. Gilliam, M. D., Professor of Gynecology in Starling Medical College, Columbus, O; Gynecologist to St. Anthony and St. Francis Hospitals, Columbus, O; Fellow of the American Association of Obstetricians and Gynecologists; Member of the American Medical Association, of the Ninth International Medical Congress, and of the Pan-American Medical Congress; Honorary Member of the North-western Medical Association, Consulting Gynecologist to Park View Sanitarium, etc. Royal Octavo Pages XVI-634. Illustrated with 350 engravings, a colored Frontispiece and 7 full page half-tone plates. Extra Cloth, $4.00 net, Half-Russia, $5.00 delivered. Philadelphia, F. A. Davis Publishers, 1914-16 Cherry Street.

Among the many recent works on Gynecology, this one should take a good place. It is well got up. The paper, binding, printing, and illustrations are of the very best quality. The author adopts a natural order. He takes up the general causes, then gynecologic examinations, gynecologic technique, disorders of menstruation, malformation, diseases of the vulva, vagina, pelvic floor, fistulae, diseses of the uterus dispacements of the uterus, lacerations, cancer, ectopic gestation, diseases of ovaries, tubes, rectum, bladder, urethra, ureters and kidneys. The above list of contents, though by no means a complete list of the subjects discussed by the author, gives a fair idea of the comprehensive scope of the book. In addition to the fact that the work covers the whole field of gynecologic diseases, the author displays good judgment in his treatment of the various subjects. All useless matter is carefully expunged. The advice on all points is trustworthy.

WHITMAN'S ORTHOPEDIC SURGERY.

A Treatise on Orthopedic Surgery. By Royal Whitman, M. D., Instructor in Orthopedic Surgery in the College of Physicians and Surgeons (Columbia University), New York; Associate Surgeon to the Hospital for Ruptured and Crippled; Orthopedic Surgeon to the Hospital of St. John's Guild; Chief of the Orthopedic Department of the Vanderbilt Clinic, etc. New (2d) edition, thoroughly revised and much enlarged. In one octavo volume of 820 pages, with 507 engravings, mostly original. Cloth, $5.50 net. Lea Brothers & Co., Publishers, Philadelphia and New York.

Orthopedic surgery occupies a broad field and one of very great and general interest Its most distinctive advance in recent years has been toward the prevention of deformity, an advance that has been made possible by the better understanding of its predisposing and exciting causes. As a natural consequence, treatment has become more direct, more simple, and more effective. It has been the purpose of the author to emphasize this aspect of the subject, which is of the greatest importance to the general practitioner, who so often has the opportunity

to recognize disease or disability in its incipiency, when its progress may be checked by timely treatment.

He has endeavored to outline methods of examination, to explain the phenomena of the symptoms and so to describe and to illustrate the causes and effects of disease and disability as to indicate, in natural sequence, the principles of treatment; but the particular methods of the application of these principles, which have been described in detail, are always those that have been tested by personal experience.

Although this book is designed particularly for students and practitioners of medicine, the author has included statistical and other data, which he hopes may prove of interest to his fellow workers in this special field.

The author construes the early exhaustion of the first edition as evidence that it has met the needs of both classes of readers for whom it was prepared. He has utilized the opportunity afforded by the demand for a new edition by subjecting the work to a very thorough revision, in order to reflect its department to the date of issue. The consideration of new subjects, the more extended description of others, and the addition of some sixty new illustrations, have resulted in a material enlargement of the book, but the general characteristics of the first edition have been retained, and the certainty of a still wider usage enables its issue without increase of price

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SQUINT—ITS CAUSES, PATHOLOGY AND TREATMENT.

By Claud Worth, F. R. C. S, London, John Bale Sons and Danielsson, Ltd., Oxford House, 83-89 Great Titchfield Street, Oxford Street, W.

This excellent book of 229 pages is the result of examining a very large number of cases of squint and watching the results of treatment during a number of years and by investigating the visual functions of normal-sighted people. It is a pleasure to read a work founded on such careful and painstaking investigations. When one considers the amount of time and trouble there is in making notes of 2,337 cases of squint and heterophorias, he must admit that the author, Worth, has fulfilled a useful and valuable sphere in ophthalmology.

