



UZZIEL OGDEN, M.D



J. H. RICHARDSON, M.D., M.R.C.S. ENG.

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THE CAUSATION AND PREVENTION OF PHTHISIS.*

By BYRON BRAMWELL, M. D., F. R. C. P., F. R. S. Edin.
Physician to the Royal Infirmary, Edinburgh.

THE prevention of phthisis is one of the most important questions of day; and is attracting much attention. The following facts are now fully recognized; that in its early stages phthisis is curable in a much larger proportion of cases than was at one time supposed, that it is a preventable disease, and that a determined effort should be made to deal with it both in the way of prevention and cure. The crusade against phthisis will do much to diminish the disease, and will be of incalculable benefit to the whole community.

The prevention of phthisis is a large and complicated problem. It should be clearly understood that any great measure of success will only be attained through very decided, and, what may to some seem, arbitrary measures. For anything like the complete prevention of phthisis the assistance of the Government will be required in co-operation with patients affected with the disease, medical men, nurses, with those in charge of cattle, dairies and milk, and with sanitary authorities. To carry out all the measures which are necessary for the prevention of phthisis will involve a large expenditure of money: but the result will be worth the cost.

Preventive measures during the past 50 years have accomplished a great deal of good, though these measures have been far from perfect. The reduction of the mortality has been due to general sanitary improvement and not to special measures against tuberculosis. The death rate, from all forms of tuberculous diseases, in Britain, per million, is as follows: 1851 to 1860, 3,483; 1861 to 1870, 3,420; 1871 to 1880, 2,863; 1881 to 1885, 2,540; 1886 to 1890, 2,322; 1891 to 1895, 2,122. In England and Wales, at least 40,000 deaths are each year due to phthisis. Tuberculous diseases cause more deaths than all the other acute infectious diseases put together. Phthisis causes one-fourth of all the deaths between the ages of 15 and 50. The prevention of phthisis, to a great extent, means the prevention of all forms of tuberculous diseases, since the sputum of the phthisical patient is the main factor in the spread of

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the disease. If phthysical sputum could be completely destroyed and the spread of the disease by this means prevented, and if by proper precautions the spread of the disease from bovines to man could be prevented, it would be possible in time to almost completely eradicate tuberculosis. It will consequently be seen that the chief means for the prevention of tuberculosis are (1) the disinfection and destruction of the sputum, and (2) the thorough inspection of the meat and milk supplies. Secondary to these come the careful attention to the health, and to hygienic and sanitary conditions.

In order to carry out preventive measures in an intelligent manner, the following points must be borne in mind. All tuberculous affections are due to the introduction of the tubercle bacilli or their spores into the body. The bacilli are not generated *de novo*, but are always derived from a previous case. The bacilli may be found in the sputum, fæces, urine, or other discharges, and may be blown into the air in the act of coughing. The bacilli in the dust form may retain their vitality for some time. This varies but is held by different observers to run from months to years, under conditions favorable to the germs. Persons have contracted phthisis by living in houses previously occupied by consumptives. These houses may remain infective for a long time. It is generally believed that milk containing the bacilli is very dangerous to children. Many children die of tabes mesenterica, probably contracted in this way. The fact that during the past 50 years, the mortality due to tabes mesenterica has not diminished in the same proportion as that of other tuberculous affections is probably explained in this way.

The bacilli enter the body with the inspired air, with food or drink, or by means of inoculation.

From what has been said, it may be concluded that phthisis is an infectious and communicable disease, dangerous to the public health, and that all forms of tuberculosis are preventable. Whether or not a person who has been exposed to an infection will contract a contagious disease depends upon (1) the intensity of the poison, and (2) the resisting power or susceptibility of the individual.

The intensity of the poison depends upon the dose, the source of infection, the channel through which the poison is introduced into the system, and the virulence of the poison, for the virulence of germ poison varies from time to time.

The resisting power of the individual depends upon his constitutional peculiarities, since some persons are more susceptible to infection than others; his condition of health at the time of exposure; and the condition of the tissues with which the germs are first brought into contact.

If, therefore, the dose of the poison should be large, or if the poison should be of a virulent type, and if, also, the vitality of the system, or of the tissues with which the poison comes in contact, be lowered, the risk of infection is greatly increased. Phthisis, however, differs very materially from the other contagious and infectious diseases, in the fact that it is very slightly communicable. The risk which a perfectly healthy person, with good sanitary surroundings, runs of contracting phthisis is very small. A healthy wife does not often contract the disease by waiting upon her phthisical husband, and *vice versa*. But much depends upon the attendant's health, and the conditions under which attendance is rendered. It must be concluded that, though every case of phthisis is due to the introduction into the system of the tubercle bacillus or its spores, the disease is but slightly infectious in the case of perfectly healthy persons.

It would therefore appear that the susceptibility of the person exposed is the main factor in determining whether infection will take place or not. Tubercle bacilli must be very frequently introduced into the system without phthisis resulting. Doctors and nurses must often inhale the bacilli, and yet they do not often become infected. This opinion is based upon the experience of numerous observers; good health and good sanitary conditions render the risk of infection almost nil. Overcrowding and inherited and acquired weakness are the dangers that must be carefully guarded against. In other words, a suitable soil must be present to allow the bacilli, which have been inhaled, to take root and develop, or to be conveyed to the glandular structures in the neighborhood. It is probable that the tubercle bacilli which lodge on an abraded or unhealthy mucous surface, do not necessarily cause disease at this point, but that they may pass on to the lymphatic glands, or through the vessels and lymphatics, to distant parts of the body. It is in this way that cases of apparently primary tuberculosis of the bones, joints, or membranes of the brain can be explained. Whether the germs can penetrate through the healthy mucous membrane is not settled; but, if this does happen, it is probably rare. When the mucous surface is healthy, the seed falls upon barren soil, and does not take root. If the mere lodgment of the bacilli on the mucous surfaces were capable of causing tuberculosis, the disease would be much more frequent in the larynx and intestines than is the case, as these surfaces must often be the first resting places for the germs. If the pressure of the germs on the mucous membranes was sufficient to cause tuberculous infection, tuberculous ulceration of the larynx and intestines should occur in every case of pulmonary tuberculosis, since multitudes of bacilli must daily be brought

in contact with these mucous surfaces in almost every case of phthisis. It would seem therefore that in the great majority of cases something more is required than the presence of the bacilli to produce tuberculosis.

One of the most important factors in the formation of the so-called suitable soil is heredity. Since the discovery of the bacillus, the tendency has been in many quarters to under-estimate or indeed to ignore the influence of heredity. This should not be the case. And while it must be borne in mind that one member of a family may contract the disease from another, as children from a parent, apart altogether from any hereditary influence, still there remains abundance of evidence for the belief that heredity plays an important part in the production of phthisis. It must be admitted, however, that direct inheritance of tuberculosis is very rare. It is the tendency to phthisis which is inherited, not the disease.

The exact manner in which heredity acts has not been fully settled. Some think that the mucous membrane of those who inherit a tendency to the disease is so sensitive to the infection that the germs may, by mere implantation, take root and develop. This would hardly seem to be a full explanation, as the larynx and the intestines become affected in only a certain proportion of consumptives, though both the pre-disposition and the germs are there; and many members of consumptive families escape, though no doubt often inhaling the germs. It is much more likely that in persons with a hereditary tendency to the disease, there is some peculiarity about the respiratory organs, as defect of chest capacity, which causes insufficient air change, and stagnation of air and secretions in the air cells and minute bronchi; or a peculiar vulnerability in the lung tissue, by which catarrhal or unhealthy conditions of the bronchial mucous membrane are readily set up by cold, dust, irritating air, and such like, and that these catarrhal lesions form a suitable nidus for the bacilli to develop in. If this view is correct it is obviously of the utmost importance that the respiratory organs be maintained in a healthy condition. Persons with a consumptive family history should guard against colds, dust, bad air.

It would seem therefore that the three main factors for the production of the disease are:

1. The introduction into the system of the germs.
2. An unhealthy or injured condition of the mucous membrane of the respiratory tract.
3. Diminished vital resistance to the germ on the part of the tissues.

The prophylaxis of phthisis therefore consists in: Preventing the entry of the bacilli; the maintenance of the respiratory organs in a healthy condition; and the raising of the resisting power of the tissues,

so that they may be able to withstand the invasion of the germs, even after they have entered the body.

In the prevention of tuberculosis in all its forms, attention must be given to the precautions which the individual should take to protect himself, and the measures which municipal, sanitary and government authorities should enforce with the object of reducing these diseases to a minimum.

The individual should always endeavor to increase his vital resistance by maintaining his health in the best possible state of efficiency. He should avoid all conditions likely to produce, in the respiratory and gastro-intestinal tracts, alterations which would favor the absorption of the tubercle bacillus ; and to remove these conditions if they exist. He should take every precaution to avoid the introduction into his system of infected air and milk. In the case of children, special attention should be given to the dietary and the condition of the digestive organs. Dirty feeding bottles, unsuitable diet, cold, and unsanitary surroundings should be avoided as tending to cause gastro-intestinal catarrh. If such should exist, it ought to be cured as speedily as possible. A catarrhal condition of the digestive canal is probably a potent factor in the production of *tabes mesenterica*, tubercular meningitis, and other tuberculous diseases. Care should be directed to the condition of the mouth and throat, as the bacilli may enter through an unhealthy condition of these. The organs of respiration should be developed by means of proper exercise. Those with a hereditary tendency should be well fed, clothed, and housed ; and should live in a high, dry and pure atmosphere, they should take plenty of exercise, should be much in the sunlight, and sleep in a thoroughly ventilated bedroom. Certain occupations, such as those of the stonemason and knife-grinder, should be avoided ; and some other chosen which is outdoor and active in character. Chest gymnastics should be practised with the view of enlarging its capacity. Wholesome but nutritious foods should be used, with as much good milk and butter as can be digested.

Persons living in close contact with phthisical patients should take the utmost care to avoid taking into their system tuberculous matter, and to see that no dust is allowed to accumulate. Phthisical patients should not kiss healthy persons ; and cups and towels should not be used in common. They should insist on all sputum and excreta being at once destroyed. There should be a maximum of air and sunlight in the room, so as to dilute the infection. Sputum should not be allowed to remain on the lips and beard, and all clothing soiled with sputum, etc., should be thoroughly disinfected. Unaffected persons should not, if possible,

sleep in the same rooms, and never in the same bed with phthical. Overcrowding in houses, factories, schools, etc., must be avoided.

Public bodies have a duty to perform. They should inspect dwellings, factories, schools, streets, drains and such things, to see that no insanitary conditions are allowed to exist that could be got rid of. They should do what they can to instruct the public in the necessary rules of guidance regarding tuberculosis, as to the nature of the disease, the importance of good sanitary conditions, and the precautions the sick ought to observe. The public is now beginning to take real interest in all these questions, and much good is bound to come from it.

Since early diagnosis is of great importance, public bodies should make arrangements for the gratuitous examination of sputum and other discharges. Proper sanatorium and hospital accommodation ought to be provided for the treatment of the early cases, and for the isolation of the advanced cases. Many advanced cases with profuse expectoration or diarrhoea, are sources of danger to the community, as, owing to their weakness, they are often unable to attend to personal cleanliness, the destruction of sputum, etc. To sum up, patients should be instructed as to what to do in the way of disinfection, etc., necessary appliances should be provided free of charge to poor patients, all insanitary conditions should be removed, the rooms occupied by phthical patients should be disinfected, and hospital accommodation should be provided for certain advanced, poor cases.

Although many distinguished medical authorities are opposed to the compulsory notification of phthisis, nevertheless, the advantages far outweigh the disadvantages. It must be understood that this statement is only made on the proviso that the object is to reduce all forms of tuberculous disease to the greatest extent possible by the means at our command. If the object is merely to deal with phthisis in a way which is easy and agreeable, compulsory notification is not necessary, nor advisable. But if the object is to reduce the prevalence of the disease to the greatest possible extent, compulsory notification is necessary.

Phthisis is the most prevalent and fatal disease to which the human race is liable. In England and Wales 40,000 die annually of this disease. Dr. A. Newsholme estimates that between the ages of 15 and 50, one-fourth of all the deaths is due to it; and Dr. H. Biggs thinks that one-half of the entire adult population, at sometime in life, acquire the disease. In most modern, civilized countries, phthisis causes more deaths than all the other infectious diseases lumped together. Further, a great majority of those who die of phthisis are adults, whereas many who die of other infectious diseases are children. Again phthisis only too often carries off the brightest and the best of the race. It must also be remem-

bered that if the prevalence of phthisis can be reduced, other forms of tuberculous disease will become less frequent also.

Against notification the argument has been advanced that it would divulge a medical secret and the public would protest. If the notification of phthisis would aid in stamping out the disease, this sentimental objection should be disregarded. Under a judicious system of notification, no undue publicity is given to the fact that any person is affected. Too much stress has been here laid upon heredity. The introduction of the tubercle bacilli or its spores are necessary to produce phthisis. The public has consented to the notification of other diseases and the idea of divulging a medical secret should not stand in the way.

Another argument which has been advanced is that phthisis differs in many ways from the acute infectious diseases, and that the notification of them is consequently unnecessary and undesirable.

The object of notification in phthisis is not to restrict the liberty of the patients, nor to isolate them, but to locate the cases, and so enable the authorities to take the necessary steps for preventing the spread of the disease. It is quite possible to arrange a system of compulsory notification that would be beneficial, that would be effective and work well in practice, and that would yield greater advantages than disadvantages.

To deal effectively with the disease, it would be necessary to have power to enforce preventive measures, and to remove to an hospital those phthisical patients who, in consequence of their inability or unwillingness to carry out the necessary preventive measures, are a source of danger to the community. These measures, if they could be carried out, would be of the greatest value in preventing the extension of the disease; they would entail a large expenditure, but the money would be well spent.

It has been argued by some that because the infection is in the sputum in most cases, there is no need for notification. The reverse is really the case. If cases of phthisis were reported, and proper means taken with these cases, it would be an easier task than in any other infectious disease to make preventive measures effective. So many of the poor who suffer most from phthisis will not carry out any preventive means, unless looked after by someone who has sufficient authority vested in him to enforce proper precautions.

Among the reforms that ought to be introduced to render compulsory notification of any value would be those of arranging for laboratories where the sputum could be tested; the correction of insanitary conditions, likely to cause phthisis; the diffusion of leaflets and suitable reading matter; the provision of proper spittoons for the poor, and necessary disinfectants; the regular inspection of the premises where consumptive patients are domiciled; the removal of poor cases to a

hospital, where proper isolation and preventive measures at home are impossible ; and after the death or removal, of a consumptive patient, the disinfection of the house or room.

It has been said that the compulsory notification of phthisis would not work, that it could not be satisfactorily carried out in practice, that it would cause hardships to the patients—such as losing situations—that it would alienate the public sympathy from our efforts to control the disease. But whether these results would follow or not, altogether depends upon the nature of the regulations that would be adopted. The present Contagious Diseases' Act would not meet the requirements of the case. The restrictions that should be placed upon the consumptives are altogether different from those for the diseases generally known as infectious. That a system of notification is feasible is proved by the success that has attended the New York system of compulsory notification ; it appears to be eminently well suited for the special peculiarities of phthisis.

In the case of phthisis, the interference of the sanitary authority would only be required when the medical attendant demanded the assistance of the Medical Health Officer, and this would rarely be demanded, except in the case of the poorer people living in the more crowded districts. Under the system suggested, every medical man in attendance on a case of phthisis would, for the time being, be in the service of the local sanitary authority. Through the medical attendant all needed regulations might be carried out, and proper instructions given for the protection of others. The notification of the case by the medical attendant shall be regarded as confidential. Experience shows that where it has been tried such a system of compulsory notification works well in practice.

It is admitted that we must chiefly look to the medical men in charge of the patients for the introduction of preventive measures. They would advise their patients and those with whom they live as to the measures which ought to be taken with regard to the sputum, ventilation, cleanliness, and so on. A suitable system of compulsory notification would strengthen the hands of the medical profession in dealing with the disease.

As soon as a case came under the observation of a medical practitioner, he would notify it ; each notification should be paid. In notifying the case, the medical attendant would state whether it was necessary for the local authorities to interfere or not. No case would be notified unless the diagnosis was confirmed by the microscope.

Those patients who will not carry out the proper precautions (with regard to the disinfection of sputum, etc.) must be regarded as a real source of danger to others. Power should be given to the Sanitary

Officer to commit such persons to a hospital, partly for isolation and treatment, but also with a view to education in the sanitary matters pertaining to their affliction. For this purpose a certain amount of hospital and sanatorium accommodation would have to be provided, if it is the intention to reduce the disease to the lowest attainable limits. Until the disease is brought somewhat under control, it would not be possible to find accommodation for all the needful cases. In the first instance, compulsory measures would have to be applied with great caution. It would be judicious, at first, to deal only with the worst cases. Unless the public is willing to face a considerable expenditure in money, and to agree to the necessary compulsory measures, it is useless and Utopian to talk of stamping out and completely eradicating phthisis.

It has been urged against compulsory notification that it would entail great hardships upon the consumptive, since it would entail loss of employment, etc. Such a result might follow if the public were allowed to believe "that phthisis is a dangerous infectious disease communicable from person to person." But this view is erroneous. The public should be taught that a healthy person living or working in close contact with a patient suffering from phthisis, runs little or no risk, provided that certain simple precautionary measures, such as the destruction or disinfection of the sputum, are carried out. If this were thoroughly understood by the public, there would be much less risk of loss of employment than is feared. Phthisis is only dangerous through the sputum; the sputum can be easily destroyed and disinfected: and if it is destroyed while still moist, there is practically no risk of infection. The consumptive in himself is almost harmless and only becomes harmful through bad habits. If it became the rule that a consumptive could only maintain his situation by the strictest observation of all the safeguards to others, a great step would have been taken onward. It must be remembered that the healthy have a right to be protected against infection. No employer should keep an employee who is a source of danger to his fellow-employees; nor should the authorities permit it, if they can prevent it. The healthy have a right to demand that the phthical person should adopt the necessary precautions to prevent the spread of his disease. There is now a widespread and exaggerated fear of the disease. The notification of cases, the distribution of proper literature, and the adoption of preventive means would do much to correct the present view, and to enable the consumptive to obtain employment.

If the public once realised the enormous benefits to be gained by reducing consumption to its lowest attainable limits, compulsory notification and other measures necessary for dealing with the disease would be agreed to.

SOME RECENT STUDIES ON IMMUNITY.

J. J. MACKENZIE, B.A., M.B.

Professor of Pathology, Medical Faculty, University of Toronto.

NO subject, in medicine, presents so many points of interest as the subject of immunity from infectious diseases; interest which arises, not only on account of its practical bearing in the prevention and cure of infectious disease; but also, because, bound up with it is the much broader question of the prevention and cure of all diseases which afflict the animal body. It is but another example of the unity of all biological processes that every new discovery in the field of the pathology of these diseases has a bearing, not only upon general pathology, but also on general physiology. And we see, for example, that when our knowledge became ripe for Ehrlich's side chain hypothesis for the explanation of immunity, this same hypothesis naturally included an explanation of the process of assimilation.

The subject of immunity is as old as medicine; the fact that recovery from an attack of a specific disease meant that that disease need not be feared again must have early impressed itself upon the common knowledge of the people, and we find that back in the dark ages of Chinese history, it led to the introduction of inoculation for the prevention of small-pox. Although the fact of immunity was known for many centuries in the western world, its practical application did not appear until Lady Mary Wortley Montagu introduced inoculation for small-pox from the East. Undoubtedly, influenced by the results and failures of inoculation the immortal Jenner, building wiser than he knew, proposed the system of immunisation to the same disease by vaccination with results of untold value to the human race. Jenner was, undoubtedly, justified in his own mind by his observations upon the genetic relationship of cow-pox and small-pox, and he has been fully justified by the results that vaccination has attained in the past century, but it demonstrates his far-seeing mind, that it has remained for the investigations of the past few years to justify him upon experimental grounds.