In studying the fusion sense, the author made experiments extending over nearly a year in two large crèches and he is of the opinion that this faculty normally reaches its full development before the end of the sixth year. He describes two conditions as present in every case of concomitant, convergent squint, (1) an abnormal convergence of the visual axis, (2) a defect of the fusion faculty. In the chapter dealing with

the treatment of convergent squint, a large number of illustrative cases are cited which add very materially to one's understanding. Regarding prism exercises in heterophoria he says "rhythmic exercises with prisms, cylinders etc., are much employed in America in cases of heterophoria. I have tried them repeatedly and have never seen the least benefit from them." In America there is, no doubt, a tendency to exaggerate the importance of small latent deviation tendencies. But this is, perhaps, less harmful than the almost total neglect which the subject meets with in "this country." If the general practitioners would read this work and understand what really constitutes the "scientific" treatment of a case of squint he would wonder how any one could send a patient to a so called "scientific" optician or travelling refractionist. The printing, binding and cover of the book is in the usual excellent style of British houses.

HALE'S EPITOME OF ANATOMY.

Lea's Series of Medical Epitomes. A Manual for Students and Physicians. By Henry E. Hale, A.M., M.D., Assistant Demonstrator of Anatomy College of Physicians and Surgeons (Columbia University) New York. In one 12mo volume of 384 pages, with 71 illustrations. Cloth $1.00, net. Lea Brothers and Co., Publishers, Philadelphia and New York, 1903.

This is a very excellent little book of nearly 400 pages. It is got up well, the illustrations are both numerous and good. The type, paper, and binding are all first-class. The book can be recommended to all requiring a work on anatomy that is not too large, and, at the same time, trustworthy in every respect.

DISEASES OF THE PROSTATE GLAND.

A Non-Surgical Treastise on the diseases of the Prostate Gland and Adnexa. By George Whitfield Overall, A.B., M.D. Formerly Professor of Physiology in the Memphis Hospital Medical College. Chicago; Marsh and Grant Company, Printers; and the Rowe Publishing Company, 1312 East Washington Street, Chicago.

This small book of 207 pages purports to deal with the non-surgical diseases of the prostate gland and adnexa. His views upon the management of these cases are careful and well advised. He is optimistic of what can be done for patients suffering from various forms of prostatic disease by other than operative treatment. There is an interesting chapter on the neuroses of the prostate, and two chapters on the value of electro-physics, electrolysis, and cataphoresis in these cases. The book merits a large sale.

INTERNATIONAL CLINICS.

A Quarterly of illustrated Clinical Lectures and especially prepared original articles on Treatment, Medicine, Surgery, Neurology, Pediatrics Obstetrics, Gynaecology, Orthopedics, Pathology, Dermatology, Ophthalmology, Otology, Rhinology, Laryngology, Hygiene, and other topics of interest to students and practitioners, by the leading members of the Medical Profession throughout the world. Edited by A. O. Kelly, A.M., M.D., Philadelphia, with the collaboration of Drs. Osler, Musser, Stewart, Murphy, McPhedran, Roteh, Clark, Walsh, Ballantyne, Landolt, Harold, and Kretz. Volume IV, 13th Series, 1904, Philadelphia: J. B. Lippincott Co. Montreal: Charles Roberts, 1524 Ontario St. Price $2.25:

The contents of this volume are both varied and interesting. There are four lectures in Treatment, eight on Medicine, six on Surgery, four on Gynaecology and Obstetrics, two on Neurology, one on Orthopedics, two on Ophthalmology, and one on Pathology. There are nine plates, and a number of illustrations. The contributors are among the highest authorities in the profession, and include such names as James Tyson, John H. Musser, Louis Julien, Sir Dyce Duckworth, Andrew Duncan, James Burnet, Nicholas Senn, Francis H. Davenport, Daniel R. Brower, Casey A. Wood, Joseph McFarland, and others. This is an excellent volume of an excellent series. In every way it is got up worthy of the well known publishers. The material in the book is of a very high class. Indeed, there is not a weak article in it. We can recommend Internal Clinics as certain to give complete satisfaction to those who read their pages.

WOOD'S REFERENCE HAND-BOOK

A Reference Hand-book of the Medical Sciences embracing the entire range of Scientific and practical Medicine and Allied Science by various writers. A new edition completely revised and rewritten. Edited by Albert H. Buck, M.D., New York City. Volume VIII. Illustrated by Chromolithographs and six hundred and eighty-eight half-tone and wood engravings. New York: William Wood and Company, 1904. Toronto · Chandler and Massey. Price, cloth, $7.00 per volume.

This volume includes subjects from the word "Saccharin" to "ulcer". The volume contains 950 pages. There are about 130 contributors. We have already reviewed the six volumes which have already appeared. That this is a great work, every one who has had any acquaintence with it will at once admit. These volumes form a complete library of medical knowledge. Take any letter and go over it with the utmost care and one fails to find any subject that has been omitted, or imperfectly handled. The illustrations, too, are of a superior character. In every way, this volume is up to the very high standard of the previous six volumes. In the present volume we notice that a number of Canadians have written important sections. Dr. Buller, of Montreal; William S. Morrow, of Mon-

treal; A. G. Nicholls, of Montreal; William Oldright, of Toronto; F. J. Shepherd, Montreal, and Beaumont Small, of Ottawa, may be mentioned. Their portions of the volume are creditably done. In addition to the above, who hold important positions in this country, we also notice that two former Torontonians contribute chapters, namely, R. R. Bensley and Lewellys F. Barker, both now in Chicago. Dr. Bensley writes a very able article on the "Anatomy and Histology of the Stomach," and Dr. Barker a lucid and exhaustive one on the "Spinal Cord." We take great pleasure in referring specially to these able articles.

The series of which this is one of the volumes, occupies a unique position. It is undoubtedly a standard work.

LAKE'S DISEASES OF THE EAR.

Hand book of diseases of the ear for the use of students and practitioners. By Richa d Lake, F.R.C.S., Eng., Surgeon of Royal Ear Hospital, Lecturer on Practical Otology, Medical Graduates' College. With three colored plates. London: Bailliêre, Tindall and Cox, 1903. Price 6 shilling, net.

This is a very excellent little book of 230 pages It covers the ground of otology in a careful and complete manner. The illustrations are good and the descriptions of the various diseases and operations clear and brief. For the general practitioner this is a useful hand book. The book is got up in attractive form. We can heartily recommend Dr. Lakes's book.

THE MILITARY MEDICAL SERVICE OF JAPAN.

EDITOR, CANADA LANCET,

Sir,—The war between Japan and Russia is arousing so much interest at the present time, that it would seem a short account of the medical arrangements of the two armies might prove of interest. The succeeding remarks are founded on an excellent report by Colonel William Taylor, now Surgeon General Sir William Taylor, D.G., who was sent out by the Imperial Government to observe the medical service in the China-Japanese war of 1894.

THE JAPANESE REGIMENT of infantry consists of three battalions of four companies each, of a total strength of 2,400 officers and men. In each regiment there are 48 regimental bearers, distinguished by a red band worn above the elbow of the left arm. The scope of the regimental medical sevrice in action comprises, medical aid in the fighting line and at the dressing stations. These stations are closed when the

bearer companies begin their work. The medical officer and his assistants are employed at the front under fire at the temporary dressing stations referred to, but the Japanese regulations require the regimental medical service to keep well closed up with the fighting line, and to conform to its movements. The equipment is similar to that carried by all armies, but is very liberally supplied. The medicines are of the usual European kinds, morphia, iodoform, Hoffman's anodyne etc.

THE BEARER COMPANY forms a divisional organization, consisting of a central administration and two subdivisions of three sections each, of a total strength of 416 officers and men and fifty-one horses There are ten medical officers and four pharmacists. This column is under the control of the division commander, who is advised by the chief of the division medical staff. Each bearer column bears the name of the division to which it belongs, and is organized so that it can at any time be divided into two equal parts. Ordinarily, one-half marches with the advance guard and the other half in the main body. The function of the bearer company is to act between the dressing stations and the field hospitals.

THE DRESSING STATION is divided into three sections, indicated by flags of different colours. 1. Receiving and forwarding section, (blue flag). 2. Operating section, (white). 3. Dressing section, (red). The dressing stations are, in addition, distinguished by the the Geneva Red Cross flag by day, while they are marked by red lanterns at night. The identification of patients is secured by a metal label worn by all ranks. The registry of all property is also provided for. The medical and surgical equipment of the bearer column consists of four panniers, eight reserve panniers, ninety-six stretchers, and two tents, for the carriage of which thirty-six horses are allotted. The stretcher is made of bamboo with canvas bottom and moveable cross pieces. Most of the land carriage of patients is done with these stretchers and the native springless carts. There does not appear to be a provision for ambulances, though I understand a large number have been ordered from a firm in the United States for the purposes of the present war.