With the discovery of bacteria as the cause of infectious diseases, the study of immunity began in earnest, and although we are yet far from understanding all the phenomena, still, in the past few years our knowledge has grown marvellously.

The early researches of Pasteur were directed largely to the practical application of immunizing processes, and we have as the important results of the labor of that eminent bacteriologist the immunization

against anthrax, which has been of such great economic importance to France, and the method of treatment of rabies which has been so wonderfully successful in combating that disease. But although these methods were of practical value, and have been not without interest in the elucidation of the general problems connected with the subject, yet it has been since Pasteur's time that the greatest strides have been made, and in this work not a small share has been taken by the Institute that bears his name and the workers who were trained there by him. A necessary element in the proper understanding of the subject of immunity was a proper conception of the ways in which bacteria act when introduced into the body, i.e., the methods of disease production by these minute parasites. Although for a short time it was supposed that in certain cases, at least, the mere mechanical presence of bacteria was an important factor in the production of disease, this was very soon abandoned, when the toxins or poisons elaborated by these organisms were discovered. It was then seen that disease was due to intoxication by the metabolic products of the parasite formed within and at the expense of the tissues of the host. The earliest attempts to isolate these poisons resulted in the discovery of a class of chemical compounds which have been called ptomaines, some of which proved to be intensely poisonous, but many of which were devoid of any toxic characters, or so slightly toxic as to render it doubtful whether they should be considered at all in explaining the phenomena of infectious disease. These poisons are fairly stable chemical compounds, and in the majority of cases their structural formula has been worked out and their chemical relationships clearly demonstrated. It now seems, however, that the means taken to isolate these substances were far too drastic to demonstrate the essential toxins of the microorganisms: in fact, it is more than probable that many of them were actually produced by the method employed in their isolation, and that the essential toxins are bodies not only many times more toxic, but also so unstable that they will stand only the least amount of chemical treatment: chemical methods which may be employed with impunity in the isolation of many very unstable compounds result in the destruction of these essential toxins of the bacteria. The first of these essential poisons to be studied was the diphtheria toxin, by Roux and Yersin, in 1888 and 1889, and shortly after that the tetanus toxin, by Kitasato. These poisons, as isolated or partially isolated by these early observers, showed the presence of certain of the reactions of albumens, and were thought to belong to the class of albumens, and consequently were named toxalbumens. That this classification was correct, seems doubtful, as Brieger has shown that

the purer the state in which these poisons are obtained the less prominent is their albuminous character, but they are such unstable bodies that it is difficult to make out much of their chemical relationships. Their most prominent feature is their intense toxicity, which is many times greater than that of the ptomaines. A study of the toxins of diphtheria and tetanus show that they are undoubtedly responsible for the disease phenomena associated with these infections. Closely allied to these toxins were found to be the poisons ricin and abrin and snake venom. The experimental work of Roux, Behring and Ehrlich soon demonstrated that these poisons differed from other poisons in that the recovery from a non-fatal dose conferred a partial immunity to a larger dose, and that this condition of immunity could be enormously and rapidly increased by repeated, gradually increasing doses. The further discovery that this immunity resided in the plasma of the blood and passed into the serum, and that this serum injected into another animal conferred on it an immunity proportional to the amount of serum, and the degree of immunity of the animal from which it was drawn lead to the recognition of the anti toxins, and the discovery of the anti-toxic treatment of these diseases. The discovery of the toxins and of the corresponding anti-toxins naturally stimulated to an enormous extent research along this line. The work of Pasteur upon anthrax, chicken cholera and other infections rested upon methods of immunity production by the introduction of weakened or killed organisms of disease, and aimed at producing in the animal a condition similar to that which results from the attack of an infection. It was, in fact, the production of an active immunity in the animal. The work of Behring, Roux and Kitasato lead to a method of curing an already existing infection by a method of passive immunization, and from this naturally arose the hope that it might be possible to do the same for all infections. Investigation, however, soon showed that the problem was not so simple as at first sight appeared, and the first difficulty which was met with was that of finding for the other micro-organisms toxins comparable in their action with those of diphtheria and tetanus; it was naturally imagined that if in the case of cholera, for instance, the essential toxin could be found, it would not be a difficult problem following the same methods used in the diphtheria anti-toxine to discover an anti-toxine for cholera, and similarly for other diseases. But the first difficulty which was met with was the finding of this toxin. In the case of Asiatic cholera, although organisms of a high degree of virulence, that is infecting power, could be cultivated in the artificial media of the laboratory, yet in no instance was there found in these media a

poison at all comparable in its action with the poison which evidently was formed in the cholera patient and circulated in his blood. The culture media might show the presence of soluble poisons, but these were slight in amount as compared with a culture of the diphtheria bacillus. It remained for Pfeiffer to show that the essential cholera toxine is so intimately bound up with the body of the cholera spirillum that it is only liberated when this spirillum is disintegrating. The fact proved by Pfeiffer for the cholera organism was shown to be true of many others, such as the typhoid bacillus, the bacillus of tuberculosis and others. Pfeiffer's further studies showed that increasing doses of the cholera organism did not give rise to an anti-toxine such as had been found in the case of diphtheria, but to a condition of immunity to the infecting organism, and this leads to the distinction between toxine immunity and bacterial immunity. So far it has been the toxine immunity which it has been possible to push to such a high degree that it may be conferred passively upon another animal by the injection of the blood serum of the immune individual. The toxins which are so intimately associated with the bodies of the micro-organisms are apparently of the nature of nucleoproteids, and their most marked character is their slight solubility, as compared with the toxine of diphtheria; they are many of them equally unstable and are all exceedingly toxic, but the difficulty has been to understand how they acted in the body, since the laboratory experiments necessarily predicated that before the toxine could act the organism must be dead. Experiments on animals have shown that in many cases this was easily demonstrated. Staphylococci when carefully killed so as not to destroy their poison are still pyogenic; tubercle bacilli when killed and injected into animals still give rise to tubercles.

The investigation of all these different poisonous substances has naturally lead to a more precise knowledge in regard to them and we have learned that they are not to be considered simple substances, but that in the case of each organism a number of different toxic compounds are formed. A good example of this is seen in the case of tetanus, where at least two well marked toxins have been discovered, one of which is neurotoxic, the other hæmolytic in its action.

The studies of Pasteur early showed us that the recovery from an experimental infection conferred a certain degree of active immunity and these observations were very soon extended to a large number of specific micro-organisms. For instance repeated increasing doses of the cholera spirillum established in the experiment animal a very high degree of immunity to it. It was natural that theories should be proposed to account for this condition which was so rapidly established.

One of the first to propose an explanation to the phenomena was Metschnikoff; as a result of observations upon a disease of certain crustaceans, in which a parasitic organism could be studied under the microscope in its method of penetration into the host and the reaction of the host to the parasite followed; in this it was seen that the chief method of protection of the little crustacean lay in the wandering cells of its blood which actively sought out the parasite and devoured them; a study of foreign bodies and bacteria introduced into higher animals showed that the same process took place in them, and as a result of these observations Metschnikoff proposed his theory of phagocytosis which proved one of the most fruitful hypotheses which has ever been introduced into the study of experimental medicine, not only on account of the facts that have been discovered to support it, but also on account of the opposition it gave rise to and the researches which resulted from that opposition. Indeed we may ascribe most of our present knowledge of immunity to the long struggle which has gone on continually between the upholders of this cellular theory of immunity and its opponents, the advocates of the humoral theory. The humoral view owes its development to an observation of Nuttall, that bacteria introduced into the serum of the blood rapidly died. There were, however, at first, great difficulties in the way of establishing this theory, because it was soon found that this bactericidal character of the blood serum of animals was of the most uncertain character and subject to most curious and inexplicable variations. In some instances it seemed to increase with immunization, in others it did not, and it was a condition which was most unstable, being present in the blood immediately after shedding but, disappearing rapidly from the shed blood.

In the course of his observations upon cholera, Pfeiffer of Berlin made an observation which proved a key to the riddle and paved the way to all the advances of the past few years. He found that when the blood serum of an animal immunized against cholera was introduced into the peritoneal cavity of a non-immune guinea-pig along with a dose of the cholera spore, rapid disintegration of the bacteria took place which could be followed readily under the microscope, by withdrawing from the cavity a drop of the exudate from time to time; it was seen that the bacteria rapidly broke up into granular masses and ultimately disappeared entirely. This intraperitoneal destruction of the organisms was known as Pfeiffer's phenomenon, and at first it was thought that it would not take place *in vitro*. It remained, however, for Metschnikoff and Bordet, working in the Pasteur Institute, to demonstrate that it would occur *in vitro* if the immune serum was fresh, or if to the mixture

of the immune serum and bacteria there was added a very small amount of the fresh blood of another animal. It was argued from this that the bacterial destruction seen in Pfeiffer's reaction was due to two substances, one of which was fairly stable, the other, however, disappeared on standing. Such an immune serum which had lost its bactericidal qualities on standing was described as an inactive serum, and when these qualities were restored to it by the addition of fresh serum, it was said to be reactivated. It was soon found, however, that a serum could be inactivated most readily by heating; a temperature of 55°C for thirty minutes being sufficient for this purpose.

The importance of these observations became more apparent when the attention of the investigators was turned to the action of blood serum upon other cells than bacteria. It had long been known that when the red blood cells of an animal were mixed with the serum of an animal of another species that they were dissolved: from the color change which took place owing to the passage of the hæmoglobin into the serum, the blood was said to be laked. Now it was found that if the red cells of an animal were injected into another animal in gradually increasing doses the serum of the second animal gradually acquired an enormously increased power of laking the cells of the first animal. For instance, if, say the serum of a guinea pig lakes the corpuscles of the hen in a given strength in a given time, after treating the guinea pig with the hens corpuscles by intraperitoneal injection for some months, it is found that the serum will lake the corpuscles in the same time in solutions containing perhaps only one-hundredth as much serum; that, in fact, the serum has acquired an enormously increased destructive action upon the corpuscles. This has been called hæmolysis, as the destruction of bacteria in the immune serum has been called bacteriolysis. This condition, it has been shown, can be produced not only for bacteria, or red blood cells, but also for almost any other cell of the body, so that by adopting similar methods it is possible to obtain sera which are leucocytolytic, neurolytic, nephrolytic or spermatoxic. In every case the active condition in the blood serum has been produced in exactly the same way in which immunization is produced for a specific bacterium. It was natural to suppose that the changes which took place in the blood serum were similar, and the compounds which were formed were of a similar character. It was indeed an easy matter to demonstrate that, for instance, in the case of the hæmolytic serum there was present a fairly stable body which was not destroyed by heating to 55°C for thirty minutes, and a second body which was so destroyed, but which could be restored by adding the fresh serum of another animal. This

proved to be true of all the lytic sera, so that these new observations served to bring the question of immunisation into line with a much broader question.

It will be seen that the phenomena of solution of a cell in a foreign serum was due first to a body which was formed in the serum by the previous injection of numbers of the cells and a second body which was apparently pre-existent in the serum which was very unstable, but which could be again restored by the addition of the fresh serum of another animal. The specific substance has been called immune body or the intermediary body, whilst the other substance has been called the compliment or addiment. Both are necessary for the destruction of a foreign cell in the blood, but the intermediary body is specific, whilst the complimentary body or bodies are common to the blood of all healthy animals. It is evident that the discovery of these facts had a very great influence upon our views in regard to immunity; it especially seemed at first sight to entirely destroy the significance of the phagocyte as a factor in determining bacterial immunity; but those who support the view of the role of the wandering cells of the blood in the production of immunity have not given up their views, but have modified them from time to time to suit the new facts which were discovered; indeed, as stated above, most of the knowledge which we now have has been the result of the continual struggle between the advocates of the humoral and cellular theories of immunity, and there is perhaps nothing more interesting in the whole history of the subject than the ingenious manner in which Metschnikoff and his school have been able to turn the arguments and facts of their opponents to the support of their doctrines.

The phagocytic activity of the leucocytes and of other cells of the body, such, for instance, as the endothelial cells is recognized and accepted now by all pathologists. In the phenomena seen in inflammations, as recently described anew in the works of Marchand and Maximow, we see how well recognized is the process of phagocytosis. In explaining the condition of natural immunity as distinguished from acquired immunity, the role of the phagocyte must be recognized also, but in regard to this question of acquired immunity it seems at first as if the importance of the leucocyte had been over-estimated. Metschnikoff, has, however, gradually altered his views to suit the newer facts discovered in regard to acquired immunity, whilst still maintaining the influence of the leucocyte, and he now looks upon the substances found in the blood serum which have been described above, as derived from the leucocyte by a process of disintegration which he calls phagolysis. In re-

gard to the so-called compliment it is possible that he is right; Bulloch has shown that the compliment can be temporarily increased by the production of a leucocytosis. On the other hand, it seems improbable that the wandering cell is the source of the immune bodies, although this is a question which is still far from settled. It will be seen that in the determination of an active immunity to an infection it is only necessary to stimulate, by repeated injections of the microorganism, the production of the specific immune body. This is what Pasteur did in his anthrax immunization. This is what is done when Haffkine's plague vaccine or cholera vaccine is used as a protection against these diseases, and this is probably what takes place normally in the course of every infection. Indeed, in typhoid fever it has been shown that the immune body begins to appear in the blood about the end of the first week of the disease. But in every case, in order that one may have bacterial destruction there must be a sufficient amount of complimentary bodies, and the means of production of these has not yet been discovered, although, as mentioned above, there seems for some of them to be a connection between their appearance and leucocytosis. In regard to the conditions which will destroy the compliments, however, we know more. It has been shown, for instance, that necrotic tissue will take the compliment out of the blood with great rapidity, and this will appeal at once to the surgeon as explaining many of the facts of experience in regard to the influence of necrotic tissue on the healing of wounds. Work recently done in the hygienic laboratory of the University of Pennsylvania has shown that alcoholic poisoning in rabbits leads to a destruction of the compliment, and in the pathological laboratory of the same University they have found that in certain morbid states, as, for instance, in uræmia the the compliment disappears from the blood, and renders it probable that terminal infections first described by Flexner owe their development to the disappearance of the compliment, with the consequent loss of bactericidal properties of the blood, and consequently a loss of normal immunity. How we are to increase the amount of the complimentary bodies along with the intermediary or immune bodies sufficiently to be able to confer a passive immunity upon an individual by the injection of the blood serum of an immune animal, as has been done in the production of passive toxine immunity in diphtheria, remains as yet the goal towards which investigators are striving.

Perhaps not the least interesting result of these modern investigations upon immunity has been the theories proposed by Ehrlich to account for the facts so far discovered. These theories are the result of the application by Ehrlich of the facts of modern stereochemistry to

the chemistry of the cell. He suggests that we consider the essential molecule of the cell as nuclear ring with a series of side chains comparable to the central nucleus of an aromatic compound, with its side chains consisting of hydroxyls or other atomic complexes. He supposes the central nucleus to contain the regenerative power which is characteristic of the protoplasmic molecule and the side chains the mechanism by which the nutritive molecules are taken into the cell. Now it is evident that a bacterial product is poisonous only in so far as it will enter into combination with the cell molecule. Practically we know, for instance that the toxine of tetanus is harmless for the hen, and it has been demonstrated that for several days after a large dose of tetanus toxine has been injected into a hen there is enough of the poison circulating in the blood to kill many hundred susceptible animals. It does not harm the hen because it does not enter into combination with its cell molecules. Ehrlich argues also that we cannot conceive of a cell having side chains specially adapted for taking hold of poisonous molecules, but that these do combine with the cell because they are sufficiently like the normal nutritive molecules to enter into combination with the cell side chains. When this combination does take place however there results a destruction of the chains in question and probably also of other parts of the molecule; if there are a sufficient number of these toxine molecules the death of the cell is the result, but if there are only a small number only a partial destruction is the result, and the injury is repaired by the production of new side chains of a similar character, thanks to the regenerative power which is inherent in the living molecule. Weigert has shown however that regeneration of destroyed cells always takes place in excess of the amount of the destruction; there are more cells formed than destroyed, there is more tissue reproduced than enough to supply the loss; it is indeed a well known fact in general pathology this one of over regeneration. Ehrlich imagines therefore that when the side chains have been destroyed by the action of the toxine that the regeneration will be more than enough to supply the loss and if the destruction be continued by the injection of new doses of the toxins there will be a new destruction of side chains, again an over regeneration and so on until so many side chains have been formed that they no longer remain attached to the central nucleus but are swept off into the blood stream and appear there as the antitoxin. He conceives the toxine as containing two essential atomic complexes as essential to its toxicity, one the haptophore complex which unites it to the protoplasmic side chain and the other the toxophore complex which enables it to produce the damage to the molecule.

For the explanation of the condition of acquired bacterial immunity, or for the production of a specific lytic serum, he elaborates his hypothesis somewhat as follows, still considering it in the light of a nutritive phenomenon. The protoplasmic molecule is provided with side chains which have two haptophore groups, one which will combine with and hold the introduced molecule, whether it be a bacterial cell or a nutritive molecule, and the other which will combine with certain ferment-like bodies which are circulating in the blood and which resemble the toxins in this respect that they have a haptophore apparatus which binds them to the side chain, and a ferment-like apparatus which enables them to destroy the molecule caught by the other haptophore group of the side chain. This ferment-like apparatus he calls the zymotoxic portion. He conceives the process which takes place during active bacterial immunization as follows: The introduced bacteria, say the typhoid bacillus is caught by the side chain, and at the same time an equivalent amount of the complimentary body, the result is that the zymotoxic portion of the compliment is brought into action on the bacillus or its protoplasmic molecule and it is dissolved; the more bacteria are brought in the more these side chains are used up, and following the same reasoning as in the case of the toxin the side chain is regenerated. These are again destroyed and so the cell is stimulated to production and then to overproduction of side chains until these separate from the central nucleus of the molecule and so appear in the blood as the intermediary bodies or immune bodies. To the side chains which appear as the antitoxines Ehrlich gives the name of receptors of the first order. To those which appear in the blood as the intermediary bodies he gives the name receptors of the third order, or from their possession of two haptophore complexes, the one for the bacterial cell and the other for the compliment, amboceptors.

It will be seen that there must be innumerable receptors of the third order as they play a part, not only in the comparative unimportant process of immunization, but also in the much more important process of cell nutrition. In regard to the complimentary bodies however there has been a difference of opinion as to whether they were few or many. The fact that the serum from many different animals could be used to reactivate a specific immune serum lead some observers to consider them as simple compounds common to a number of different animals, but the most recent investigations of Ehrlich's laboratory seem to definitely show that they must be very numerous, with varying grades of affinity for the receptors which are produced in the immunization experiments.

These theories of Ehrlich's seem so extraordinary to one who is not familiar to the results of the recent investigations in bacteriology that it

is difficult to convey in a short article any idea of the complete manner in which they fit all the facts. For many of his hypotheses he has very strong support in the behavior of certain of the compounds known in organic chemistry, and his hypotheses have this decided merit, that they include the explanation of the problem of immunity only as a subdivision of the much larger problem of nutrition. A hypothesis is only of value in so far as it serves to stimulate investigation, and this one, has been, and is, eminently successful in this regard. How far it will carry us, or how soon it will have to be modified we cannot tell, but there cannot be the slightest doubt that its influence will be far reaching, not only in Pathology but also in the whole field of Biology. It would lead us too far and would render this article altogether too long to give an account of the various other bodies which have been found as the result of these investigations, such as the agglutinins, the precipitins (these latter having the very practical importance of giving us at least a perfectly certain method of recognizing human blood), or of anticomplements or antifelements, but all of them are explained by and have been used by Ehrlich in the elaboration of his hypothesis. We may say, in closing that not since the Darwinian theory has there been given to biology an hypothesis so far reaching in its consequences and its influence as this of Ehrlich's.