FIELD HOSPITALS. There are six field hospitals in each division, three are with the first line of transport and three with the second. Their function is to receive patients from the dressing stations, or directly from the fighting line, to continue or complete the treatment previously received, and to be prepared for rapid evacuation should it become necessary. The personnel of these field hospitals for each division consists of 48 officers, 108 non-commissioned officers, 510 men, and 264 horses. The quota of patients for each hospital is 200.

TRANSPORT. Passing from the field hospitals to the rear, along the lines of communication to the base, the patients are in the hands of hospital transport corps. There is also a reserve medical staff and a reserve medical store.

The supreme medical control is vested in a field medical commander, who is chief of the medical department of the war office, and, during war, serves with the grand headquarters of the army and with him he has a personal staff of four. The army is also supplied with hospital transports and a hospital ship. The latter has accommodation for 50 officers and 200 men (patients).

GENERAL HOSPITALS AT THE BASE. The reserve hospitals are established either within military garrisons or without, and bear the name of the locality where they are located. They have an establishment of from 42 to 70 officers and men of the hospital corps.

THE RED CROSS SOCIETY. The Red Cross Society was inaugurated in 1886 and had, in 1894, since largely increased, 75,902 members, employing 1,170 medical officers, female nurses, and orderlies.

The first aid dressing used is Dr. Kikuchi's straw ash pad. It consists of straw ashes, freed from grit and put up in muslin bags. Applied directly to the wounds it is said to be very absorptive and aseptive. If there is no discharge from the wound it is applied dry, but if it discharges freely the pad was first soaked freely in bicholoride solution.

THE FOOD OF THE ARMY in time of peace, consists of 36 ounces of rice and 6 cents for the purchase of chicken, beef, pork, fish, or vegetables, tea, pepper, and miso, a kind of pea flour. That amount of money does not purchase much of these articles, but the Japanese are satisfied with a very small proportion of animal food, if they can have their rice flavoured with fish or "soy." The rice is boiled in bulk in large pots for each section of a company. The daily field ration consists of rice, 36 oz.; chicken, beef, pork, or fish, 5 oz.; of preserved meat, $2\frac{1}{2}$ oz.; or dried meat, 4 oz.; with vegetables, fresh. 5 oz.; or dried vegetables, 2 oz.; spice, $1\frac{7}{8}$ oz., preserved plums, $1\frac{1}{2}$ oz.; and salt, miso, tea, a sufficiency. The cooking is very simple. If the men were with their regiments the cooking utensils were up with the column, the rice was boiled in large boilers and the preserved meat, vegetables, etc., which each man carried for himself, were added by the men themselves. Each battalion carried a box containing appliances for analysis of water, and medical officers were sent on ahead to examine each proposed camping place. Each battalion also carried wooden filters. The water was, where necessary, ordered to be boiled, but this was often not carried out, as it appeared to be nobody's business to see that it was done.

DRESS. The weight of the infantry clothing and equipment, including rifle, ammunition, and special ration, was 56 pounds 13 ounces. Besides the ordinary greatcoat during cold weather, the officers and men, mobilized for the war (1894), had one made of brown blanketing, with a hood and special covering for the head, concealed under the collar, and a pair of mittens of the same material as the coat. It came down to the ankles and had a band to buckle around the waist. The men in the field had a paper shirt and a pair of drawers. In very cold weather these were worn between the usual under and over shirts and were said to be very warm. There was considerable suffering from ill fitting shoes and canvas gaiters and cotton socks. The knapsack was faulty and pressed unduly on the chest and armpit. The material of which the tunic and trousers were made was of blue cloth with stripes of different color to distinguish the different arms of the service.

It will be noticed that the Japanese are supplied with very adequate and liberal medical service, and General Taylor speaks in glowing terms of the devotion and bravery displayed by the bearers in bringing wounded men under fire. The free use of voluntary aid through the medium of the Red Cross Society is noticeable. I think that it is admitted that no nation maintains, even in time of war, a sufficient medical establishment to meet the requirements. It will be remembered that during the late South African war the St. John Ambulance Association supplied upwards of two thousand trained orderlies for hospital work, and that the Red Cross Society contributed more than three million dollars worth of supplies for the sick. It is painful to think what would have been the fate of the sick and wounded without this adventitious aid. We ought in this country to develop these societies, especially the ambulance association as a reserve for the Army Medical Corps, for trained orderlies cannot be improvised at a moment's notice.

Yours, etc.,

G. STERLING RYERSON, M. D.,

Colonel, Canadian Army Medical Staff.

MISCELLANEOUS.

VINO DON LORENZO.

This is a good wine, and is very carefully medicated with pure and reliable extracts. It contains extract of kola nut, antiseptic salts, aromatics, and iron. It is a valuable tonic in general debility and anæmia. It has been employed in such conditions as anæmia, grip, fevers, malaria, dyspepsia, neurasthenia, insomnia, heart affections, general dibelity, neuralgia, loss of appetite, etc. We can recommend this wine to those requiring to prescribe a medicated wine.

FACETIÆ MEDICORUM.

The New York Pharmacal Association has issued a booklet *Facetiæ Medicorum*, gleaned from the files *Doctors' Factotum*. This little booklet is full of wit and humour. Any physician who may not have received a copy, is requested to write for one to the New York Pharmacal Association.

ANTIPHLOGISTINE.

Dr. Colin Campbell, Southport, Eng., L.C.R.P., M.C.R.S., writes in the *Medical Press and Circular*, London, Eng., Oct. 7, 1903:—

PLEURISY.—Dr. B. was under my care last winter suffering from a pulmonary cavity. He had had previously two or three intercurrent attacks of pleurisy, which I again found present on Dec. 7th, 1902, accompanied by severe pain over the cavity, and a temperature of 103°. His previous attacks had occurred at his home, where careful poulticing was practicable, but in apartments this was unsatisfactory, and so it occurred to me to try Antiphlogistine.

The material was warmed and "trowelled" on for many inches around the pleuritic centres, then covered with non-absorbent lint and Jaconet.

The result was remarkakle; the pain disappeared within an hour, and the high temperature within two days.

Many advantages over poulticing were noticed by the patient; facility of application, no unendurable heat, rapid relief from pain, its adhesiveness rendered movement possible without tight bandaging or the alternative sudden influx of cold air which follows the separation of a poultice from the skin.

Chilblains to many will appear a trifling matter, but as one whose school days in winter were rendered miserable by them, I can assert

that they are most maddening. Last wintee my daughter, aet. 11, suffered from them severely. Each time Antiphlogistine was applied, the redness and intolerable itching disappeared in a night. I have tried remedies iunumerable with no such result.

"Many a man is to-day worrying over a case or two of pneumonia, pleurisy, or capillary bronchitis, whose troubles would flit away like mist did he but know enough to put his patient into a jacket of Antiphlogistine."—*Medical Summary*, Nov., 1902.

IN MEMORIAM WILLIAM M. WARREN.

In loving memory of a beautiful and beneficent life, we the assembled directors, executives and employees of Parke, Davis & Company, would fain express the sorrow and heartache caused by the untimely death of our General Manager, William M. Warren. For the relief of of our own grief, as a just tribute to a life rich in effective performance, and in deference to the sentiments of a wide circle of surviving friends, we record this testimony to the noble character, the massive and solid integrity, the large, warm, generous heart, the brilliant and gifted mind, the abounding energy of our beloved friend. As long as life and memory may linger in our mortal frames we shall cherish the recollection of his lofty spirit and winning manners—simple, sweet, and genial. The benevolence of his heart shone out in the engaging smile, in the keen and penetrating yet kindly eye, which gained for him a friend in every acquaintance, No man ever lived whose granite-like probity inspired quicker or more lasting trust. To know William M. Warren was to like him; to know him well was to love him and trust him to the gates of death. And what living creature ever trusted him in vain? His simple word was a tower of strength. When did he ever fail in the whole span of his short but shining life to fulfil his plighted faith with a chastity of honor that knew no stain—nay, when did he fail to beggar his promise by the opulence of his performance? Gifted he was, but his strength lay as much in moral weight as in mental endowment, and his remarkable success was only the destiny of character.

HAY FEVER.