TWO CASES IN PRACTICE, AND AN INTERESTING BOOK.

By ERNEST A. HALL, M. D.

Victoria, B. C.

AN UNUSUAL CASE OF INTUSSUSCEPTION

LEA WING, a chinese infant of nine months, with a history of ten hours pain and several passages of bloody mucus. A Sausage-shaped mass could be felt over the descending colon; per rectum, the invagination was found to be within two inches from the anus. After considerable delay and much persuasion upon the part of one of the local lady missionaries, I obtained consent to operate. The invagination was the most extensive in the annals of our hospital work, including the cæcum, the ascending and transverse colon with equal length of the ileum completely prolapsed within the descending colon and rectum. A careful attempt was made to withdraw the prolapsed part, but such resistance was met with that rupture seemed imminent and another method which was found satisfactory, viz., grasping the part of the bowel below the prolapsed part and carefully compressing in an upward milking manner. By this means the rectum, colon and cæcum were

treated till the invagination was reduced. Adhesions had formed for about three inches on either side of the ileo-cæcal valve, showing this part of the invagination to be of longer standing than the other part. The constriction had interfered with the nutrition of the lower end of the cæcum and four inches of the ileum. This I resected and united with a Murphy button, overstitched with silk. The colon was anchored to the anterior abdominal wall to prevent a recurrence of the prolapse.

The child lived five days. A post-mortem showed complete union of the bowel, with gangrene of three inches of colon adjacent to the button, caused by thrombosis of a branch of the mesenteric artery. There was no general peritonitis, nor pus at the region of the union. Had the resection included the whole of the transverse colon, the child's life would probably have been saved, but at the time of operating there was no reason to suspect any interference with the nutrition of the bowel past the part of section. The bleeding of the part when cut seemed to indicate that the circulation was not interfered with.

The delay in operation due to the prejudices of the parents, the amount of manipulation and the extent of the section, with five days post operative life, coupled with the satisfaction of no peritonitis gives encouragement to the surgical treatment of these cases. It is needless to state that manipulations within the abdomen of an infant are somewhat more difficult than in the adult, but with early operation and careful examination of the bowel as to its nutrition, we should expect recovery in all but enfeebled cases.

IMPERFORATE RECTUM, OPERATION, RECOVERY.

The rarity of this malformation, coupled with the greater rarity of successful operations for the relief of the condition, renders this case worth reporting. This is but the second case of malformation of the bowel that has come under my observation in eighteen years of practice. The former, a well nourished child was allowed to die without any attempt being made to overcome the defect.

The subject of this report, a male infant, was the third child of healthy parents, the other children were normal in every respect. The father had web toes which was reproduced in this child, otherwise it was normal with exception of the bowel deficiency. It was well nourished and vigorous and weighed seven pounds. Accouchment was rapid, breech presentation, and liquor amni colorless, nothing unusual was noticed regarding the child until my second visit. When the nurse informed me that the child had not passed anything from the bowels.

An examination showed the anus well formed and the rectum one and one half inches in length ending in a blind sac. There was considerable abdominal distension, with shallow respiration. The following morning, thirty-five hours after birth, under chloroform, the rectal sac was dissected through the interior of the abdomen and explored with the little finger. There was absence of any fibrous connection between the lower segment and the parts above. A large semi-functuating ovoid mass was felt completely filling the lower abdomen. As I wished to locate the lowest part of the bowel and not feeling certain that I had accomplished my object, the abdomen was opened in the left lumbar region showing the bowel ending in the distended sac that had been felt through the rectum. No other malformation was found. A haemostat was then inserted through the rectum, and the lower part of the distended bowel sac gradually brought out through the lower segment and anus, and attached to the surface. The bowel was then opened and several ounces of meconium with flatus escaped. The abdominal distension was immediately relieved, circulation and respiration becoming normal. A rubber tube was left in the bowel. The child slept well, and had several passages from the bowels during the next twenty-four hours when the tube was removed. Convalescence was interrupted with the exception of constriction at the junction of the upper segment, this was overcome by dilatation with the little finger continued daily by the nurse. The child continues to develop normally.

The actual causation of congenital malformation is beyond solution, but the predisposition to malformations in connection with the alimentary tube can be readily demonstrated by reference to the embryological development. The upper two thirds of the rectum are formed from the abdominal (hypoblast), part of the primitive intestine, the lower third is formed from the external layer (epiblast) of the blastodermic membrane. The failure of these two parts to unite into one continuous tube constitutes the deformity that was present in this case.

Since the liquor amnii obtains its coloring matter principally from the meconium discharged in utero, it would be well to examine the anus and rectum in all cases in which the "waters" are of a lighter color than the ordinary, brownish shade. Recovery after operations in these cases is the exception, but with the application of ordinary surgical principles, as early as possible before abdominal distension has seriously menaced respiration and circulation, there is reasonable hope of success. We have not discharged our duty until an attempt has been made to rectify the defect.

AN INTERESTING OLD BOOK.

It is always instructive and frequently interesting to take a retrospect in medicine. An opportunity has been afforded me in this direction by falling in with a copy of "Wesleys Primitive Physic," bearing the date of 1747. This work seems to have enjoyed no little popularity, since it ran through three editions, at last appearing in 1760. The preface is somewhat lengthy, and surcharged with religious theories that will compare in their reasonableness with many of the startling prescriptions which the work contains. While no doubt exists that medical science was in a condition of extreme imperfection, there is evidence that the author has used no small amount of descretion in his selection of prescriptions, since after many of the prescriptions appears the word, "tried."

It is difficult to harmonize some of the writers sentiments with reference to original man "clothed in body as in soul with mortality and incurruption" with his conception and evolution as stated in his "Survey of The Wisdom of God" in which he states "The ape is the rough draft of man. Mankind have there gradations as well as other productions of our globe. There are a prodigious number of links between the most perfect man and the ape", but since this quotation bears the date of 1775 we are assured that this eminent theologian waxed in knowledge as well as in grace as the shadows began to lengthen.

With reference to the presence of suffering in the world, and the attitude of Nature towards the sufferer, the author says "Man rebelled against the Soverign of Heaven and earth"—"The seeds of wickedness and pain are now lodged in our inmost substance. The heavens the earth and all things contained therein conspire to punish the rebels against their Creator. The sun, the moon shed unwholesome influences from above, the earth exhales poisonous damps from beneath, the beasts of the field, the fowls of the air, the fishes of the sea are in a state of hostility, yea the food itself we eat daily saps the foundation of a life which cannot be sustained without it,"— a condition of depravity of the elements hardly consistent with their behavior in our day. In answer to the question can anything be done to soften the evils of life he says "Without question there may. One grand preventive of pain and sickness seems intimated by the Author of Nature in the very sentence that entails death upon us 'In the sweat of thy face shalt thou eat bread, etc.' The power of exercise both to preserve and restore health is greater than can well be conceived."

The reference to the beginnings of the healing art shows that the author had but little confidence in the "educated" physician of his day. After discussing the roll played by tradition in both religion and medi-

eine, and the results of experiment he says "Thus ancient men having a little experience joined with common sense and common humanity, cured both themselves and neighbors of most of the distempers to which every nation was subject. But in process of time, men of a philosophical turn were not satisfied with this they began to enquire how they might account for these things. How such medicines wrought such effects. They examined the human body in all its parts, the nature of its flesh, veins, arteries, nerves, the structure of the brain, heart, lungs, stomach and bowels, with the springs of the several kinds of animal functions. They explored several kinds of animal, mineral, as well as vegetable substances, and hence the whole order of physic became gradually inverted. Men of learning began to set experience aside, to build physic upon hypothesis, to form theories of disease and their cure, and to substitute these in the place of experiment. Physicians now began to be in admiration as persons who were something more than human. And profit attended their employ as well as honor, so that they had two weighty reasons for keeping the bulk of mankind at a distance that they might not pry into the mysteries of the profession. They filled their writings with abundance of technical terms, utterly unintelligible to plain men. They represented the critical knowledge of astronomy, natural philosophy and what not. And thus honor and gain were secured, a vast majority of mankind being utterly cut off from helping either themselves or their neighbors, or even daring to attempt it."

Here are a few of the prescriptions.

For an Ague.—Go into a cold bath just before the cold fit—Nothing tends more to prolong an ague than indulging a lazy indolent disposition. Children have frequently been cured by wearing a waistcoat in which bark was quilted. Or, apply to each wrist a plaister of treacle and soot.

Canine Appetite, which is an insatiable desire for eating, if it be without vomiting is often cured by a small bit of bread dipped in wine and supplied to the nostrils.

An Asthma.—Live a fortnight on boiled carrots only. Or take an ounce of quicksilver every morning and a spoonful of aqua sulphurata.

A Cancer of the breast of thirteen years standing was cured by frequently applying red poppy water, plaintain and rose water, mixed with honey and roses. Use the cold bath, this has cured many. This cured Mrs. Bates of Leicestershire of a sciatica, cancer of the breast, a consumption, and a rheumatism which she had for twenty years. She bathed daily for a month and drank only water. Or apply goose dung and celandine, beat well together and spread on a fine rag. Dr. Chene says, a total ass-milk diet about two quarts a day without any other food, will cure a confirmed cancer.

A Consumption.—Take no food but buttermilk, churned in a bottle, and white bread. I have known this successful. Or every morning, cut a little turf of fresh earth and laying down breathe in the hole for a quarter of an hour. I have known a deep consumption cured by this.

The Cramp.—To prevent, tie your garter smooth and tight under your knee at going to bed—it seldom fails: or lay a roll of brimstone under your pillow. The cramp, to cure, strongly put out your heel, or hold a roll of brimstone in your hand.

The Dropsy.—After giving several perscriptions a case as given:—“Jane Roberts, aged twenty, was at length constrained to take to her bed by a confirmed ascites and anasarca. In this desperate case she drank as much as she could, first of small beer, and when that failed—milk. After a while her skin cracked in many places, and she continued drinking and leaking until she was quite well.”

Green Sickness.—Take an ounce of quicksilver night and morning.

The Iliac Passion.—This is a violent kind of cholera, the excrements are supposed to be thrown up by the mouth in vomiting. Take ounce by ounce, a pound, or a pound and a half of quicksilver, or hold a live puppy constantly on the belly.

Lunacy.—Take daily an ounce of distilled vinegar.

A Windy Rupture.—Warm cow dung well spread thick on leather, strewing some pumpkin seeds upon it and apply hot. When cold, put on a new one. It commonly cures a child (keeping it in bed) in two days.

The author was a firm believer in the cold bath, as a preventive of many diseases. Wise parents should dip their children in cold water every morning till they are three quarters old, and afterwards their hands and feet.

In conclusion, the author advises “all to buy their medicines at Apothecaries Hall. There they are sure to have them good.”

A PLEA FOR THE OPEN METHOD OF TREATING FRACTURES OF THE PATELLA.

By F. N. G. STARR, M.B.,

Demonstrator of Anatomy, Medical Faculty, University of Toronto.

MR PRESIDENT AND GENTLEMEN,—About two years ago I read a paper before this society on the "Open Method of Treating Fractures." In the course of that paper I related a series of cases in which by various manipulations it was impossible to secure accurate approximation of the broken fragments, and because of this I had cut down upon the recent fracture, brought the fragments together, and secured them by means of silver wire. Of course it was urged against this procedure, that I had converted a simple fracture into a compound, and that such practice is to be deplored. With a still further experience in such cases, I desire to repeat here what I then contended, that an aseptic compound fracture with accurate apposition tends to a much better result than a simple fracture left to unite in a faulty position, with all its associated deformity and loss of use.

While I think I shall never be guilty of advising the open method of treatment for all fractures of the patella, I am inclined to advocate this method in all cases, and for the following reasons: first, the fact that by this method one secures bony union. Second, that the period of convalescence is shortened from three, or even six months, to from three to six weeks. Third, that bony union never occurs in cases treated by the use of the time-honored splint and the various mechanical devices, because of the tension caused by the swelling and blood clot in the joint, and because of the fact that the periosteum is never, or rarely, torn at the same level that the patella is broken, and it therefore overlaps the fractured surface. Fourth, that in cases in which fibrous union occurs there is a tendency for the fragments to become further separated when the sufferer begins to walk. Fifth, that when fibrous union has allowed sufficient separation to occur to give rise to awkwardness in walking it is then difficult to secure good approximation and an ideal result by an open operation, because of the atrophy that has occurred in the broken fragments. Sixth, that according to Dr. Powers (1) the results are satisfactory in 94 per cent. of the cases treated by the open method. His observations include seven hundred and eleven cases which he was able to collect

My reason for bringing this subject before you is that upon several occasions, when I have advocated the treatment, I have been somewhat severely criticised for suggesting such a dangerous procedure. At the same time I feel that an apology is due to some surgeons here for

(1) *Annals of Surgery*, p. 67—July, 1898.

bringing such a well recognized practice before you, and for advocating it as if it were something new.

If one adopts the open method, however, he must be most careful of his preliminary preparation, for the smallest amount of neglect on his or the nurse's part, may mean the introduction of septic material into a cavity, more susceptible to infection even than the peritoneum, and the result would be an ankylosed joint, or the death of the patient from sepsis. Lister has said (2), "No man is justified in performing such an operation unless he can say with a clear conscience that he considers himself morally certain of avoiding the entrance of any septic mischief into the wound." As a "word to the wise" is sufficient I may add that certain men who frequently have occasion to blame the nurse or the house-doctor because of supperation will do well to leave these cases severely alone, lest the elasticity of conscience be too severely strained in conforming to Lister's injunction. In the cases collected by Dr. Powers (3) already referred to, there were two deaths from sepsis, two in which total ankylosis took place, and twenty-eight in which "marked stiffness and disability" resulted.

In the case that I shall show you this evening I adopted the vertical incision, but in future I shall use the "horse shoe" shaped incision, with the convexity looking upward, and for the following reasons: First, one then does not require to cut through the thickened skin over the patella, from the deeper layers of which it may be difficult to remove all septic material. Second, the buried silver wire sutures will not tend to irritate the skin wound. Third, the resulting cicatrix will be farther removed from the point of the knee.

The patient, a man, came to the General Hospital on November 15th, 1902, with the following history. He was standing up in an express wagon when the horse started forward, causing him to lose his balance, and while he was trying to regain his centre of gravity it stopped, throwing the man forward, his knee striking the iron binding on the box of the wagon. Thus he met with direct violence to the patella, at the same time that his extensor tendon was exerting considerable force on the bone. Upon attempting to rise he found his right leg useless. When examined, a transverse fracture was found at about the middle of the patella, into the space between the fragments three fingers could readily be placed. By means of a figure of eight bandage the space between the fragments could be reduced to about half an inch. For two days this bandage, with carefully regulated pressure over the knee, was continued till all the oozing that was likely to occur had taken place.

(2) Jacobson's Operations of Surgery, p. 652.

(3) Quoted in Jacobson's Operations of Surgery, p. 652.

Then the part was carefully prepared, and to make assurance doubly sure, it was again prepared on the table. Of the preparation of my own hands I was most careful. Both Dr. Primrose, who assisted me, and I made still more certain of our own cleanliness by wearing rubber gloves, a precaution that I consider a good one, providing that care has been taken in the preparation of the gloves, for gloves will stand boiling, but the hands will not.

By a vertical incision I cut down over the patella and cleared out a large quantity of clot from the joint. The fracture was almost as clean a dissolution of continuity as if divided by a saw. The periosteum and the lacerated fragments of the extensor tendon overlapped the raw surfaces of the bone. These were raised and some tags snipped away with scissors. Then two holes were drilled on each fragment from half to three-quarters of an inch from the edge of the fractured surface, taking an oblique direction, coming out on the raw surface just superficial to the cartilage, taking care to have the holes approximate accurately. Two heavy silver wire sutures were then passed through and drawn tight enough to bring together the broken fragments and made fast by two half turns and one full turn, the knots being hammered well down. A better plan I think would be to use a single heavy wire suture passing each end through the holes in the lower fragment from below up then through the holes in the upper, secure, apposition and fasten. This would have the advantage of but one knot and that would be well away from the point of the knee in the devotional attitude. I do not use any silk or cat-gut to bring the periosteum together, for fear of infection and because approximation was good without it. Our skin wound was then closed with fishing gut sutures without drainage, dressed antiseptically, and the limb made secure by means of a posterior splint with a foot piece. On the tenth day I removed the splint and took out the silk worm gut at stitches and found good union of the skin, then applied a plaster splint from the ankle to the groin, cutting it at the inside while still soft to make its subsequent removal easy. At the end of two weeks from the operation I completed the division of the splint, and allowed the splint to remain off while the patient was in bed, and had it applied when he was up. At the end of the third week he left the hospital, still wearing the splint when walking, and this he managed remarkably well. He has been more or less continuously at work ever since leaving the hospital.

Surely this, to the man who "earns his bread by the sweat of his brow," as well as the man to whom each day at business means thousands of dollars, is better than a prolonged convalescence of from three to six or even seven months.

THE OPEN AIR TREATMENT FOR CONSUMPTION.

By ANGUS MACKINNON, M.D., Los Angeles.

THE CANADA LANCET for April last contains a very readable paper by Sir James Grant, M.D., entitled: "How to live and prolong life." In that paper may be found the following words "The idea of a California climate for the treatment of tuberculosis is no longer considered a necessity in Canada. Fresh outside air, sun light and hygienic precautions are the chief requisites, all of which we have at a reasonable distance of our homes and firesides."

By way of contrast let me quote an American expert on climate, as follows: "The climate of Canada is too cold, damp and trying to be recommended. The eastern part of Canada especially is damp, chilly and most uncomfortable. However, there are some places where a limited class may derive some benefit during our heated season; the overworked business man, the melancholic, and the sufferer from liver troubles. Such persons may be advised to spend some time at some of the more favored summer resorts in that country, if accompanied by a young physician of a cheerful, happy disposition."

Was Sir James so far carried away by his love of country that his words must be taken with a good many grains of salt, did the "American expert, just quoted, but betray his entire ignorance?"

In the month of June, the American Climatological Association held its annual meeting in California, its sessions being held at one or more places in addition to Los Angeles. The association this year made a sort of tour of inspection of various health resorts in New Mexico, Arizona and California. The words having reference to Canada's climate are taken from a report of a paper read at one of the sessions held in Los Angeles. It is not stated that anyone challenged the truthfulness of the statement made.

The learned experts remained in Los Angeles several days, the guests of the medical profession. They were toasted and banquetted to no end, given free rides to many points of interest, not the least pleasurable being a drive through miles and miles of orange, lemon, apricot and other semi-tropical groves. After visiting Catalina Island, situated a few miles from the main land, the members headed northward, calling at several health resorts on the way to San Francisco, California's metropolitan city. At a banquet given by the medical profession there some of the members of the association gave a summary of their impressions of the places visited. Dr. Charles F. Mammack was chief spokesman. In view of the greater interest taken in

open air treatment at the present time, it is unnecessary to apologise for quoting Dr. Mammack as reported in the papers, as follows :

“ Phoenix, Prescott and Maricopa, in Arizona, have the ideal desert climate, great dryness without disagreeable heat. They are worthy American substitutes for Egypt. Redlands and Riverside, in California, are very good for tubercular troubles, but are not good places for the poor invalid to make a living, as the land needs so much irrigation. Idyllwild sanatorium is a good refuge for invalids from the lowlands during the extreme hot weather of summer. Los Angeles is not particularly a health resort, but rather a distributing centre for more favored places.

“ Catalina Island was visited to observe the effect of a sea climate. We were not much impressed with it as a health resort, but it is a fine pleasure resort. San Diego and Coronada, like Catalina, were visited during the summer fog season, and when least adapted to invalids, but I should imagine they would be very delightful for invalids at other seasons. Santa Barbara struck us all as being a place admirably adapted for invalids. Montecito Valley is an ideal place for the invalid. We thought it the best combination of all places we have visited. There I found Dr. William A. Flint, formerly of Bellevue Hospital, entirely recovered from tuberculosis after a residence of six years in Santa Barbara. Del Monte carried us away by its beauty, and old Monterey was very interesting.

“ Santa Cruz is the first health resort where we found a fertile soil combined with abundance of water, a condition very desirable when recommending a certain locality to a poor man, who must go west to California to earn his own living and be cured of tuberculosis.

“ The whole Santa Clara Valley impressed us as one of the grandest garden spots in the world, with its abundance of fruit and water and fertile lands—an ideal locality for plenty of employment for such persons as would have to earn their living when we sent them to California. Alum Rock, up in the hills, seemed like a nice, sheltered place with possibilities of popular development. Stanford University inspired us with awe. That chapel is the finest thing of the kind I have ever laid eyes on, and I have been in all the great churches and cathedrals of Europe. The whole building scheme is a beautiful realization of the dream of life.”

Sir James tells us that Canada has no use for California climate, for the reason that its own climate is all sufficient. A prominent member of a body of experts on climate, as we have seen, has pictured Canada's climate in a way fitted to create the impression that it is only fit for

bears and wolves, except for a short time in summer, when it is safe to send up there a New York overworked member of the stock exchange, provided he be "attended by a young physician of a cheerful happy disposition." Another climatological expert tells all the world that certain places in Arizona "have ideal desert climate—great dryness without disagreeable heat." Leaving Sir James and the New York expert on climate to settle their own differences, I am tempted to say a word about Arizona's climate, so much praised by Dr. Nammack. It is but charitable to assume that he visited the places mentioned very early, on an exceptionally cool day. I have conversed with several persons who lived in, and near, the places mentioned. Their testimony is to the effect that the winter climate is "ideal," but that the summer climate is past endurance. At Phoenix, and vicinity, the mercury keeps *above* 115 for months, often rising to 120, and even to 130, in the shade, Eggs cook in the sand, and the milkman drives the cow from door to door that he may deliver the goods in a condition fit for use. The people flock to Los Angeles and other California points to escape the heat of the summer months.

There really ought not to be any great divergence of opinion regarding the climate of a given place. Climate is not a psychological but a physiological condition, a thing to be seen, felt, ascertained. Local reports, for manifest reasons, are notoriously unreliable. What is needed is a thorough mapping of all health resorts in such way as to correctly classify, and, indicate, the merits of each in regard to specified diseased condition. Until a more perfect knowledge prevails, as in the past, so in the future, the suffering will be sent to the wrong place. The duty of constructing a reliable climatological map would naturally devolve upon national boards of health.

For the present purpose let the question of climate be limited to the treatment of tuberculosis. Sir James in agreement with prevailing opinion, is an advocate of the fresh air treatment. By the way, this treatment is not a fad of the day, but an old treatment brought into greater prominence. It was advocated by the generation of doctors now fast passing away. Their fault lay in their not being sufficiently seized of its supreme importance; a fact which led to inadequate insistence in carrying it out. Here I would like to ask Sir James to explain how he manages to keep his patient in "out door air, day and night," in Ottawa climate. All the necessary conditions, he says, are near his home and fireside, so that he has no use for California climate. How to do that trick, is the one thing which the ordinary family physician in Canada, to-day, longs to know. He can do it with some measure of success from

May to October, but for the rest of the year he is confused, puzzled, aimless. To cause the patient to live in "out door air" during a week's eastern rein-storm, or for several months with the mercury ranging from 20 above to 20 or 30 below, may have basis in theory, but in practice is incapable of demonstration. Under such conditions drowning or freezing take precedence of cure. In connection with the open air treatment much prominence is given to the value of sanatoriums. From the Muskoka cottages come reports of a high percentage of recoveries, all of which it is to be hoped is true. Without disparagement, may it not be asked, is there no pure air outside Muskoka, or Toronto? We all know there is. Then comes the query, why should a patient, living in the country, occupying a cottage, let us say, surrounded by everything needful, and at his home, which counts for much; why remove such a patient to a Muskoka cottage "to breath out door air, day and night?" Why not do that trick in his own cottage, where his slumbers are undisturbed by a chorus of coughing, or his waking hours made miserable by apparitions of death as his constant companions? Moreover, to one sufferer who goes to a sanatorium, voluntarily or involuntarily, a hundred must be treated at their homes. What does this show? What but that *home treatment* deserves far more consideration than it is the custom of the hour to bestow upon it. By turning their attention, for a time at least, to this all important phase of the question, the experts, if able to help out the family physician, would become the subjects of many blessings.

Here I record my disbelief in conditions, or systems, claiming to make it possible, in damp, cold climates, to breathe "out-door air, day and night," in comfort and safety. Artificially heated air is no longer "out-door air;" not, at least, without an elaborate heating system. A short time ago the papers reported that a preacher, somewhere near Toronto, wintered in a tent. If the tent admitted freely out-door air, there is good reason for believing that the preacher imitated the Indian in drawing his blanket very closely about his head, in which case he might better be in his room. Any serious attempt in this direction, in a cold climate, involves the very serious drawback of separating the patient from his family, a thing in itself most injurious and undesirable. The last point here, and I write to emphasize it: While not able to attain to the ideal, in a cold climate, yet that the aim should be to approximate that ideal as nearly as conditions and available appliances permit. Sanatoriums have their place, but *home sanatoriums* are still more important, and a much greater necessity.

To show that I am not speaking without some knowledge of the subject, I may state that I practiced in Western Ontario for over thirty

years, during which time I had my fair share of consumptive patients. I recognized early the value of fresh air as a prime factor in treatment, but never had been able to devise means by which my patients could inhale "out door air, day and night," the year round, or for any considerable part of the year, although constantly admonished by high authority. It is more than a year since I came to California, to remain temporarily or permanently, according to choice or circumstances. The climatic conditions, of course, are entirely different, and altogether in favor of California as to out-door treatment. While California has all climates within narrow compass, due to sea and mountain, yet it has its favored spots for out-door life the year round. Dr. Nammack is quite correct in stating that Los Angeles is not, properly speaking, a health resort, but rather a "distributing point for outlying places." Los Angeles, however, is a resort of another kind. The eastern winter tourists are variously estimated at from fifteen to twenty thousand, while summer tourists from the south-eastern States, are quite numerous. Having resided here through the four seasons I am able to speak for this valley. So mild are the winters that even a slight frost is phenomenal. The official report gives 72° as the average for August for twenty years. The sea breeze is constant after 10 a.m., and the nights are invariably cool. Rain seldom falls except in the winter months. Even then sunshine is so perpetual that neither the ground nor the air is long damp or disagreeable. Here the open-air treatment presents no difficulties. It is not necessary to insist on people living out doors, for that is their habit, and as for the night, a south-westerly apartment, having large open windows, gives absolutely pure out-door air. Tenting in the valleys, or in the mountains, according to the season, is possible and agreeable in all seasons. A light fire at times feels comfortable, but is not at all a necessity. The all but perpetual sunshine is an element of the utmost value. In the light of these facts and comparisons, I cannot give assent to Sir James' statement, namely that Canada has all the "needed requisites," as regards climate, and therefore has no use for California's climate. Not only Canada but the whole continent has use for California's climate. Nowhere else are found climatic conditions so perfect. In saying this I know full well that the few alone can avail themselves of the benefits which it offers. In the early stage, in the case of the fairly robust, Alberta is probably a good second to California. The air, though cold for a short time, is dry and invigorating, and sunshine almost as constant as in California. After all said and done, the duty of the hour in all Canada is the study of home treatment.

At the risk of being tedious, I add a few words about Los Angeles. It is situated about five hundred miles south of San Francisco, and is the commercial centre of Southern California. All roads lead to it. Seventy years ago it had ten thousand of a population. To-day it has 120,000, and is still growing at a surprising rate. It is a city of homes, of beautiful homes, occupied mainly by people of means, lured here by the climate from their former homes. The city is located in the Cauhuenga Valley, some fifteen miles from the sea, and is set mostly on hills, at an elevation of three to four hundred feet above the sea. The valley is anything but flat. It is even hilly, although bordered on three sides by mountain ranges, themselves separated by prosperous inhabited valleys. Hence it is that within twenty miles of Los Angeles there are several towns, and even cities, where the summer heat is rather trying. Again, there are mountain towns where the winters rival those of Ontario. One of the most surprising things to the newcomer is the tree growth, which is of varieties entirely new to him, being semi-tropical. To the easterner California is a new world. The greatest drawback is the light rainfall. That, of course, makes "climate," and climate is found to be a good paying asset. Fruit and climate are the two great industries of Southern California. Irrigation is the science of moisture chiefly relied upon. Great things are expected to follow the inauguration of government irrigation works and the opening of the Panama canal.

ETIOLOGY OF TUBERCULOSIS

Dr. Arthur Latham, in the November number of the Edinburgh Medical Journal, makes the following statement in his article:—

Hereditary tuberculosis is so rare as to be a negligible factor. It is not proved that tuberculous patients hand down to their children tissues which are especially receptive to tuberculosis. Tuberculosis always results from a pre-existing case of the disease, and the bacilli are conveyed by the mouth-spray, by the expectoration, or other discharge, and by means of food stuffs, more especially milk. It is improbable that infection often takes place from air respired through the nasal passages. The tubercle bacilli, whether the infection is through the air or food, enter the new host by the mouth in the majority of cases. The bacilli may then be destroyed by the natural defensive actions of the body in the respiratory and alimentary tracts, or they may pass into the various parts of the body.

CURRENT MEDICAL LITERATURE.

Conducted by A. J. MACKENZIE, B.A., M.B.

POTT'S DISEASE

In *The Post-Graduate*, January, Taylor gives notes of 40 cases of Pott's disease treated with the well known spinal support that bears the name of his namesake, Charles Fayette Taylor. All of these cases have been under observation for extended periods, so that the elements of cure, cessation of disease and correction of deformity may be estimated. He concludes from this investigation :

In thirty-nine cases treated in private practice by the use of the Taylor apparatus, where the cases were observed and the deformity recorded for ten years or more, it was found that :

1. The application of spinal support was nearly always promptly followed by the relief of pain and other acute symptoms, and by improvement in the general health.

2. The disease was cured in thirty-three, and that in a considerable number the cure was practically perfect as regards health, figure and function.

3. The result was good as regards deformity in half the cases, thirteen cases showed arrest or decrease of deformity.

4. As regards the final amount of deformity, the location of the disease was more important than any other factor, the cervical region being the most favorable, the lumbar next, and the dorsal the least.

5. It was necessary to continue spinal support in most cases, long after the pathological cure, owing to the tendency to increase of deformity from static conditions.

6. Ankylosis is therefore later, rarer and less extensive than is usually assumed.

PERCENTAGE SOLUTIONS.

WITH TABLE OF PARTS AND PERCENTAGE EQUIVALENTS BASED ON THE APOTHECARIES' WEIGHT.

An accurate working-table of parts and percentage equivalents, for guidance in making solutions, etc., is undoubtedly of decided advantage to the busy pharmacist in his prescription laboratory, and a useful aid to his apprentices. A mistake in mental arithmetic is possible with any one, no matter how conversant he may be with weights, measures and the calculation of percentages based on weights or meas-

Regardless of the quantity of solution, etc., to be made, the salt or solid must displace its own weight of solvent. For instance, a fluid ounce of a 1 in 30 (or $3\frac{1}{2}$ per cent.) solution of cocain must contain 16 grains of the salt, and a sufficient quantity of solvent to make 1 fluid ounce of finished product.

The table will also be found of service in the case of solutions of powerful alkaloids and salts, in determining at a glance the exact quantity of the medicament in each prescribed dose of the mixture. For example, take a prescription calling for 6 fluid ounces of 1 in 1,000 solution of iodine trichlorid, to be administered in doses of 1 fluid drachm. By referring to the table it will be seen, not only that 3 grains of iodine trichlorid are required to fill the recipe, but also that each dose of the latter—1 fluid dram—contains $\frac{3}{8}$ grain of the medicament.

If you want to make one ounce of a 1 per cent. solution, trace the j. fl. oz. column down, and the 1 per cent. line to the right until the two meet, and we see that $4\frac{1}{2}$ grains would be necessary.—From the *Medical World*.

THE VALUE OF RECTAL ALIMENTATION.

In the January number of the University of Pennsylvania Medical Bulletin Esdall and Miller report the results of an investigation carried on in two cases nourished exclusively by the rectal route, with a determination of the absorption, nitrogen metabolism, and intestinal putrefaction.

The effectiveness of this method of nutrition has been variously recognized by the authorities. Some claim that all needs can thus be supplied for a long time, while others, and among them Ewald, Pepper, and Wood, believe that it is useful for only a limited period. If any food is absorbed, then we have a definite gain over complete starvation in those cases where the oral route is impossible; but the amount absorbed and the total gain or loss in the patient's condition must determine its value in those cases where operation is being delayed to improve nutrition or strength.

The two cases chosen for observation were admitted directly after the occurrence of grave gastric hæmorrhage, the indication for the exclusion of food by mouth was imperative; both were put upon three nutritive enemata per diem, 400 c.c. of milk and 6 eggs in 24 hours,—predigested, salt added to equal normal salinity, and Tr. opii. m. iij. added to the mixture. A cleansing enema was given 1 hour before the nutritive. In both cases after the first day the retention was good, the alimen-

tation was maintained for eighteen days, but five days were allowed to elapse before a record was begun, so that food previously ingested might have no effect, and metabolism be accustomed to the changed conditions. The total nitrogen and fat in the enemata was calculated; the total faeces were collected daily, acidulated with sulphuric acid, and dried on a water bath, and five estimations of the nitrogen and three of the fat were made. The period of investigation in each case was six days, and the totals in the two cases were as follows (grammes):—

	CASE I.	CASE II.
Total nitrogen of urine	60·1882	76·6610
Total faecal nitrogen	29·0254	25·2610
<hr/>		
Total nitrogen excreted	89·2136	101·922
Total food nitrogen	45·2717	48·1150
Faecal nitrogen	29·0254	25·2610
<hr/>		
Nitrogen absorbed	18·2463	3·809 per diem or 22·854
	or 3·041 per diem	
Total loss tissue nitrogen.	70·9673	79·068
Total fat in food	285·650	284·760
Total fat in faeces	246·770	189·50
<hr/>		
Total fat absorbed	38·88	95·26
	or 6·48 per diem.	or 15·87 per diem.

In both these cases rectal alimentation was quite inadequate as evidenced by the great tissue loss, and this was accompanied by an accompanying loss in weight and strength. Then the amount supplied cannot be increased arbitrarily as the bowel rebels. Expressed in calories we find the first patient absorbing food equal to 211·9 per diem, and the second 319, while their requirements would be about 2000.

With regard to carbohydrates, it has been claimed that sugar is readily absorbed, but tends to cause irritation, while starch is slowly transformed and absorbed as sugar. This result has been arrived at by finding but little carbohydrate returned in the faeces, but estimation of the respiratory quotient shows that while it is definitely increased when this form of food is given by the mouth, it is but little affected by administration per rectum. This fact has led Reach to suggest that the carbohydrates in the rectum are broken up by bacteria, and either absorbed or returned in the form of bacterial products, which are not included in the estimation. The estimation of the conjugate sulphates in the urine in the cases studied showed a great increase, which would seem to indicate that an abnormal amount of putrefaction was going on. Not only the carbohydrates are subject to this agency, but the proteids may have their nitrogen excreted as ammonia and the fats also, instead of

being absorbed, may be returned in a form unrecognizable in the faeces.

The value of the nutrient enemata in many cases is doubtless partly due to the water absorbed in this way. Moreover, recent experiments lend support to the claim that in many cases the amount of food necessary has been placed too high—48 gramme of albumen per kilo being in cases sufficient, and so if the point of equilibrium be much lowered, the small amount absorbed from the enemata may maintain the balance. But it is the opinion of the investigators that rectal alimentation in most cases is but a slow mode of starvation, and that nutrition cannot in this way be improved to any notable extent.

SYPHILIS AS A CAUSE OF INSANITY.

At the recent meeting of the British Medical Association Dr. F. W. Mott opened the discussion on the above subject. Syphilis acted in many ways as a cause of insanity. The anæmia and toxæmia of the secondary stage were exciting causes. The over-dosing with mercury was also a factor. Among the morbid changes might be mentioned meningitis, gummata, arteritis, and periarteritis. Cases occurring within the first four years were usually very intractable. Cases in which endarteritis and gummatous meningitis were found, often resembled general paralysis. The most frequent symptoms were aphasia, word-blindness, word-deafness, ocular paralysis, nocturnal headaches, exaltation and depression, and epileptiform fits. Many of these cases were amenable to some extent to treatment. The action of syphilis in producing general paralysis was now well established; but this cause seemed to operate under the conditions of civilization. The savages did not suffer from general paralysis, though they often suffered from syphilis. Civilization favoured neurasthenia and nervous break down. Acquired and congenital syphilis was equally potent. General paralysis was a degeneration of the nerve elements similar to tabes dorsalis. The Argyll-Robertson pupil was the most common sign in both diseases. At least 70 or 80 per cent. of cases of general paralysis have had syphilis. The disease usually began about 13 years after infection. The disease was unknown where syphilis was unknown; and these patients were immune to syphilis. Juvenile general paralytics were almost invariably due to congenital syphilis. General paralysis was very rare among certain classes, among whom the incidence of syphilis was also very rare. The section on psychology passed a resolution to the effect that general paralysis is largely due to syphilis, and that every effort should be made to lessen the frequency of syphilis.

DISEASES OF THE EYE, EAR, NOSE AND THROAT.

Conducted by PERRY C. GOLDSMITH, M.D., Belleville, Fellow of the British Laryngological, Rhinological and Otological Society.

THE TREATMENT OF CHRONIC PHARYNGITIS.

After having removed the nasal lesions of a mechanical nature (the most common cause of pharyngitis) and re-establishing nasal permeability, Savoie employs the following treatment: Lavage of the nasopharynx, through the anterior or posterior nares, according to the patient's tolerance, with $\frac{1}{2}$ litre of a 1 per cent. sol. of phenosalyl, followed by nasal inhalation for 4 or 5 minutes of a coffee spoonful of the following solution :

Formol 5.0
Menthol 10
Gomenol 10
Chloroform 10
Eau de Cologne 100.

Each evening the pharynx is treated with the following :

Saturated solution of resorcine.

or Menthol 0.5

Tr. Iodi 5.0

Glycerine 10.0.

The writer reports favorable results.—*Jour. Eye, Ear and Throat Diseases.*

SOME POINTS IN RHINOLOGIC TERMINOLOGY.

Doctors Kyle and Fetterolf, the collaborators of the laryngological section of *American Medicine*, point out several inaccuracies and inconsistencies in the terminology of laryngological work. They suggest that *tonsillator* be used to indicate an incision *into* the tonsil, *tonsillector*, partial or complete, to denote the removal of part or all of the tonsil. Considerable confusion also attends the words *turbinal*, *turbinat*, *turbinated* (used as a noun), and *turbinate* or *turbinated* body. They suggest the following remedy: Let the word *turbinat* apply only to the bone, *epiturbinat* to the soft tissues overlaying the bone, and *pan-turbinat* to the entire structure. The situation of septal deviations can be more easily and accurately explained by using the term *ostroseptum* as indicating the bony portion of the septum, *chondroseptum*, the cartilaginous portion, and *panseptum* when the entire septum is referred to.

CATARRHAL DEAFNESS.

Snow, *New York Medical Journal*, October 11, 1902, says that little can be done in these cases if the skin is inactive and that personal hygiene must be considered of paramount importance. Cold baths and frictions are exceedingly useful. A torpid liver frequently thwarts the best efforts to get local treatments through to the middle ear. Dyspeptic or intestinal disturbances, as well as uric acid and uterine troubles, produce an irritability of the mucous lining of the head quite sufficient to necessitate their correction before the tubes will remain normally patent. Vigorous exercise can be made a great aid in relieving the distended vessels. The author urges active arm exercise every morning as a routine. With the correction of these conditions, a correction of morbid nasal conditions makes the disease, as a rule, non-aggressive and capable of much improvement.—*America Medicine*.