In the United States the majority of cases of hay fever occur in the fall of the year, and for this reason the disease is often designated autumnal catarrh. There is only one reliable way of preventing the attacks, and that is a change of residence to some place, whether the seashore or mountains, where susceptible persons may enjoy immunity

from this distressing disorder. Few, however, can avail themselves of this plan, and the vast majority of sufferers are compelled to rely upon medical treatment. Internal medication has proved of limited utility, but the results of local treatment have been much more encouraging. In most instances there is present a catarrhal condition of the nose and throat, frequently extending down to the bronchi, and giving rise to constant sneezing, profuse nasal discharges, cough and asthmatic attacks. These symptoms can be greatly relieved by inhalations of vapo-cresolene, which exerts a soothing effect upon the affected mucous membranes, and penetrates to places which cannot be reached by sprays, insufflations or other topical applications. If the air of the bedroom is charged with cresolene vapor, which is perfectly harmless, the sufferer will be able to rest in comfort, and be spared the exhaustion due to the loss of sleep, which is often present in these cases. Under the use of vapo-cresolene an attack of hay fever not only runs a shorter course, but is divested of most of its disagreeable features.

THE DECADENCE OF OPIUM.

We would not banish opium. Far from it. There are times when it becomes our refuge. But we would restrict it to its proper sphere. In the acute stage of most inflammations, and in the closing painful phases of some chronic disorders, opium in galenic or alkaloidal derivatives, is our grandest remedy—our confidential friend. But here, the application should cease; and it is just here that the synthetic products step in to claim their share in the domain of therapy. Among the latter, perhaps none has met with so grateful a reception as Antikamnia Tablets, and justly so. Given a frontal-temporal-vertical or ocipital neuralgia, it will almost invariably arrest the head-pain. In the terrific fronto-parietal neuralgia of glaucoma, or in rheumatic or post-operative iritis, they are of signal service, contributing much to the comfort of the patient. Their range of application is wide. They are of positive value in certain forms of dysmenorrhœa; they have served well in the pleuritic pains of advancing pneumonia and in the arthralgias of acute rheumatism. They have been found to allay the lightning lancinating, pains of locomotor ataxia, but nowhere may they be employed with such confidence as in the neuralgias limited to the area of distribution of the fifth nerve. Here their action is almost specific, surpassing even the effect of aconite over this nerve.—*National Medical Review.*

APOLLINARIS WATER.

The London *Lancet* of the 30th January, 1904, publishes a long and interesting article headed "Some points concerning Natural Mineral Waters in general ,and Apollinaris Water in particular." In view of a

recent action, in which the question whether Apollinaris was entitled to be called a Natural Mineral Water was decided in the affirmative, the *Lancet* has sent a special Commissioner to visit the Apollinaris Spring in Germany, and he now reports the result of his investigations there, and sets forth numerous analysis made on the spot, and of Apollinaris purchased in the open market. The article concludes as follows:

"It is difficult to suggest, in the face of the facts just recorded and of the experience which has decided upon the adoption of the methods of bottling Apollinaris which we have described, how those methods could be altered with any possible advantage to the public, or how any modification of those methods would enable the public to receive the water in a condition more natural than it is. As a matter of fact, Apollinaris water is bottled in such a way that the natural equilibrium of the water and its compliment of gas at a depth of 50 feet in the spring are preserved in the bottle for public use. Both water and gas are absolutely the natural products of the spring, and the composition of the bottled water is, according to our analysis, always the same and without any appreciable variation in the mineral constitutents. Some portion of a useless constituent, in the form of oxide of iron (the total amount in the water being quite minute) separates from the water prior to bottling, but a useful constituent, in the shape of a small quantity of salt, is added to augment the amount of salt already naturally present in the spring, in order to prevent the possible decomposition to which the sulphate of sodium of the water is occasionally liable. The taste of the water in bottle is identical with that of the water taken directly from the spring. Apollinaris water has a peculiar soft flavour which is due, not to common salt at all but in part to the alkaline carbonates which neutralise the acids in the mouth, and in part to the natural state of combination of the mineral ingredients. As Professor Oscar Leibreich has said, 'even the best manufactured artificial mineral waters differ from the natural ones in taste and value.' There is nothing disclosed in our analysis of the bottled water which is not found in the water at the spring. In view of these facts which we have taken some trouble to ascertain for ourselves, it seems to us that the recent decision of the Lord Chief Justice that Apollinaris water is entitled to the description of a natural mineral water is in accordance with both law and common sense.

"We may add that our analysis and observations are in substantial agreement with those given at various times by the late Professor Virchow, Professor Bischof, Professor Liebreich, Professor Mohr, Professor Hofmann, Professor Kekulé, Professor William Odling, and the late Sir Edward Frankland."