HEADACHES.

Edwin Pynchon, in a reprint from *Anna's of Ophthalmology and Otology*, makes the following distinction :—

WHEN FROM NASAL STENOSIS.	WHEN FROM EYE STRAIN.
Generally unilateral.	Generally bi-lateral.
Frequent insomnia.	Sleeps soundly.
Often worse mornings.	Improved after sleep.
Aggravated by physical exertion, running, stooping, etc.	Aggravated by use of eyes.
Not subject to conjunctivitis.	Conjunctivitis after prolonged use of eyes.
Generally nasal catarrh.	Catarrh not complained of.
Excited by acute coryza.	Not subject to coryza.
Nose not suspected by patient.	Appetite and digestion good.
Dyspepsia and nausea.	Astigmatism usually present.
Astigmatic test negative.	Pressing mid. turb. does not increase headache.
Pressing middle turbinate with probe increases headache.	Sensitive to bright light.
No photophobia.	

RETINAL HEMORRHAGE.

Haden in *Philadelphia Medical Journal* February 21, 1903, reports two cases of retinal hemorrhage. He concludes as follows :

(1) Retinal hemorrhage, associated with high arterial tension and accompanied by transitory albur inuria, are significant of beginning widespread arterial degeneration.

(2) In those cases of so-called physiological or transitory albuminuria occurring in active healthy young business men or students, in those who are working under forced pressure, ophthalmoscopic examination should be made for retinal hemorrhages.

(3) When retinal hemorrhages occur without albuminuria the patient should be kept under observation, the urine examined from time to time and the quantity noted.

(4) In case of finding these conditions it is our duty to warn the patient of his condition, and, as Osler says, "to gain his intelligent co-operation" and preserve his life and usefulness.

PRESCRIPTIONS.

Ear-Ache.

R	Acid Carbol. liq.	grs. 5
	Cocaine Hydrochlor	
	Menthol	āā grs. 15
M.	Alcohol	℥. 75

Sig.: To be dropped into the ear.

—*Heclit, in Medical Record.*

For Atrophic Rhinitis.

R	Acid Carbol.	grs. 3
	Sodii Boratis	grs. 30
	Sodii Bicarb.	grs. 60
	Glycerine	̄ iss
M.	Aqua	q.s. ad. 3 oz.

Sig.: Use as a nasal douche three times daily.

Catarrhal or Simple Acute Conjunctivitis.

R	Acid Boracici	grs. 5
	Zinci Sulph.	grs. 2
	Tinct. Opii	̄ i
M.	Aqua, dist.	ad ̄ i

Sig.: One drop in the eye, morning and evening, or only once a day in mild cases.

—*Swanzy.*

PROVINCE OF QUEBEC NEWS.

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

At the annual meeting of the corporation of the Montreal General Hospital, it was stated that 2,878 indoor patients were treated in that institution during 1902, while in the outdoor departments the consultations numbered 31,993. Dr. Finley, the secretary, read the financial report, which showed that the receipts had totalled \$87,439 and the expenditure \$99,967, an excess of expenditure over receipts of \$12,428. The endowment fund has grown in the year from \$37,500 to \$43,500. Fifty-five more patients were treated in the wards than in 1901. Of the total number treated in the ward, 166 were in the hospital at the beginning of the year, 2,894 were admitted, and 184 remained in the hospital on Dec. 31st, 1902. There were discharged from the hospital 2,652, and there died in the hospital 266, of the latter 88 died within three days of admission. The mortality was 7-5 per cent., or 4-8, if the 88 were omitted. The average cost of patients per day was \$1.49. Dr. Finley was re-elected secretary.

The following is a summary of the papers read at the Montreal Medico-Chirurgical Society during the past month.

Dr. Elder read the report of a case of hourglass contraction of the stomach. The past history was of special interest, as Dr. Elder had himself been in attendance during the acute symptoms and consequently had accurate notes of the conditions then present. Twelve years ago the patient had a gastric ulcer and vomited large quantities of blood; in fact so great was the hemorrhage that her life was despaired of. However, under the usual treatment she recovered, although ever since she has had chronic gastritis, gastric lavage having been practised for nearly a year with great benefit. Some five months before admission to the Montreal General Hospital she complained of great pain in the epigastrium, especially after eating. This was accompanied by a swelling at the left side of the abdomen, close to the ribs and under the left rectus muscle, which appeared after meals, but invariably vanished by the next morning when the stomach was empty. Dilatation of the stomach showed an oval swelling under the left rectus muscle, extending downwards almost to the umbilicus. A diagnosis of hourglass contraction of the stomach was made and operation decided upon. The diagnosis

was confirmed on withdrawal of the stomach from the abdomen, for the cicatricial tissue from the old ulcer had gathered up the stomach wall into a ring, which was situated towards the cardiac end, so that the pyloric end of the hourglass was considerably larger than the cardiac end. The lumen of the ring connecting the two pouches was so small that it only admitted the tip of the little finger. A gastro-plastic operation was performed—precisely the same as a Heineke-Mikulicz operation on the pylorus—and proved quite successful in restoring the stomach to its normal shape. Subsequent treatment was that usually followed out in stomach cases, nutrient enemata for three days and then fluids gradually by mouth. The patient was discharged three weeks after operation and now, three months later, is in perfect health, with marked increase in weight and physical strength. In speaking of the methods of operation, Dr. Elder mentioned another case in which he had adopted a similar procedure with equal success, and as far as he could judge it appeared to be the operation of choice.

Dr. Finley brought before the society reports of two cases illustrating some complications of mitral stenosis. The first was an old woman *æt.* 71, who gave a history of acute rheumatism at the age of 21, but had otherwise been in perfect health until the present illness, when sudden pain in the ankle, followed by severe pain in the leg and thigh, prevented her from going to work. On examination the leg was found to be red, swollen, and tender even high up in the thigh, and no pulsation could be found in the posterior tibial artery, although it was easily felt in the other leg. The heart showed well marked enlargement, as well as a thrill with presystolic murmur. The second was a woman *æt.* 39, with a history of rheumatism fifteen years ago. She had no symptoms of cardiac disease until she was seized with a sudden sharp pain in the side, followed by hæmoptysis and severe dyspnœa. Examination of the chest revealed a systolic and presystolic murmur, with a thrill at the apex, also a soft diastolic murmur down the left side of the sternum, while later dullness was found at the base of the lung with a distinct friction sound, and shortly afterwards a quantity of fluid was withdrawn. The patient has suffered with extreme dyspnœa since the sudden onset of the embolism in the lung, notwithstanding the administration of the usual remedies.

A paper of some surgical importance, and great pathological interest, was read by Dr. Adami on Exogenous Ulceration of the Intestines. Dr. Adami has been unable to find a name for the type of ulcer which originated on the external, or peritoneal surface of the intestine, in any text book, and consequently has been compelled to invent one which he

thought was at the same time adequate and accurate. The usual way for ulceration and perforation of the intestines to take place was from the mucous coat out to the serous coat, namely, endogenous ulceration, whereas the ulceration from serosa to mucosa might be termed exogenous ulceration. A very pretty example of the latter type was demonstrated. There was a distinct and complete perforation of the serous and muscular coats but the mucosa was riddled with holes and formed a sort of net work over the perforation on the inner side, evidently showing that the process had commenced in the serous coat.

In examining 700 consecutive post-mortem reports at the Royal Victoria Hospital it was found that in all 9 per cent. were endogenous perforations of the intestines, including some 15 cases of perforation in typhoid fever; further, 2.8 per cent. were of such a nature that the variety could not be determined, and rather remarkably 2.28 per cent. were described as exogenous. This is a surprisingly high percentage and it will be interesting to find whether another series of records will furnish a like result.

Drs. W. F. Hamilton and R. Byers reported two cases of relative aortic incompetency. In the first the physical signs and symptoms of aortic regurgitation were typical, and the pathological specimen which was presented showed sclerosis and enlargement of the aortic ring, while the cusps of the valve were quite normal in size, shape and texture, but the increase in the size of the aortic ring made the valves remain too far apart to completely close the orifice. The second was probably due to dilatation, as the walls of the heart were very flabby.

Dr. Shirres showed a specimen of cerebellar tumour. The interesting feature in the history was that no cerebellar ataxia developed, and at post-mortem examination it was found that the lesion was symmetrical, each lobe of the cerebellum being involved by a tumour, probably of a tuberculous nature. Dr. Shirres also read a paper on eleven cases of amaurotic family idiocy. These cases as usual were Hebrews and were in every way typical. The general picture was that of spastic diplegia, namely: increased reflexes, normal sensation, normal reaction of muscles to the Faradic battery, but in addition very sensitive hearing, a loud noise sending the muscles into tetanic contraction, further there was the dilated pupil, optic atrophy and changes in the macula lutea diagnostic of the condition. The brain post-mortem showed no marked irregularity, cystic formation or porencephaly, but the post central convolution was markedly atrophied and the cells were very few in number and the consequent degeneration was found down the motor tract.

Dr. Matthewson reported a case of aphonia due to a foreign body in the external auditory meatus. The patient was a young man who complained of great hoarseness and some deafness. The ears were examined and found to be plugged with cerumen, and on washing them out the sharp end of a carpenter's lead pencil was removed. Complete return of the voice followed at once. An explanation was rather difficult, but the condition might have been caused by reflex irritation through Jacobson's nerve. In the discussion which followed Dr. Shepherd said that he failed to see how Jacobson's nerve could be affected. Dr. Birkett suggested that the condition had been functional.

Drs. Mills and Gordon gave a short communication with demonstration of the reflexes after complete transverse section of the spinal cord in the dog. Several experiments had been made with dogs and in every case complete section of the cord produced increased reflexes below the lesion, superficial and deep. In man reports were somewhat conflicting, but the majority of authorities state that complete section of the cord produces flaccid paralysis. The paper was illustrated by a dog whose cord had been cut about two weeks before. The reflexes below the lesion were masterly increased and the dog showed the well-known but rather inexplicable phenomenon of "pendulum motion" of the hind legs, when held up in the air. A very interesting and animated discussion followed the reading of this paper, in which Dr. Shirres stated that he had never seen a complete transverse lesion of the spinal cord in man, in which the reflexes were increased. One case he remembered in which the cord appeared to be completely reduced to a pulp, he had been able to trace uninjured fibers connecting the sound portions of the cord and he thought that if careful examinations were made in such doubtful cases, that some of the fibers would be discovered which were uninjured. He also mentioned a case in which the spinal cord had been destroyed for the distance of about two inches. The reflexes were absent, and when, a year and a half after the accident, the patient was again operated upon and the ends of the spinal cord freshened, electrical stimulation of the anterior horns produced a contraction of the muscles, and stimulation of the posterior roots also gave a contraction, showing that reflex are still intact.

MEDICAL SOCIETIES.

TORONTO MEDICAL SOCIETY.

STATED MEETING JANUARY 22ND, 1903.

The meeting was held at the Victoria Hospital for Sick Children.

Dr. Peters showed (1) a case, age 4 years, with an enormous mass which had appeared three months ago and continued to grow. It was poulticed and lanced with only clear blood being obtained. It was then poulticed and hemorrhage occurred, which was stopped with flour. It subtends the tuberischii, is attached to the bone, and is immovable, has fairly large veins over it, without fluctuation, is hard, seemed to be defined in limit. With a finger in the rectum, it was possible to get above the growth and the mucous membrane was smooth. There had been no blood in the stools till of late, and he was afraid that it had fungated into the rectum. It was probably a round celled sarcome. The case was very grave, the only treatment was an inguinal colotomy and then the removal of the tuberischii, perineum, and rectum. He thought the case was inoperable.

(2) A case of hare-lip and cleft palate, Brophy of Chicago did the palate first by crowding in of the parts with a lead plate on each side and silver wire across.

(3) Multiple osteoma, slow in growth, unusual in the number of growths, exostoses from the epiphyseal cartilage (hyalin). The ulna of the left arm terminates much higher than the radius. The growths are due to aberrant pieces of cartilage which continue to grow, and the epiphysis grown away from them, leaving them behind. They are said to be innocent, but he knew of one case where they became sarcomatous. The Tibia and Fibula have grown on the right side an inch and a half more than on the left.

Dr. Carveth asked the results of removal of sarcoma in children. Dr. Fletcher asked what the x-ray results were in such cases. Reply: Prognosis was very bad unless got early. The x-ray was admitted useless in all forms but the spindle celled, and then only 30 per cent. were cured. The same was true of Colles' fluid.

Dr. Primrose showed, 1st, a calculus removed by suprapubic cystotomy. 2nd. A case of empyaema—an unresolved pneumonia had extended over seven weeks. A fluctuating tumor, pointed internal to the nipple line, and at the level of the third rib. Opened in the mid axillary

line. A portion of the sixth rib was removed, drainage employed. There was some spinal curvature. 3rd. A case of lateral curvature of the spine, first noticed 43 days ago, but probably there before. The inequality of the length of the lower extremities was very exaggerated, also the prominence of the left hip and right shoulder. Anterior poliomyelitis existed, previous to the deformity.

Dr. Powell said the treatment was briefly a course in gymnastics, with massage, electricity, and plaster jacket.

Dr. Powell then showed, 1st, a case of lateral curvature in an earlier stage than that of Dr. Primrose's case. 2nd. One a little later developed. 3rd. Illustrating the value of the x-ray, a case of slate pencil removed from the cuneiform bone in the foot.

Dr. Thistle showed a case of cretonism aged 20 years. 40 inches in height, now changing his milk teeth, has lipomatous pads on the clavicles, has been getting 15 gr. thyroids and will increase to 20 t. i. d.

Dr. H. B. Anderson showed a case, sent in as Cretin, but is a mongolian idiot, 5 years old, eyes oblique, no pads of fat, temperature always normal. Dr. Rudolf said that he did not think it a case of mongolinism as there was no usual shortness of the little finger, nor curve outward to the hand.

TORONTO MEDICAL SOCIETY.

MEETING FEBRUARY 5th, 1903.

The President Dr. Hay, in the chair.

Dr. J. F. W. Ross read a paper "General Purulent Peritonitis, its Treatment and Result." He gave as definition cases in which there is pus all over the peritoneum, and reported 45 cases with 28 deaths. In the first 500 cases of abdominal section, 14 cases, with 12 deaths and 2 recoveries. In the second 500, 22, with 15 deaths and 7 recoveries. In the third 500, 9, with 1 death and 8 recoveries. He gave the histories of a number of these cases. He used Dr. Lawson Tait's ovariectomy canula to reach all parts of peritoneum in washing out, with normal saline solution. He then closes the abdomen. In washing out he is careful to reach the post splenic, post hepatic, two lumbar pouches of the peritoneum, and the pelvic pouch, called Douglas' cul de sac, using gallons of saline solution. The chief points he made were 1st, get cases early and then don't wait till the abdomen begins to distend; 2nd, use normal saline solution instead of plain water, and use plenty of it; 3rd, don't drain—no outside poison can then be introduced, and draining is unnecessary if the washing out is thorough. Dr. Ferguson said that

he wished to emphasize that the washing must be thorough, and that some of the solution be left in the abdomen. An instrument should be used to reach the remote parts of the peritoneal cavity. He agreed in not draining. Dr. Hunter related a case of general peritonitis that he had operated on years ago; found pus everywhere and had washed well out, with recovery. Dr. Beatty asked which was the best site to open the abdomen in general peritonitis—in the middle line or over the appendix? Dr. Rudol asked how much morphia Dr. Ross allowed his cases? In reply Dr. Ross said, if in doubt as to the appendix being the cause, open in the middle line. Morphia should be used till respirations fall to 12. It is an antidote to the poison. Give one-quarter grain every two hours or so till respiration is lowered.

Dr. W. J. Wilson then read a paper on "Treatment of Disease With and Without Medicine." He said that in prescribing we ought always to take into consideration associated conditions of diet, food surroundings, etc. In pulmonary tuberculosis he feared that to-day there was too great a tendency to treat many cases with fresh air alone, although for years drugs had been employed with success. Sanatoria are largely responsible for the fresh air fad. Fæcal absorption may neutralize the benefit of the fresh air. In all cases we should watch the patient's diet, exercise and excretions. Attention to these will cure in some cases without medicines. Massage is good in some cases. Suggestion may be good, but is more adapted to quacks and faith healers. The physician's manner was important, as he should inspire confidence. Diet was very important in many diseases. Know the food values and food preparations. Habits, as alcohol, tobacco, oversexual excitement, business worry, must be considered. Correct faulty habits and then medicine would have a chance. The stock drug preparations on the market are harmful to the physician. Pills, tablets, etc., may be old and insoluble. There is an art in administering drugs to get the best effect, and this will be lost to a man who prescribes by number, and does not consider habits, environment, etc. The man who lays his trust in fresh air and ignores drugs, is usually one-sided. Discussion: Dr. Ferguson said a good remedy must be used intelligently. He thought that there was a tendency by good men to ignore drugs. What was good for one patient was not for another. One might require a small dose, another a large one. Dr. Hunter said it was a mistake to repeat the same prescription. A man could get suggestions from the prescriptions of his colleagues.

Dr. Hunter moved that this Society place itself on record as deeply regretting the death of the late Judge McDougal. He was well known

to this Society. His kindly face and courteous manner will never be forgotten. His life was a great inspiration. This was seconded and carried by a standing vote.

A clinical meeting was held at St. Michael's Hospital, Feb. 19th, 1903. The President Dr. Hay, was in the chair. Drs. Jennie Gray, Lelia Davis, Ashby and Chamberlain were elected members. Drs. J. McMaster and J. D. Webster were nominated for membership.

Dr. McKenna presented a case of septic arthritis. The right knee was swollen, was aspirated and the culture found to be pneumococcus. The left followed. There was a slight rigor, with a temperature of 106. Twenty-five incisions were made. There was no history of pneumonia. The right knee was slightly ankylosed. Dr. Chambers said that he had seen the case several times, and thought the result good. There had been no sign of pneumonia. Dr. Uren said that, considering the length of time draining and the washing, the result was very good. Dr. Hunter said he would ask at what stage do we get rigors in these cases? Is the germ systemic or still local? Dr. Ferguson said, to Dr. Hunter's question, that the germs may be localized when the chill occurs, as the rigor is due to the toxines. Dr. T. S. Webster said the irrigation should be almost continuous, once every hour at least. He related a case where he had used 1-4000 hydrogen bichloride, without any harm to the serous coverings.

* Dr. Chambers showed a case of ringworm. A small spore was formed on the scalp and body. The case very closely resembled psoriasis. The treatment was old, namely, a fly blister, then allow a crust to form, remove the crust and repeat the treatment. Dr. Wilson said that it was too bad that we were not further advanced in the treatment after all our research on germs.

Dr. Oldright exhibited a case of gun shot wound in the lower end of the femur, coming out at the lower level of the knee joint. There had been suppuration, and now choreic movements were produced by touching the lower scar. Dr. Primrose said that there had been destruction of the knee joint. There was some dislocation of the tibia backward and that, in trying to straighten the joint, injury to the Popliteal nerve was a danger.

Dr. Chambers showed a case of rodent ulcer. The disease began at the bridge of the nose. The case had been four months under treatment by x-rays and violet rays, three times a week, 5-10 minutes each time, at 6 inches distance. Dr. McMaster said that this case required the removal of the orbit. It was useless for vision, and prevented the healing process. He said that one cause of failure in these cases was the

virus of syphilis. Small ulcers get better proportionately faster than larger ones. Dr. Ferguson said that the x-ray did its work in the same manner as chemical agents. Like arsenic paste, it destroyed even healthy tissue, but first the diseased.

Dr. Chambers showed for Dr. Norman Allen, a case of gastric tumor with pyloric obstruction. There was an absence of HCl acid. The *Openbous bacillus* was present. He asked the opinion of those present as to gastro-enterostomy. Dr. T. S. Webster drew attention to the enlarged superficial veins and asked if there was lactic acid in the stomach. Dr. Dwyer said that he thought the exploratory incision should be made. The patient had not the usual cachexia.

Dr. Primrose showed a specimen of pedunculated middle lobe of the prostate. It had been removed by the suprapubic method.

Dr. Oldright exhibited to the Society a case of epithelioma of the submaxillary gland. The case was seen by the fellows a year ago with a cancer on the lower lip which he had had removed at that time.

Dr. Dwyer showed a case of Pneumothorax. No history could be obtained of the case. There was Hemiplegia with aphasia. The temperature and pulse were normal, the breathing was rapid, there was a little cyanosis. Thirty ounces of pus had been removed by aspiration. No organism was found in the pus. The left pleural cavity extends to the right of the sternum. Dr. Ferguson said that the hemiplegia and aphasia might be due to embolism, even though there are no murmurs in the heart. Valvular disease may exist and cause emboli, and no murmurs present. We can have murmurs and nothing pathological in the valves. Murmurs were due to eddies in the blood stream producing vibrations. Dr. Primrose said in regard to treatment it seemed to be a case of pure tubercular infection, and that great care was therefore necessary not to get a mixed infection. Watch for the collection of fluid and a rise in temperature. Should such occur, then open at once, drain, and obliterate the cavity. Dr. Oldright said that the syphon method was a much safer way than the open one. The chest then could be washed out and the fluid syphoned off.

Dr. Primrose exhibited a case of tubercular hip. The abscess was opened, recurred, opened again. On cutting down on the hip joint, he found the joint disintegrated, and removed the head of the femur and part of the great trochanter.

CANADIAN MEDICAL ASSOCIATION.

The thirty-sixth annual meeting of the Canadian Medical Association will be held in the City of London, Ontario, on the 25th, 26th,

27th and possibly the 28th of August, under the Presidency of Dr. Walter H. Moorhouse of this city. Dr. James Stewart, of Montreal, will deliver the Address in Medicine, Dr. Matthew D. Mann, of Buffalo, has been asked to deliver the Address in Gynecology, and Dr. Alexander Hugh Ferguson, of Chicago, the Address in Surgery. Recently the president appointed Dr. R. W. Powell, Dr. T. G. Roddick, M.P., and Dr. E. P. Lachapelle, a special committee in regard to the establishment of a proposed Dominion Health Bureau. This committee recently waited on Sir Wilfred Laurier at Ottawa, with the result that the premier has promised the proposal consideration. Dr. Moorhouse has also delegated Dr. C. F. Martin, Montreal, to the International Medical Congress at Madrid. Already arrangements are well in hand for a splendid meeting at London. Further announcements will appear in the CANADA LANCET from month to month.

The various committees formed were the following:

The executive was appointed in Montreal last Fall, viz:—W. H. Moorhouse, Pres.; Hadley Williams, Sec.; Drs. Eccles, Wishart and Moore, to which has been added Dr. J. Piper Smith, and Dr. Niven.

I. *Reception*—Chairman, Niven; Roome, Waugh, McArthur, Hutchinson, Hogg, McCollom, E. Williams, Cowen, Woodward.

II. *Programme*—Chairman, Hodge, Angus Graham, H. McCallum, Butler, Meek, Kingsmill, Wishart, J. Piper.

III. *Entertainment*—Chairman, J. D. Wilson, Becher, D. H. Piper, McLaren, Ovens, Belton, Bayley, Macklin, Henderson, Burdon, Reason, J. Wilson.

IV. *Transportation*—Chairman, Drake, English, Shett, G. Wilson, Pingle, Shaw.

Pathologic—Chairman, New, W. G. Campbell, W. Stevenson, D. Arnott, Leaborn, Ferguson, Jento, Cooper, D. B. Fraser (Stratford).

Exhibition—Chairman, Teasdall, Tillmann, Thompson, Clive, H. Stevenson, Balfour, Weekes, Clarke, Alexander.

Finance—Chairman, Eccles, Niven, J. D. Wilson, Hodge, Drake, New, Teasdall.

GEORGE ELLIOTT, General Secretary,
129 John Street, Toronto.

THE AMERICAN CONGRESS ON TUBERCULOSIS.

The next meeting will be held in St. Louis, Mo., U.S.A., July 18th to 23rd, inclusive, 1904. The work of organization is being pushed as rapidly as possible. To facilitate this, the Congress has been granted a

charter, thus making it a legal body and by this means greatly facilitating the work of reorganization on the lines mapped out at the last meeting, when it was decided that a radical re-organization should be completed by the officers elected.

THE AMERICAN UROLOGICAL ASSOCIATION.

The above Association meets this year in New Orleans on 8th and 9th May, the last day and the day following the meeting of the American Medical Association.

THE ONTARIO MEDICAL ASSOCIATION.

This Association meets this year in Toronto on 16th, 17th and 18th June. Dr. T. S. Cullen of Johns' Hopkins will give a paper on some surgical subject, and Dr. J. H. Musser, of Philadelphia, will give one on some medical subject. The main feature of the Association will be an exhaustive discussion on Arterio-Sclerosis by various members. There will be a smoker in St. George's Hall on the evening of the first day, and a dinner on the second day. It is hoped there will be a very large attendance. Dr. J. C. Mitchell, of Toronto, is president, and Dr. H. C. Parsons, 12 Bloor St. W., Toronto, secretary.

UNIVERSITIES AND COLLEGES.

LAVAL UNIVERSITY MEDICAL FACULTY.

The College of Medicine and Surgery of Montreal was founded in 1843. It was incorporated in 1845. After having been, from 1867-1891, the Faculty of Medicine of Victoria University, Cobourg, it became, in 1891, the Faculty of Medicine of Laval University, Montreal. It is now in its 60th session.

In connection with the College there is a staff of 50 professors, associates, fellows, and pathologists.

The students of the College obtain the clinical experience at the Hotel Dieu Hospital, 250 beds, which medically is entirely under the control of the professors of the College; at the Notre-Dame Hospital, 150 beds; at the Montreal Maternity Hospital; and at a number of dispensaries. Diseases of the mind are studied at the Asylum St. John de Dieu. There are at present about 225 students in attendance.

The fees are: Registration, \$2; for lectures, \$80; Maternity Hospital, \$8; Hotel Dieu and Notre-Dame Hospitals for 12 months, \$8; part for dissection, \$4. These fees are paid annually for four years.

A number of externe appointments are open to the students at Notre-Dame Hospital. The students have access to the library, containing a large collection of medical works, mainly in the French language.

When presenting themselves for their examinations, students must furnish evidence that they have successfully submitted themselves to the preliminary examinations.

No medals or prizes are awarded, but successful students are ranked as having passed, passed with distinction, or passed with great distinction.

The professional course of studies consists of four years, and a nine months' session in each year. By years the course is as follows: First year, Histology; bacteriology; descriptive and practical anatomy; hygiene; general physiology; natural chemistry; and practical toxicology.

Second year. Histology; bacteriology; descriptive and practical anatomy; general physiology; medical chemistry; practical toxicology; hygiene, and medical and surgical clinics.

Third year. Medicine; surgery; legal medicine; diseases of the mind; materia medica and therapeutics; practical pharmacy; obstet-

rics; operative surgery; pathological anatomy; bacteriology; medical, surgical and obstetrical clinics; eye, ear, nose and throat; pediatrics; gynaecology; medical ethics; the history of medicine; and practical medical electricity.

Fourth year. Medicine; surgery; materia medica and therapeutics; practical pharmacy; obstetrics; operative surgery; pathological anatomy; bacteriology; medical, surgical, and obstetrical clinics; eye, ear, nose, and throat; medical laws and ethics; history of medicine; and medical and practical electricity.

The requirements for the primary examinations, in lectures are: descriptive anatomy, 120 lectures a year for two years; practical anatomy, 90 lectures yearly of two hours duration for two years; normal and pathological histology, 60 lectures a year for two years; physiology and medical electricity, 120 lectures a year for two years; hygiene, 30 lectures a year for two years; surgical and medical clinics at the Notre Dame Dispensary; general pathology, 60 lectures a year for two years.

The tickets required for the final examinations are: materia medica and therapeutics and practical pharmacy, 120 lectures a year for two years; surgery and operative surgery, 120 lectures a year for two years; medicine, 120 lectures a year for two years; obstetrics and the diseases of infancy, 120 lectures a year for two years; legal medicine and insanity, 60 lectures a year for two years; surgical clinics and medical clinics, three terms of eight months each; eye, ear, nose, and throat, 60 lectures a year for two years; obstetrical clinics, 48 lectures for one year; gynaecology, one course of 60 lectures; pediatrics, two courses of 30 lectures each; medical ethics and historical medicine, 10 lectures a year; pathological anatomy and bacteriology 60 lectures yearly for two years; practical medical electricity, 10 lectures yearly for two years.

The examinations on the primary subjects are held at the end of the second year, and those on the final subjects at the end of the fourth year. The student of the fourth year must have passed the previous examinations, before being admitted to the final. The examinations are written and oral. The student must pass on the written before he is admitted to the oral.

Those who have passed the primary examination have the right to the title Bachelor in Medicine; on passing the final, to the title Doctor in Medicine.

MCGILL UNIVERSITY MEDICAL FACULTY.

The Medical Department of McGill University is now in its seventy-first session. There is a teaching staff of over seventy professors, lecturers, fellows, and demonstrators. And the students in attendance number 455.

The fees for the various subjects are as follows: The matriculation examination, \$5; if taken as a local examination, \$4 extra; for taking it in parts, first part, \$5; subsequent examination, \$2; examination of certificates exempting students from the matriculation, \$1; registration of University School standing, \$5; the sessional fees, \$125 a year, for four years; hospital fees, \$10 yearly, for three years, this covers Royal Victoria and Montreal General; University fee of \$3 for care of grounds and athletics; for students repeating any session, \$35; admission ad eundem gradum, \$10; annual fee for each hospital, \$5; Montreal Maternity, \$12; diploma in Public Health, \$20; diploma in Legal Medicine, \$20; for the M.D., C.M., \$30 paid by successful candidates when results are known. Fee for supplemental examination on undergraduate subject, \$5. For special courses in ophthalmology, dermatology, genito-urinary surgery, orthopædics, gynæcology, diseases of children, \$50.

The following medals, fellowships, and prizes are awarded to the successful candidates:

The Holmes gold medal is awarded to the student of the graduating class who receives the highest aggregate number of marks in the different branches comprised in the medical curriculum.

The Sutherland gold medal is awarded for the best examination, in general and medical chemistry, together with creditable examination in the primary branches, and is held at the end of the third year.

The final prize consists of books, or a microscope, and is awarded for the best examination, written and oral, in the final branches.

The third year prize is one of books and is for the best written and oral examination in third year subjects.

The second year prize is also one of books, and is for the best examination in the second year subjects.

The first year prize is in the form of books for the best candidate in first year subjects.

The Clemesha prize in clinical therapeutics is awarded for the highest marks at a special clinical examination.

Clinical instructions are given in the Royal Victoria of about 300 beds; and in the Montreal General Hospital, with about 250 beds. In this latter hospital there were treated last year from 2,000 to 3,000 patients. Clinics on insanity are given at the Verdun Hospital for the

insane. Special clinics on dermatology, larynyology, infectious diseases, genito-urinary diseases, gynæcology, are given at the Montreal General and the Royal Victoria Hospitals.

To obtain the degrees M.D., C.M., the following regulations must be observed with regard to matriculation and professional studies and examinations:—

Every student before he can be enregistered as an undergraduate in medicine must present a certificate of having passed the matriculation examination of the faculty of medicine or arts of this university, or of having passed some State or university examination accepted by this university.

Graduates in arts of any recognized university and those who have passed the entrance examination of a Provincial Medical Council and thus become enregistered students in medicine of a province in Canada are exempt from further preliminary examination.

Students from the United States who have passed a State or university examination fully equivalent to that required by this university may at the discretion of the faculty be admitted to the study without further examination.

Students who fail in not more than one subject other than Latin may enter the first year; but the matriculation must be completed before the commencement of the second session. Those who fail on one or more subjects in June, or who have taken part only of the examination, may present themselves in September, and will be re-examined on all subjects, except those on which they make 50 per cent.

The subject embraced in the matriculation examination are:—Dictation, grammar, British history, composition, literature, arithmetic, euclid, B1, II., III., algebra to end of quadratics; Latin, grammar, texts, and translation at sight; and one of either chemistry, French, German, Greek, or physics.

The following are accepted *pro tanto* in lieu of the above:—The entrance or matriculation examination of the various medical boards of Canada; the university school examinations; the first year entrance exhibition examinations; the model school diploma examinations of the McGill Normal School; the matriculation or leaving examinations accepted by the universities of Ontario; the leaving examinations of Nova Scotia; the matriculation examination of Dalhousie University; and the leaving examination of Prince of Wales College, P.E.I.

The professional course for the degrees of M.D., C.M., consists of four nine . . . sessions in the University or some other college, university or school approved of. Students presenting certificates from the Univer-

sities will be required to pass all the examinations on the primary and final subjects. Graduates in Arts who have taken two full courses in General and Practical Chemistry, two courses in Biology, including Botany, Embryology, and Physiology, and the dissection of one or more vertebrata, may be admitted as second year students, but they must take Anatomy for two years.

Candidates for the final examination must show that they have taken two full courses on Anatomy, Practical Anatomy, Physiology, Chemistry, Pharmacology and Therapeutics, Principles and Practice of Surgery, Obstetrics and Diseases of Infants, Gynæcology, Theory and Practice of Medicine, Clinical Medicine, Clinical Surgery; one full course on Medical Jurisprudence, General Pathology, Hygiene and Public Health, Practical Chemistry; one course on Ophthalmology and Otolgy, Biology, Histology, Pathological Anatomy, Bacteriology, Mental Diseases, Pediatrics, Medical and Surgical Anatomy. They must furnish certificates for six autopsies, three months' dispensing, and assisting at twenty vaccinations.

Courses of less than the above will be accepted for the time which they cover. No one can become a candidate for the degrees, unless he has attended one full session at the University. Candidates for the degrees must have attended for 22 months the Montreal General, the Royal Victoria Hospitals, or some approved hospital of not less than 100 beds. They must have acted as clinical clerk for six months in medicine and six months in surgery, and reported at least 10 medical, and 10 surgical cases. They must give proof of nine months experience at the Montreal Maternity Hospital, or other approved lying-in-hospital; and assisting at six labors.

The subjects of the first year examination are: Biology, Histology, Physiology, Anatomy, Chemistry, Practical Chemistry, Elementary Bacteriology.

For the second year the subjects are: Anatomy, Chemistry, Practical Chemistry, Physiology, Practical Physiology, Pharmacology, and Histology.

The third year subjects are: Pharmacology and Therapeutics, Medical Jurisprudence, Public Health and Preventive Medicine (including Bacteriology), General Pathology, Mental Diseases, Clinical Chemistry, Clinical Microscopy, Obstetrics, Medicine and Surgery.

The fourth year examinations are: Medicine, Surgery, Obstetrics, Gynæcology, Ophthalmology, Clinical Medicine, Clinical Surgery, Clinical Obstetrics, Clinical Gynæcology, Clinical Ophthalmology and Practical Pathology.

By means of the above arrangement a certain definite amount of work

must be accomplished by the student in each year, and an equitable division is made between the primary and final branches.

A minimum of 50 per cent. in each subject is required to pass and 75 per cent. for honors.

Special courses have been arranged to enable students to take their B.A., M.D. or B. Sc., M.D. in six years. And also two special courses for a Diploma in Public Health and Legal Medicine.

UNIVERSITY OF BISHOP'S COLLEGE MEDICAL FACULTY, MONTREAL.

The medical faculty of the University of Bishop's College is now in its thirty-second session. The University is located at Lennoxville, while the Medical College is in Montreal. It has a teaching staff of about 40 professors, lecturers instructors and demonstrators. There are in attendance upon lectures about 60 students.

The following fees are imposed : The total fees for whole medical faculty course of four sessions are \$400, in four annual payments of \$100, which includes laboratory work, dissecting material and chemical reagents ; partial students pay special fees ; for the degrees of M. D., C. M., \$30, one-half returned if the candidate fails ; Montreal General Hospital annual, \$5 ; perpetual, \$15 ; clinical lectures on surgery, two courses, each, \$12 ; clinical lectures on medicine, two courses, each \$12 ; Royal Victoria Hospital : twelve months, \$5 ; perpetual, \$15 ; Hotel Dieu Hospital : twelve months, \$4 ; clinical lectures on surgery, two courses, each \$8 ; clinical lectures on medicine, two courses, each \$8 ; Notre Dame Hospital, six months, \$4 ; Western Hospital : one year, \$5 ; perpetual, \$15 ; Montreal Dispensary : six months, \$3 ; full course in dispensing, \$8 ; Women's Hospital, one year, \$10 :

The following medals, prizes and scholarships are offered : The Wood gold medal, value \$60, is awarded to the students who has taken the highest standing in the primary and final subjects.

The Robert Nelson gold medal, value \$50, is given for the best special examination in surgery, open to those who take honors in the aggregate on the final branches,

The David silver medal is awarded to the student who obtains the highest number of marks on the primary examinations.

The Chancellors prize in books is given to the student who passes the best final examination, other than the Wood gold medalist.

The above medals and prizes are only awarded to those who have attended at least two sessions in Bishop's College.

Prizes in books are given for the best examination on histology, and the best dissecting and practical anatomy of the first and second years. A scholarship, consisting of a reduction of one-half the fees in all the theoretical subjects of the college, is given to the student obtaining the highest aggregate marks at the Provincial examinations each year.

A scholarship of a reduction of one-half the fees in the theoretical subjects is awarded to a graduate in arts from Lennoxville who shows the highest aggregate marks in the arts course.

No students shall receive a medal or prize who does not take honors.

Clinical experience and teaching are obtained in the wards of the Western Hospital, the Women's Hospital, the Montreal General, and the Royal Victoria Hospitals, the Hotel Dieu Hospital, and the Montreal Dispensary. These hospitals have a capacity of about 1,000 beds. Special courses are given at these hospitals on gynaecology, physical diagnosis, nervous diseases, orthopaedic surgery, microscopy and chemistry, skin diseases, and on eye, ear, nose and throat.

The University matriculation consists of the following subjects, and the examination is held in October and March.

- (a) English language, including Grammar and Composition.
- (b) Latin, including Grammar, Translation from *Cæsar de Bello Gallico*, Books I. and II., or Virgil's *Æneid* Book I., and translation of easy passages not taken from such authors.
- (c) Mathematics, comprising (a) Arithmetic; (b) Algebra, as far as Simple Equations, inclusive; (c) Geometry, the subject matter of Euclid, Books I., II. and III., with easy deductions.
- (d) Botany as in Gray's School and Field Book of Botany.
- (e) One of the following Optional Subjects:—(1) Greek, (2) French, (3) German (4) Italian, (5) any other Modern Language, (6) Logic, (7) Physics.

The course leading to the degrees of M.D., C.M., extends over four years, and consists of four sessions of nine months each.

An *annus medicus*, or medical session, is constituted by at least two full courses of 120 lectures each, or by one such course, and two courses of 60 lectures each, with previous enregistration.

Candidates for graduation in Medicine and Surgery must give sufficient evidence by certificate:—

1. Of having matriculated or possessing equivalent qualifications.
2. That they have attended two six months courses of lectures in each of the following departments in Medical Science:—General or

Descriptive Anatomy, Principles and Practice of Medicine and Neurology, Surgery, Obstetrics, Chemistry, Physiology, Pharmacology and Therapeutics.

3. That they have attended one winter and one summer course in General Pathology and Bacteriology; two three months' courses in Gynaecology; one three months' course in Medical Jurisprudence and Toxicology, Diseases of Children, Hygiene, Practical Chemistry, Ophthalmology and Otology, Laryngology, also a course of not less than twenty-five demonstrations in Practical Histology. Courses in Psychiatry and Medical History, Ethics and Dermatology.

4. That they have attended two six months' courses of lectures on Clinical Medicine and Clinical Surgery.

5. That they have attended two six months' courses of Practical Anatomy.

6. That they have taken two courses of Clinical Obstetrics of twenty-four lessons each or one of forty-two.

7. That they have attended at least twenty-four months or four periods of six months each, the Medical and Surgical practice of a hospital in which are contained not less than 100 beds, under the charge of not less than two physicians or surgeons, and that they have been engaged for at least six months in compounding medicines at a hospital dispensary, or with a duly licensed practitioner.

8. That they have attended at least twelve cases of Midwifery, either in a lying-in hospital, or in a private practice, under the supervision of a regular medical practitioner.

9. They shall furnish evidence of having reported at least six medical and six surgical cases.

TRINITY MEDICAL COLLEGE.

There is on foot a movement towards the formation of an endowment fund for Trinity Medical College. Messrs. Frederic Nicholes, William McKenzie and Col. H. M. Pellatt are taking considerable interest in this matter. Already about \$75,000 have been guaranteed, while the total amount aimed at is \$125,000. It is understood that there will be no serious difficulty in realizing the above amount. It is also more than likely that when the endowment fund is completed, Trinity Medical College will become the Medical Faculty of Trinity University. An option has been secured on additional land adjoining the present site of Trinity Medical College.

UNIVERSITY OF TORONTO CONVOCATION HALL FUND.

Since the last public announcement of subscriptions received for the University of Toronto Convocation Hall fund, the following additional donations have been added to the already long list: The estate of the late Hart A. Massey, \$5,000; Mr. and Mrs. Goldwin Smith, \$2,000; Frederic Nicholl, \$500; Col. H. M. Pellatt, \$500; W. T. White, \$250; H. C. Hammond, \$250; E. R. Wood, \$250; Geo. N. Morang, \$100; E. W. Cox, \$100; F. W. Baillie, \$100; E. B. Edwards, K.C., \$50; J. F. Junkin, \$50; E. D. Fraser, \$50; A. P. Choat, \$50; Geo. A. Case, \$50; R. S. Waldie, \$50; H. Burnham, \$25; William T. Harrison, \$25; C. S. Macdonald, \$25; H. R. Fudhope, \$25; R. B. Thomson, \$25; J. Lorne McDougall, \$20; — Breckinridge, \$25; R. N. LeSoeur, \$10; Duncan Walker, \$10. The students have undertaken to raise \$6,000. The amount to date is \$33,000. The total sum required is \$50,000.

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EDITORIAL.

TORONTO'S GRAND OLD MEDICAL MEN.

Dr. J. H. Richardson was born at Presqu' Isle in 1823. He began his medical studies in 1841, under Dr. Rolph, at Rochester. He then attended the first course of lectures given by the medical faculty of King's College, Toronto. He went to England in 1844 and studied at Guy's Hospital for three years. In 1847 he obtained the diploma of M. R. C. S. Eng., being the first Canadian to win this honor. He returned to Toronto and commenced practice in 1848, when he took his M. B. at King's College. At that time Dr. Sullivan was professor of Anatomy in the recently constituted medical department of the University of Toronto. Dr. Richardson was appointed in 1850 to the chair of anatomy to succeed Dr. Sullivan. After the medical faculty of the University of Toronto was discontinued in 1853, he accepted the chair in anatomy in the Toronto School of Medicine, a position which he held until 1887, when the medical faculty of the University of Toronto was again restored. He was appointed professor of anatomy in the new faculty, a position which he resigned a year ago. Dr. Richardson has always been fond of out door sports, such as yachting, curling, bowling, fishing etc. Formerly he took much interest in the volunteer force and was surgeon of the Field Artillery, the 10th Royal Regiment, and the Merchant's Company. He is an ex-president of the Ontario Medical Association; was for many years a surgeon on the Toronto General Hospital staff. He has been surgeon to the Toronto jail for many years. To those who have had the privilege of hearing Dr. Richardson lecture on Anatomy no words are required. To those who have not heard him all that need he said is that there could be none better. *Bonus atque fidus Magister!*

"I see an angel hover o'er thy head,
And with a vial full of precious grace,
Is pouring now the same into thy soul."

Dr. Uzziel Ogden is one of Toronto's best-known physicians. His pupils, now scattered over the world, are numbered by the thousands. For fifty years he taught medical classes with unfailing attention and

care. It can be said that, during these many years, he never came before his students without special preparation for the lecture of the day. Dr. Uzziel Ogden obtained his license in 1849 from the old Medical Board. In 1852 he was induced to leave Aylmer, where he was practising, and take a position in the staff of the Toronto School of Medicine. At different times he held the chairs of Physiology, Materia Medica, and Therapeutics, and Midwifery and Diseases of Children. In 1887, when the medical faculty of the University of Toronto was revived, he took the chair of Gynæcology, and lectured regularly till the date of his resignation, in January, 1903. Among the many appointments held by Dr. Ogden may be mentioned those of Physician to the Toronto General Hospital, Physician to the House of Industry, Editor of the Canadian Journal of Medical Sciences, Dean of the Medical Faculties of Victoria and Toronto Universities, and secretary and member of the Provincial Board of examiners.

During his long professional career he has witnessed many of the greatest advances known to the healing art. Of Dr. Uzziel Ogden the words of Horace are true in a very special sense: *Doctrina sed vim promovet insitam, rectique cultus pectora roborant.*

Applied to Dr. Ogden fifty years ago, when he began to teach and take a deep interest in medical education, the words of Shelley may justly be quoted, that he

“ Built beyond mortal thought,
Far into the unapparent.”

FRIGHT AND CHLOROFORM DEATHS.

The above is the heading of a leading article in the British Medical Journal for February 21st.

The article refers to the statements made by Dr. J. A. Bodine, of the New York Polyclinic, on the subject of ether and chloroform anaesthesia. Particular attention is directed to the opinion of Dr. Bodine, “that most chloroform deaths are due to vasomotor paralysis, and that deaths from fright occur just in the same way.” Two cases of death from fright were mentioned. In one case the patient was very nervous, and the anaesthetist placed the cone over the patient's face, and requested him to breathe freely. After a few respirations, he ceased breathing and all efforts at resuscitation failed. Not a single drop of chloroform had been given. In the second case, which was an operation for hemorrhoids, an anæmia was given. The patient thought this was the commencement of an operation and ceased breathing and died. These two deaths were clearly due to fright. In both cases the abdominal veins

were found after death to be very tense and full, showing that the blood of the body was mainly collected in them, as the result of vasomotor paralysis consequent upon the fright.

All this is quite rational, and is what may be expected to happen from time to time, as deduced from physiological experiments and observations of the effects of fright. On April 27th, 1901, R. D. Rudolf, M.D., Edin., M. R. C. P. Lond., of Toronto, read a paper at the Canadian Institute on "Observations on blood pressure with special reference to Chloroform." Dr. Rudolf calls attention to the fact that it is difficult to kill a dog with chloroform when the blood pressure is low. This being the case, why do anaesthetists fear the administration of chloroform when the patient is sitting up? In Dr. Rudolf's words the answer is "most deaths which occur in practice in the administration of chloroform are *not* cases of poisoning from the drug, but *are due to syncope resulting either from pain of an operation commenced too soon, or from fear.*" Sir James Simpson had noticed that a distinction should be made between deaths from chloroform, and during chloroform administration. He was of the opinion that many deaths, while chloroform was being administered, were not caused by it, but were the same as the deaths observed on the table by Brodie, Home, Cooper and others, when no chloroform was given, "Imperfect anaesthesia is the cause of a large number of cases of danger under chloroform."

Dr. Rudolph's paper is a very valuable contribution to the whole subject of the blood pressure under chloroform and the dangers of imperfect anaesthesia. He clearly showed as far back as 1900 and 1901 that fright and pain were more to be guarded against than has been generally considered, and that deaths are frequently due to them alone.

THE GROWTH OF HOSPITALS IN ONTARIO.

In 1881 there were 11 hospitals in Ontario; in 1890 there were 21; and in 1901 there were 53. During the last year several new hospitals have been built. The cost per patient daily in 1881 was 55 cents. In 1890 it had risen to 71 cents, while in 1902 it had risen to 90 cents. It was thus to be seen that the number of hospitals have increased very rapidly. Nearly every good sized town has now a hospital, and several small cities have more than one hospital. In 1881 there was one general hospital in Toronto, whereas at present there are four, and a number of special and private hospitals. The cost has increased from 55 cents a day in 1881 to 90 cents in 1902, or an increase of 64 per cent. Thus while the cost has greatly increased, the grant made by the gov-

ernment for the aid of charity cases has steadily declined. It is now only one-half of what it was some years ago. The total amount paid out last year by the hospitals in Ontario for the maintenance of these hospitals was about \$700,000. Of this sum the Ontario Government contributed \$110,000. The remainder came from municipal grants, the payment of pay-patients and donations. The various municipalities and the government do not give sufficient to the support of the destitute poor.

BILLS RE VACCINATION AND INEBRIATES.

As there is every likelihood that bills will be introduced at this session of the Ontario Legislature on the important questions of compulsory vaccination, and the care and treatment of inebriates, it would be advisable for the medical profession to take some steps to see that these bills become law in the best form. It is very necessary that there should be no legal enactments, tending in any way to interfere with the rights, or fees, of the members of the medical profession

A DOMINION MINISTER OF HEALTH.

At the meeting of the Canadian Medical Association, held in Montreal last September, a resolution was passed asking that a Minister of Health be appointed for Canada. This resolution was recently submitted by Drs. Roddick, Powell and Lachapelle to Sir Wilfrid Laurier, who promised to give the matter his careful consideration. It was urged that the health matters of the dominion were of such importance as to justify this change. Fifty years ago the expectancy in Great Britain was about 44 years. It is now about 50 years. This is a difference of 6 years, on the average, for each person, or the equivalent of an addition to the population of about 5,000,000 as compared with the expectancy of 50 years ago. This vast change has been effected by improved sanitary conditions. In the face of such a fact, one would think there could not be much question as to the wisdom of the resolution of the Canadian Medical Association.

QUARTERLY MEETING OF THE PROVINCIAL BOARD OF HEALTH.

A meeting of the Provincial Board of Health was held in February. It was reported that there had been 2,500 cases of smallpox and 10 deaths during the year 1902, and that during the same period there had been 290 deaths from scarlet fever out of a total of 3,502 cases.

This year there had been 196 cases of smallpox in January and 10 deaths. In Galt there had been 85 cases and five deaths—not one of latter had been vaccinated. Attention was drawn to the marked protective value of vaccination in other places. It was felt that a more effective vaccination law was urgently required.

A recommendation was adopted to the effect that local Boards of Health provide antitoxine to be used both as a prophylactic and curative agent in the treatment of diphtheria in the poor.

Dr. Amyot reported against the making of the diagnosis of scarlet fever by means of bacterial examinations, as the so-called diplococcus of scarlet fever could not as yet be relied upon as a certain test.

With regard to the discharge of sewage into rivers, it was held that, by the construction of proper tanks and filter beds, the sewage could be purified to such an extent as to render its discharges into streams almost harmless. Towns could be reasonably demanded to conform to these requirements.

THE SMOKE NUISANCE.

THE CANADA LANCET has on a former occasion expressed a very decided opinion upon this question. It is a matter for no small congratulation that this matter is being taken up with some degree of earnestness. The municipal council of Toronto is likely to move in the direction of imposing needed restrictions on the combustion of coal, with a view to abating the escape of unconsumed coal products. Whatever may be done in Toronto is only what may be done in other places. It is now a settled fact that there need be very little unconsumed matter escape, if furnaces are properly regulated.

Some time ago, the British government appointed a competent commission to report upon the abatement of the smoke nuisance. This commission reported that the causes of the escape of unburnt matter are as follows :—

- (1) Want of proper construction and adjustment between the fireplaces and the boilers, and the disproportionate size of the latter to the amount of work they are expected to perform.
- (2) The deficiency of draft and improper construction of the flues leading to a chimney of inadequate height and capacity.
- (3) The carelessness of stoking and management in those entrusted with the charge of the fireplaces and boilers.

The remedy for the first set of conditions is obvious. As regards

deficient draft, various devices are in vogue to supply an adequate amount of air to the furnace fires, having as this object :

(a) The admission of sufficient air for complete combustion but no great excess, as such escapes at a high temperature and there is thus a loss of heat.

(b) The intimate contact of the air with the fuel.

(c) The mixture of air and fuel must be kept for the time at an incandescent temperature.

Any factory furnace which does not consume its own smoke constitutes a nuisance under the British Public Health Act. Some latitude is allowed, however, at the hour of kindling, and throughout the day for periods not exceeding one to ten minutes at a time. The emission of great volumes of unconsumed smoke is both dirty and unhealthy. It is an offence against comfort and health. It can to a very great extent be remedied, and must be remedied.

THE RISE OF BLOOD PRESSURE IN LATER LIFE.

At the meeting of the Royal Medical and Chirurgical Society held on 13th January, Professor T. Clifford Allbutt read a paper upon the above subject. The paper was a very important contribution to the pathology and clinical characters of arteriosclerosis. He stated that "of certain early derivations from the time balance of functions it might be said that, if they did not arise primarily in the circulation, yet that in this system the first evidence of them might be perceived." Of such evidence the fluctuations of arterial blood pressure were very important. The rise of blood pressure in Bright's disease was one of the best-known instances. But there might be some degree of fibrosis of the kidneys, and no rise of pressure. Granular kidney had a special place in pathology. There was much more than mere fibrosis of these organs. It was a mistake to suppose that arterial disease was always accompanied by rise of blood pressure. It was not true of many of the acuter affections of the arteries, and in some of the chronic and involutory arterial changes a high blood pressure was absent.

It might be said that senile arterial changes could be divided into two classes : those with high blood pressure ; and those where the pressure was normal or subnormal. In the first class there was a tendency to death by apoplexy, while in the second class "it was towards obliteration of the cerebral arteries and softening. Pressure depended upon two conditions : diminution of the calibre of the arterial system, and in-

creased viscosity of the blood. The encroachment in calibre must be general. If only in one part, it was usually compensated by dilatation in others. In persons who had led a sedentary life with excess of food it was thought the high pressure was due to change in the blood, which was described as viscosity.

The contention was advanced that arterio-sclerosis was a result, rather than a cause, of high pressure. In the high pressure stage and before the arteries became affected, the condition was amenable to medicinal, diatetic and hygienic treatment. He did not believe that high blood pressure was due to contraction of the arterioles from the active influences of their muscle fibres. He admitted that such contraction might be of long enough duration to give rise to an attack of angina; but that it did not last for months or years. It is contrary to experience to have a state of vaso-constriction prevail in all parts at once and continue. Loss of elasticity in the vessels leads to waste of energy and a fall of pressure, provided the calibre of the arterial system be not reduced, or there be the condition of viscosity of the blood. He did not explain what the latter is other than some change in its composition that prevents its free flow through the smaller vessels.

Sir W. H. Broadbent, Sir R. D. Powell, Dr. William Russell and Dr. A. E. Sansom held that active arterial contraction, under the stimulus of some characteristic of the blood, or through the nervous system, was an important factor in the high arterial tension met with in the elderly. Dr. Allbutt's paper will do much good, as it will set the pathologists to work again along somewhat new lines.

THE PREVENTION OF SYPHILIS.

At the last (fifty-third) meeting of the American Medical Association, held at Saratoga Springs, June 10-13, 1902, a joint resolution from the Sections of Cutaneous Medicine and Surgery, and Hygiene and Sanitary Science was introduced in the House of Delegates as follows:

Whereas, there is a burning necessity to check the spread of venereal diseases, and, assuming that the States cannot with impunity ignore the condition, it lies in the province of the medical profession to discuss and recommend to the respective State legislatures and municipalities means not regulamentative, but social, economic, educative and sanitary in their character, to diminish the danger from venereal diseases. **RESOLVED:** That the Section on Cutaneous Medicine and Surgery of the American Medical Association invite the section on Hygiene and Sanitary Science to co-operate with the Section on Cutan-

eous Medicine and Surgery in bringing about a propagananda in the different States, looking toward a proper recognition of the dangers from venereal diseases, and to arrange for a national meeting under the auspices of the American Medical Association for the prophylaxis of venereal diseases, similar to the International Conference for the Prophylaxis of Venereal Diseases, which meets again this year at Brussels, under the authority of the Belgian Government."

This was later submitted to the House of Delegates, which endorsed the action of the Section, and adopted the following:—

"That a joint committee of six from the Sections of Hygiene and Sanitary Science and Cutaneous Medicine and Surgery be appointed by the President to stimulate study in, and uniform knowledge of, the subject of the prophylaxis of venereal diseases, and to present to the American Medical Association a plan for a national meeting, similar to the International Conference for the Prophylaxis of Venereal Diseases, which meets again this year in Brussels, under the auspices of the Government of Belgium." The Committee on Prophylaxis of Venereal Diseases consists of: Dr. Henry D. Holton, chairman, Brattleboro, Vt.; Dr. Ludwig Weiss, secretary, 77 East 91st St., New York. Dr. George M. Kober, 1600 "T" St., Washington, D.C.; Dr. W. H. Sanders, Montgomery, Ala.; Dr. L. Duncan Bulkley, 531 Madison Ave., New York City; Dr. Frank H. Montgomery, 100 State St., Chicago, Ill.

PERSONAL AND NEWS ITEMS.

Dr. C. W. Walker has located at Thessalon, Ont.

Dr. Bagerow, Toronto, has passed for the M.R.C.S. Eng.

Dr. R. M. Cooper, London, died suddenly on 22nd March.

Dr. McDonagh has returned from his trip to West Indies.

Dr. D. J. Gibb Wishart is recovering from his recent illness.

Dr. W. A. Howell, of Jarvis, died March 23, at the age of 67.

Dr. Nevitt, Toronto, has gone for a trip to the Southern States.

Dr. C. J. Hastings, of Toronto, spent a short time in Baltimore.

Dr. H. H. Chowr Jr., intends practising his profession in Winnipeg.

Dr. and Mrs. H. B. Yates, of Montreal, are taking a trip to England.

Dr. Geo. Elliott and Miss Coutts, both of the Yukon, were recently married.

Dr. and Mrs. C. J. Edgar, of Hartly, have gone on a trip to Bermuda.

Dr. O. Klotz has been appointed resident physician at the Isolation Hospital, Ottawa.

Dr. Standish has gone to Auburn to take the practice of the late Dr. Frank Turnbull.

Dr. Goldwin Howland, of Toronto, has obtained the diploma of M. R. C. P., London.

Dr. Newbond Jones, of the Royal Victoria Hospital, spent a short time in Toronto recently.

Dr. Cowan, Harriston, died recently after a painful illness, for which an operation was performed.

Dr. George Fuller, of Cowansville, was recently married to Miss Belle Boyd, of Montreal.

Dr. Charles Lang, son of Dr. H. Lang, of Granton, has passed the examination for the L.R.C.P., London.

Dr. W. L. Harcourt, of Brandon, Man., paid a visit recently to his brother, Hon. R. Harcourt, of Toronto.

Dr. Sutherland, of Kamloops, has been appointed resident surgeon of the Revelstoke Hospital at a salary of \$2,100.

Dr. and Mrs. Palmer have been staying at St. Catharines. The doctor is rapidly regaining his strength.

Dr. Knox Niven, son of J. L. Nevin, of London, has gone into partnership with Dr. Roche, M. P., at Minnedosa.

Dr. J. B. Marr has been appointed medical health officer of St. Thomas, in place of Dr. Golden, who resigned.

Dr. Charlton, of Arthur, has commenced practice at Thornhill, in the stand formerly occupied by Dr. Dame.

Dr. Jeffs, of Havelock, has accepted the position of chemist to the Beet Root Sugar Company to be opened at Peterboro.

The Western General Hospital in Montreal finds urgent need for more wards, and proposes the erection of a new building.

Dr. R. W. D. Parker, who had charge of the Boer Camp at Bermuda, was recently married to Miss Burrows, of Kingston.

Barrie's new hospital, the Royal Victoria, was recently opened. It was erected at a cost of \$20,000, and has accommodation for 40 patients.

Dr. J. R. Gunne, of Dauphin, Man., who has been in Britain pursuing his studies, obtained the F.R.C.S. Eng., diploma. He intends practising in Dauphin.

Dr. Colin A. Campbell, formerly of the Toronto General Hospital, has been appointed resident house surgeon of the Royal Ophthalmic Hospital, London.

Dr. and Mrs. Gilbert Gordon have gone south for some time, on account of the doctor's recent severe illness. They wish to thank their many friends for their kind wishes.

Dr. Andrew Hailiday, Provincial pathologist and bacteriologist for Nova Scotia, died in Halifax, March 10, at the age of 37. Very many will regret his untimely death.

Dr. Lorne Robertson, B. A., son of Dr. J. A. Robertson, of Stratford, has been admitted to membership of the Royal College of Surgeons, England.

The League for the Prevention of Phthisis in Montreal is pushing on its work with energy. Among other recommendations is that for voluntary notification of phthisis.

The annual report of the Winnipeg General Hospital shows that the institution is in a prosperous condition, but much in need of more accommodation. Here is a chance for some of Winnipeg's wealthy citizens.

Montreal's Contagious Disease Hospital is to be called the Alexandria Hospital of the Queen. A strong committee has the work of erection in hand. The city has made a grant of \$30,000 towards such accommodation.

Dr. Laphorn Smith, of Montreal, left New York on the 25th March by the White Star liner Cedric for a few weeks visit to Europe, including, a week's stay at Madrid for the International Congress, which opens on the 23rd April, and before which he has been invited to read a gynecological paper. He expects to return by the Tunician on the 14th May.

OBITUARY.

FRANK TURNBULL, M.D.

An attempt to run the River Maitland from Auburn to Goderich in a canoe resulted in the death of Dr. Frank Turnbull, on 12th March. Dr. Turnbull had been practising for some time at Auburn, and had sold

out his practice with the intention of going abroad for study. It is not known how the accident occurred as he was alone in his canoe. When he was removed from the water every effort was made to resuscitate the body, but in vain. He was a very promising young physician, and a brother of Dr. J. L. Turnbull of Goderich.

JOHN G. GILES, M.D., Ex-M.P.P.

Dr. Giles, of Athens, one of the oldest practitioners of that section, died quite suddenly 12th March in the Brockville General Hospital, whither he had been removed for treatment a week ago.

Deceased graduated as an M.D. at Queen's in 1861, and since then practised his profession at Gananoque, Brockville and at Athens, spending most of his life at Athens, where he was born 69 years ago. He married Miss Caroline Teskey, of Appleton, Lanark County, who, with four children, survive. In 1876 he was elected by acclamation to represent South Leeds in the Local Legislature, filling the unexpired term caused by the resignation of H. S. McDonald.

In military matters he was also prominent, holding a commission as captain in the militia. He had been medical attendant at the House of Industry, Athens, since its institution up to the time of his death.

H. V. WHITE, M.D.

The many friends of Dr. H. V. White of Springfield, will regret to hear of his death at St. John. During his short life of 37 years he had made a wide circle of strongly attached friends in Springfield and in Sussex. He studied medicine at the University of Pennsylvania where his kindness of heart, genuineness, and sincerity of character and exceptional ability made friendships true and lasting and separations keenly felt.

BOOK REVIEWS.

A REFERENCE HANDBOOK OF THE MEDICAL SCIENCE EMBRACING THE ENTIRE RANGE OF SCIENTIFIC AND PRACTICAL MEDICINE AND ALLIED SCIENCES.

By various writers. A new edition, completely revised and rewritten. Edited by Albert H. Buck, M.D., New York City. Vol. III. Wm. Wood & Co., New York.

THIS volume consists of 860 pages. In articles it embraces from Chloramid to Equinox Spring. There are 676 figures throughout the text, and three full-page colored plates on the isotherms of the world, affection of the cornea, and the membrana tympani in health and disease. The high standard of the previous two volumes is maintained in this one. The illustrations are very clear and expressive. The whole volume is replete with information, while the main articles are of an exhaustive character. The volume is an excellent one for reference. The writers and publishers have spared no pains to keep this volume up to the high standard of the first two volumes. The work when completed will be indeed what its title claims, "A Handbook of Reference of the Medical Sciences."

SAUNDERS' AMERICAN YEAR-BOOK.

The American Year-Book of Medicine and Surgery for 1903. A yearly Digest of Scientific Progress and Authoritative Opinions 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, 700 pages, fully illustrated; Volume II, *General Surgery*, Octavo, 670 pages, fully illustrated. Philadelphia, New York, London: W. B. SAUNDERS & Co., 1903. Per volume: Cloth, \$3.00 net; Half Morocco, \$3.75 net. Toronto, J. A. Carveth.

We do not know of any similar publication, either American or foreign, that can complete in any way with this excellent Year-Book, published by W. B. Saunders & Company. It is not an indiscriminate collection of extracts clipped from any and every journal; the matter is carefully selected, edited, and in numerous cases commented upon by the eminent authorities whom Dr. Gould has enlisted as his assistants. Every new theory and scientific discovery worthy of the consideration of the profession has found a place in this unusually complete Year-Book; and the names of the several editors are sufficient guarantee of a proper discrimination. The work comes to us in the same dress as last year—in two volumes. Volume I contains *General Medicine*,

and Volume II *General Surgery*, the volumes being sold separately if desired. As usual the illustrative feature is well taken care of, there being eleven full-page inserts, besides many excellent text-cuts. We strongly recommend Saunders' American Year-Book. These volumes may be consulted with every feeling of confidence. They are great favorites with us.

PROGRESSIVE MEDICINE.

A quarterly digest of advances, discoveries, and improvements in the Medical and Surgical Sciences, edited by Hobart Amory, Hare, M.D., assisted by H. R. M. Loundis, M.D., vol. 1, March, 1903. Surgery of Head, neck and chest; Infectious Diseases, including Acute Rheumatism, Croupous Pneumonia, and Influenza; Diseases of Children; Pathology; Laryngology and Rhinology; Ology. Lea Brothers & Co., Philadelphia and New York, 1903, Price \$2.50.

The contributors to this volume are Floyd M. Crandall, Charles H. Frazier, Ludvig Hektoen, James B. Herrick, Robert L. Randolph, and A. Logan Turner. These quarterly volumes require no introduction to medical men. They are well known for two reasons: They have been published regularly for many years, and their excellence is universally admitted. The present volume is equal to any of its predecessors. These volumes embody, in a permanent form, the best that has appeared during the quarter.

A TEXT-BOOK OF MATERIA MEDICA, THERAPEUTICS, AND PHARMACOLOGY.

FOURTH EDITION, THOROUGHLY REVISED.

By George F. Butler, Ph.G., M.D., Professor of Materia Medica and Therapeutics in the College of Physicians and Surgeons, Chicago, Medical Department of the University of Illinois, etc. Fourth Edition, Thoroughly Revised. Handsome Octavo volume of 896 pages, Illustrated. Philadelphia and London: W. B. Saunders & Co., 1902. Cloth, \$4.00 net; Sheep or half Morocco, \$5.00 net. Toronto: J. A. Carveth & Co.

THE new edition of this commendable work is offered to the profession after a careful and complete revision. The pharmacology and therapeutics of each drug have been thoroughly revised, incorporating all the recent advances made in pharmacodynamics.

In view of a larger experience, resulting in more definite conclusions, numerous modifications have been made in the expressions of opinion regarding the utility of certain drugs, notably the newer synthetics. The chapters on Organotherapy, Serum-therapy, and cognate subjects have been enlarged and carefully revised.

But perhaps the most important addition is the chapter on the newer theories of electrolytic dissociation and its relation to the topic of pharma-

cotherapy, and the relevant discussion added of the simpler relations of chemical structure to drug-action. The profession will undoubtedly greet most cordially this new fourth edition of a work supplying the student of medicine with a clear, concise, and practical text-book, adapted for permanent reference no less than for the requirements of the class-room.

This work is now no stranger to the Medical profession, having been in its hands for six years. The arrangement of the work is a convenient one for reference. There is a very complete index to both the drugs and the diseases for which they may be administered. The work is excellently got up.

A MANUAL OF DISSECTIONS AND PRACTICAL ANATOMY FOUNDED ON GRAY AND GERRISH.

By William T. Eckley, M.D., Professor of Anatomy in the Medical and Dental Departments of the University of Illinois, the Chicago School of Anatomy and Physiology, and the West Side Training School for Nurses; and Corinne B. Eckley, Demonstrator of Anatomy in the Medical and Dental Departments of the University of Chicago, etc. Illustrated with 220 engravings, 116 of which are colored. Lea Bros. & Co., Philadelphia and New York, 1903. Price, \$3.50.

We have here an octavo volume of over 400 pages. It is printed on excellent paper, and with clear type. The illustrations, both plain and colored, are numerous, and merit high praise. The work will prove of special service to those who wish a guide to dissecting or a thoroughly reliable work on practical anatomy for every day reference. We can recommend this book with much confidence.

A TREATISE ON DISEASES OF THE EYE, NOSE, THROAT AND EAR, FOR STUDENTS AND PRACTITIONERS.

By Various Authors. Edited by William Campbell Posey, A.B., M.D., Professor of Ophthalmology in the Philadelphia Polychine; Surgeon to the Wills Eye Hospital; Ophthalmic Surgeon to the Howard and Epileptic Hospitals; Member of the American Ophthalmological Society; and Jonathan Wright, M.D., Attending Laryngologist to the King's County Hospital; Laryngologist to the Brooklyn Eye and Ear Hospital; Surgeon to the Manhattan Eye and Ear Hospital; and Pathologist to the same. Illustrated with 650 Engravings and 35 Plates in Colors and Monochrome. Lea Brothers & Co., Philadelphia and New York, 1903. Price, cloth, \$7.00 net.

To say that this is a splendidly got up work is scant praise. It is handsomely bound, the paper is of the finest quality, the illustrations are numerous and beautiful, and the typography of the very best. The volume is a large octavo one of 1238 pages. The work is an encyclopædia on the diseases of the Eye, Ear, Nose and Throat. It is pre-

eminently a work for the general practitioner, as these specialties are fully covered in one volume. There are no less than 27 contributors to the volume. These number some of the very best specialists in the United States, Canada, and Britain. We have much pleasure in mentioning that Dr. Reeve, of Toronto, contributes the section on the diseases of the Orbit, Lachrymal Apparatus, and Lids. It is needless to say that the section is well done. While we mention this section specially we do not underestimate the excellence of the other sections. Taken all in all, it is a work of the highest merit.

THE TREATMENT OF NEURASTHENIA.

By A. Proust, Professor à la Faculté de Médecine de Paris; and Gilbert Ballet, Professor Agrégé à la Faculté de Médecine de Paris; translated by Peter Campbell Smith, L.R.C.P., L.R.C.S., Edin. London: Henry Kimpton, 13 Furnival Street, Holborn, E.C. 1902. Price 5 shillings, net.

In this pretty little book of 200 pages, we have a very able exposition of the disease known as neurasthenia. The author's are so conversant with their subject that their work is very complete and up-to-date. Neurasthenia is a difficult subject to discuss satisfactorily; and one turns with much eagerness to ascertain the opinions of the two authors who have given the matter their careful and prolonged study. They treat the disease under the headings of its nature, its causes, its symptoms and forms, its etiology, its prophylaxis, its treatment in general and of some special forms. The cardinal symptoms of the disease, such as *headache* of a special character, *insomnia*, *muscular asthenia*, *richalgia*, a peculiar *mental state*, and *dyspepsia*, are attributed to a special state of irritability and weakness of the nerve elements. The remarks on causation and treatment are particularly good. After a careful study of the book, we can speak in the highest terms of its contents. Dr. Smith deserves praise for the excellency of his translation.

BIOGRAPHIC CLINICS, THE ORIGIN OF THE ILL HEALTH OF DEQUINCY, CARLYLE, DARWIN, HUXLEY, AND BROWNING.

By George M. Gould, M.D., Editor of American Medicine. Author of an Illustrated Dictionary of Medicine, Biology, Borderland Studies, The Meaning and Method of Life, etc. Philadelphia: P. Blakiston's Sons & Co. 1012 Walnut St. 1903. Price, \$1.00, net.

DR. GOULD has written a classic. This little work will take its place with Hippocrates' Aphorisms, Laennec's Diagnosis, Hunter's Researches, William's Principles of Medicine, Hilton's Rest and Pain, and Balfour's

Senile Heart. Dr. Gould took up his brief to argue a case and he argued it so well that he has convinced both judge and jury of the soundness of his views. It is a genuine pleasure to read a book so fresh and original. One can sit up at night to do it without a thought of reluctance. He shows by quotations from these writers, and from the writings of their friends, that the cause of the many years of ill health of DeQuincy, Carlyle, Darwin, Huxley, and Browning was due to eyestrain, mainly astigmatism. The book concludes with chapters on biliousness and headache, some neglected points in physiology of vision, the discovery of astigmatism and eyestrain, and responsibilities of the profession. The work is written in Dr. Gould's inimitable style. We can very cordially recommend the work. No one will ever be sorry for having read this book.

TRANSACTIONS OF THE AMERICAN DERMATOLOGICAL ASSOCIATION.

At its Twenty-fifth Annual meeting, held in Chicago, Ill., May 30th and 31st, and June 1st, 1901. Official Report of the Proceedings by Frank Hugh Montgomery, M.D., Secretary. New York, Rooney & Otlen Printing Co., 1902.

THIS is a very interesting volume. It contains a number of papers of an interesting and instructive character. The papers throughout are of a practical nature, and from persons of wide experience in dermatological subjects. The work is well illustrated. To those who are interested in dermatology there is much valuable matter in the book. The secretary deserves credit for the excellent manner in which he has got out these transactions.

OUTLINES OF GYNAECOLOGICAL PATHOLOGY AND MORBID ANATOMY.

By C. Hubert Roberts, M. D., London, F. R. C. S., Eng., M. R. C. P. Physician to the Samaritan Free Hospital for Women; Physician to the Out Patients, Queen Charlotte's Lying-in Hospital; late Demonstrator of Midwifery and Diseases of Women, St. Bartholomew's Hospital. With 151 illustrations, mostly original. London: J. and A. Churchill, 7 Great Marlborough St., 1901. Price 2s.

THIS is an octavo volume of 331 pages of printed matter; but as there are a 151 full page plates, the work is really one of nearly 650 pages. The mechanical make up of the book is very fine. All the illustrations are on the best of quoted paper. The illustrations have been executed with much artistic skill. The rest of the paper, the press work, and the binding are all that could be desired, and in keeping with what one would expect from such a reliable publishing house as the Messrs. Churchill.

The work does not encroach upon the domain of treatment. It is a work on the pathology of the diseases the gynaecologist has to handle;

and, for that matter, also the general practitioner who has to take charge of the diseases peculiar to women. The object of the author is to lay a firm foundation for the study and treatment of gynaecological diseases. This is a laudable ambition ; and one which, a thorough examination of the volume fully justifies one in saying, has been well carried out.

The chapters of the book are the diseases of the vulva, of the vagina, pelvic inflammation, gonorrhoea in relation to pelvic inflammation, menstruation and its disorders, catarrh of the cervix and endometritis, uterine displacements, imperfect development and malformation of the uterus, sterility, diseases of the Fallopian tubes, ectopic gestation, uterine fibroids, uterine polypi, diseases of the ovaries, cancer of the uterus, diseases of the bladder, diseases of the urethra, of the ureters, micro-organisms in relation to diseases of women. It will be seen by the above arrangement of subjects that the ground is very thoroughly covered.

Throughout the work, much attention is paid to the etiology of these diseases and malformations. This gives a clearer understanding of those portions, more particularly devoted to pathological discussions. In the study of the etiology and progress of these diseases, the closest of attention is paid to the anatomical relationships, as influencing these conditions. On all points, while the author is conservative in his views, he is up-to-date, and definite in the enunciation of his own opinions. Micro-organisms are shown to play an important part in the causation of pelvic inflammations. It is stated that the gonococcus is the only micro-organism of importance found in the urethra. The organisms most frequently found in the vagina are the gonococci, streptococci, and staphylococci, the tubercle bacillus being rare. In the endometrium the pathogenic organisms are often mixed. Endometritis due to organisms is caused usually by some of the following, gonorrhoeal, tubercular, puerperal (septic), saprophytic (as senile endometritis), diphtheritic (the streptococcic), syphilitic, and fungi and amœbae. In the fallopian tubes, though the tubercle bacillus, the streptococcus and staphylococcus are found, by far the most frequent organism present in purulent salpingitis, is the gonococcus. With regard to the infection of the broad ligament and pelvic peritoneum, the streptococci, staphylococci, and tubercle bacilli are mainly responsible. With regard to the parasitic origin of cancer more proofs must be obtained that these bodies are parasites, and that they are the cause of the new growth.

It would be quite impossible to attempt to review the work in detail, as every chapter would bear the closest scrutiny. Enough has been said to show that it is a work of more than ordinary merit ; and, as such, can be confidently recommended to our readers.

DIET AND FOOD CONSIDERED IN RELATION TO STRENGTH AND POWER OF ENDURANCE, TRAINING AND ATHLETICS.

By Alexander Haig, M. A., M. D., F. R. C. P., Physician to the Metropolitan Hospital, and the Royal Hospital for Children and Women. Fourth edition with seven illustrations. Philadelphia: P. Blakistons Son & Co., 1012 Walnut street; Toronto: Chandler & Massey. 1902. Price, \$1.00.

DR. HAIG is widely known through his book on "uric acid as a factor in the causation of disease." This little volume on diet and food has now reached its fourth edition in the short space of four years. The author points out the relation between urea and albumen in the production of force. The urea excreted by an active adult in 24 hours is $3\frac{1}{2}$ grains to the pound of body weight. It requires 3 grains of albumen to produce these. Taking the weight of an active adult at 150 lbs. the amount of urea per day would be $150 \times 3\frac{1}{2}$, or 525 grains, and this again multiplied by 3 will give 1,575, or the grains of albumen required daily by such a person. Those living a sedentary life will eliminate about 3 grains of urea per pound old people about 2 grains, while children will produce from 8 to 10 grains of urea per pound daily. This will give the keynote to the amount of albumen required as food at the different ages and under different conditions. If sufficient albumen be not supplied, rapid emaciation results. It would thus appear that an active adult requires 10 grains of albumen per pound of body weight daily, and that 9 grains would be the least that he could do with safely. If the amount of albumen in the diet falls below 9 grains per pound of body weight per day the person becomes weak and is readily fatigued. This tends to destroy his appetite and weaken him still further.

The author then goes on to show that fatigue is due to a general dearth of albumen in the blood, or to a condition in the blood that leads to its defective circulation through the tissues. If there be sufficient albumen in the food and the digestion is good and yet the man fatigues readily the case is too much uric acid in the blood. This excess of uric acid in the blood prevents the albumens in its reaching the tissues, and hence the fatigue. In bringing about the maximum state of endurance, the author urges a diet consisting almost entirely of vegetable products, with the minimum of animal matter.

The book is a most interesting and instructive one. Dr. Haig does not make a book by reading other men's books, but by first making original investigations. There is therefore the flavor of originality about his writings that lend a peculiar pleasure to their perusal. We can advise the study of this book with much confidence.